



MICHIGAN AGRICULTURAL COLLEGE.

The Experimental Garden.

By this is meant that part of the garden in which numerous varieties of any vegetable are planted under like circumstances and cultivated in the same manner, that the different kinds may thus be compared and the best selected for general use. By this means professors and students, visitors and the public may acquire valuable information without each one being obliged to repeat the same thing for himself.

Onions.—There are eight varieties. The large yellow Danvers, as it is commonly called, is liked best on account of color. The red Wethersfield yields best. The soil is gravelly, deeply subsoiled, and thoroughly drained, plenty of rich manure plowed in, and leached ashes on the surface in spring. They yield at the rate of six hundred and twenty bushels to the acre. Such culture will produce large crops most certainly, be the season wet or dry.

Tomatoes.—They are raising forty-one varieties this year, treated alike as far as possible. Several seeds are planted in a box, and all taken out but the best plant, which is carefully transplanted at the proper time. They are not trimmed at all. The date and weight of the first mature fruit is recorded, also the same with reference to all the later fruit during the season. They have originated several new varieties at this college. Number one, as they call it, is liked better than any other which they have ever raised. They wish to give it a thorough trial before sending it out into the world. It is most like early smooth Red. It is one of the earliest and best bearers; vine medium, compact, quality of fruit equal to any which bears well.

Beets.—They have ten varieties. The best early is dark red Egyptian; best winter is new rough skinned or bark skinned. The color of the latter is not attractive on the outside, but the inside is dark red, and quality excellent, remarkably brittle. For market, likely the best is Long Smooth Blood.

Potatoes.—Eighty-one varieties. The early Shaw is the earliest variety that is reliable. Early Goodrich has sometimes rotted a little, and does not always yield well. The early Rose is the first to produce potatoes of good size suitable for market, though the quality is inferior to early Shaw. They are trying a wild species from Mexico, which now does not seem to be of any value. *Solanum radi-cans* is its name. The vines are "bug proof." The striped Colorado beetle cannot live upon them. They are trying to cross it with some valuable kinds. Last year they got one ball, but for some reason the seeds were lost or did not grow. They are also raising some slender little things called "potatoes" from seeds brought from Quito, where they were collected wild. The tubers in the native state are large as robin's eggs. See what culture and human experiments have done in a few years.

Peas.—Ten or twelve varieties. Best early Terry & Co's Extra early (from Detroit); late the best are "Little Gem" and "Champion of England."

Sweet Corn.—Ten or twelve varieties. Farmer's Club the tenderest; the Mexican, sweetest.

Lettuce.—Fifteen varieties. For early, the best is Early Curled Simpson; for late, Persian Curled Crumpled Leaf. Some others grow larger and might suit better for market but they are tougher and coarser, as the Large India or Giant White Coss.

Squashes.—Nine varieties. For fall use, Boston Marrow and American Turban; for winter, Hubbard; for late winter, Canada Crook Neck as it keeps well.

Celery.—Six varieties are raised. For early, Early Wyman; for late, Seymour's Superb White.

Cabbages.—They have thirty-two varieties. For early, Early Wyman is recommended; for late, the Stone Mason is of good quality, sure to head, and is easily managed.

Beans.—Thirty-one varieties of string beans. For early string select Bagnolet. For shelling early, Royal Dwarf and German Wax; Shelling later, Winter Marrow-fat and Red Eye China. Ten to twelve varieties of pole beans are raised, of which the best are Dutch Case Knife or Giant Wax Poddled.

There are, on the grounds, salsify, parsnips, carrots, radishes, currants, gooseberries, strawberries, blackberries, raspberries, melons, cucumbers, &c., but with most of these no experiments have yet been made. The same is true of grapes, of which they have only six varieties; plums, peaches; cherries, forty varieties of apples and seventy of pears. The birds eat all the cherries.

Work of the Students.—The reader can hardly imagine the care that is necessary to perform accurately so many experiments from seeding to harvest. All of these so far mentioned, are planned and looked after by Professor Tracy who has entire charge of the green house, flower gardens, lawns, vegetable gardens, small fruits and orchards, besides teaching one or two classes a day throughout the college year. Add to this the perplexity of doing most of the work in the afternoon by students many of whom must be instructed in the proper manner of handling tools and care of plants, and you have a faint idea of the importance of his position. He is obliged to study the disposition of his help. Some must work alone if they accomplish anything; others will work about as well in small companies. They are allowed fifteen minutes to get to work. At the proper time they resort to the toolhouse, get orders from the Professor as to what labor is to be done, select their tools, all of which are charged to them by a student who has care of the shop. As they return each day, they have credit for tools put in their

places again in good order. If tools are injured through carelessness, a small charge is made for repairs. For labor they receive from one to twelve cents an hour. As a general rule it is well done, those receiving least for labor are overpaid, while those who receive most are underpaid. The price a student receives is fixed by some of the faculty according to the kind of labor performed and the skill and experience of the student. There is a very striking difference between the members of the different classes who have been here from the beginning of the course. This is the testimony of all the faculty, that the advanced classes do the same amount of work very much easier and better and are much more skillful in planning and directing. He learns to use head work and save muscle.

Tools and Order.—They have in this department spades, shovels, spading forks, wheel hoes, shuffle hoes, ditch hoes, bayonet hoes, potato hooks, garden rakes, grub hoes, axes, tree scrapers, pruning knives, pruning shears, pruning saw, grass hooks, ground trowels, weedeers, scissors, baskets, garden rods, measuring sticks, water cans, manure forks, ditching spades, hay forks, hay rakes, complete set of carpenter tools, wheel barrows, garden roller, Comstock's weeder, (the best hand weeder out), seed drills, lawn mower, scythes, tools for marking rows, seed drills, harrows, cultivators, plows, wagons, carts, barn, shed, and three horses with a permanent hired man to care for and drive them. Every tool is numbered and is kept on a numbered peg or place for it. Perfect order is no where more necessary than with the farmer. He performs such a variety of work that he must have a great variety of tools; timber in form of fences and buildings are constantly going to decay, so that if not early and systematically trained he will quite likely become careless and slovenly.

Old Prof.—Why, so perfect is the system here that it ever effects the actions of domestic animals. An old horse now on the place has been here ten or twelve years honorably pursuing his course. We presume he entered as preparatory or Freshman, in due time became a senior, and, although we have not been shown his diploma, graduated with high honors. At least, we infer that the honors were high, for he has been retained in connection with the college ever since that time. He now goes by the name of Prof. or Old Prof. Whether from love of flowers, the lawn, or preference for work in this department, or other reasons influenced him; whether from choice or not, he is now a faithful assistant in the department of horticulture. He is a shrewd old fellow. When driven to town, he appears stiff and feeble and unable to proceed with much velocity. After resting a few hours and turned towards home, he prances like a colt, occasionally in a harmless way elevating his heels, and showing them to the driver. When the bell rings he always starts for the barn. If tied or held he does not get far, but often shows great uneasiness and displeasure. If not secured he goes first to the shed to leave the stone boat or the cart. When attached to the latter, he turns around and backs up, the hub hits a post or the side of the shed; he looks around to see what is the matter, makes his calculations anew, turns back his ears, goes a little forward to right or left, and spitefully shoves the cart backwards as far as it will go into its proper place. At one time he got down some way about a horse power, so the driver thought from his actions that he was considerably injured—too much for use any more that day. He stripped off the harness, not sure even that Prof. could get to the barn alone, when, to the great surprise of all present, he cocked up his ears, rolled his eyes, got up, elevated his heels high in the air, and started on the run for his favorite rest.

W. J. B.

USEFUL BIRDS.

It would be much easier to give a list of useless birds, than of useful ones, as the list is shorter and sooner told. In fact, it would be difficult to find any bird that is destitute of all good qualities.

The birds might properly be classed as fruits are, into "good—better—best." Therefore, I shall class them, naming the most useful first, the good next, and the least useful last.

First, then I place that diminutive little winter warbler, the wren, whose brown coat gives a cheerful aspect to the dreary snow of winter. His song is always cheerful; has music in every note, and he is almost as much domesticated as the chicken, building in any old box, ground or hole about your habitation that he can get into. A pair of them are now nesting in an old oyster can over my cellar door, and a pair in a gourd hanging in a bush near my garden gate. I have found them very fond of moth miller, and in the morning and at evening they visit all my bee hives, searching every part of each hive, on the outside, for the moth miller. All kinds of winged insects are their special delight, and I have seen them swallow them of a size nearly as large as their wings. However, they are not confined to the flying tribes, but to creepers as well. Besides this, I have never seen a wren eat fruit of any kind. In this same class I would place the common sparrow—we have none of the English variety yet—and the bluebird. They are gentle and good feeders of insects, and do no damage to fruit. These three birds alone fill up my first class.

In the class designated as "good," I name the cat bird, robin, bee martin and lark. The first and second, although they delight to feed upon your berries and cherries, are a source of pleasure to all who love bird music; and they feed their young during fruiting season upon thousands of injurious insects; and so far as my observation extends, do far more good than harm. For more than half of the year they feed continually upon insects injurious to vegetation, and this entitles them to what food they can gather from their fruit plantations. I do not believe the bee martin had a proper name, as it originated from a foolish belief that they eat bees;

when in point of fact they go about hives for the same purpose that his little co-laborer the wren does, to eat the enemies of the bees, the moths and millers. He deserves a better name, and I propose to call him the "bee's martin." The meadow lark, although he is a shy bird and does not come about our habitations, renders valuable services to the farmer and fruit grower. He does not molest our grain fields or orchards, and feeds principally on waste grain, and grubs and worms of all kind.

In the third and last class I name the blue jay, blackbird and red-winged woodpecker; and of these the blackbird is the least offensive, notwithstanding the volumes of abuse he receives. As a destroyer of the corn cut worm he has no rival, and if he picks up some of your corn, he also picks up many of the worms, that would not only eat the corn the birds take but, much more besides. The woodpecker keeps himself aloof from your premises until fruit ripens; but, out in the fields and woods, he destroys thousands of injurious insects that would find their way to your gardens and orchards. The jay, I think, is the very meanest and most useless of all we have named. Not content with eating your best fruits, he also makes a "square meal" oftentimes on the nests of young birds—the eggs of sparrows being their chief delight.

However, I would not disturb the jays, on "general principles," as I think all birds do more good than harm; and although the jay is somewhat of a "cannibal," I should be disposed to raise a rumble with any one who would injure them upon my grounds. I am a friend to the birds because I believe they are my friends and the friends of man generally; and I, for one, shall ever defend them against the assaults of man who may try to injure them either with lead or paper bullets.

STANFORD, KY.

AGRICULTURAL ITEMS.

WHEAT TURNING TO CHESS.—A Texas correspondent of the New York Tribune holds that wheat does turn to chess, and explains how it is accomplished. He says: The roots of the wheat plant are of two kinds, seminal and coronal. The seminal or tap-root which proceeds from the grain supplies the elements of fructification, or gives the grain character to the plant; the coronal or lateral roots draw from the earth the elements contributing to form the body or straw of the plant. When at a certain stage of the growth of the wheat plant the seminal or tap-root is broken or injured by the Hessian fly, pasturing, freezing, excessive rain, or the passage of a heavy wagon, the character of the plant is changed; the seminal supply for its proper fructification is incomplete or cut off, and the product is a vegetable abortion, i. e., chess. The tap or seminal root, from the manner of its growth, can be and is frequently injured or destroyed without seriously injuring the lateral or coronal roots. In pasturing, the strain on the tap-root is direct, from which it is frequently injured or broken, while the coronal or lateral roots, in consequence of the strain being indirect, yield sufficiently to save them injury. The upheaval of the soil from freezing has, precisely the same effect on the seminal root, and for the same reason, while the coronal roots are comparatively uninjured. Sometimes, however, freezing and thawing destroy the coronal as well as the seminal roots; this, of course, involves a total loss of the plant, and is probably the most frequent cause of the failure of the wheat crop in the middle and western states.

THE COTTON CROP.—The agricultural report for the month says the increase acreage of cotton as indicated by the return of the country correspondents, averages 12 per cent, and aggregates nearly a million acres. It is almost literally true that the people are devoting all their energy to the culture of cotton. The condition of the crop is so far favorable for a good yield. Fully an average in Georgia, Alabama, Louisiana and Arkansas, and slightly below the average in the Carolinas, Florida, Mississippi, Texas and Tennessee. North Carolina had a surplus of rain in June, which in places has occasioned injury. Heavy rains in Georgia have done some damage. In some counties, fields have been badly infested with lice, which threaten failure in some instances. In Alabama the crop is generally flourishing, though local reports are quite variable. In the Red river region of Texas cotton is generally flourishing, with some injury from lice. Neither the caterpillar nor the boll worm has appeared, and there are few drawbacks which a few weeks' favorable weather cannot repair.

AMERICAN HAY.—Alex. S. Macrae, produce broker of Liverpool, has written the New York Journal of Commerce as follows:—"The continued drought in Great Britain, and all along the northern continent has resulted in our grass lands being everywhere thoroughly scorched up, and our highest agricultural authority, I. I. Mechi, M.P., writes 'that this season will be very unfavorable to light-land farmers, and that the loss of meal and milk-making substances, in the first cutting, will be great and injurious to the pastoral farmers.' Two years ago, when we had a hay famine, we received supplies from those very continental districts now suffering from a dearth themselves, and we shall be compelled, consequently, to turn to the United States to fill the gap becoming so serious on this side. The sooner our consumers, therefore, look across the Atlantic the better, and the earlier the producers on the other side see to this market the more remunerative will be their results. English hay is selling at 27 sterling, equal to \$33.60, gold per ton, but the Americans can press, bale and deliver here at less money than this. It is not at all unlikely, then, that between this and our next year's supply, thousands of bales of United States hay will be every where circulated among the cattle stalls of Europe."

YIELD OF OATS.—Prof. Miles of the Michigan Agricultural College, tested last year

eight varieties of oats with a view of ascertaining their relative productiveness. The soil on which they were sown was a sandy loam. The two preceding crops had been corn. The several lots were harvested as near as possible at the same stage of ripening. The following are the varieties of oats sown and their respective yield per acre: Excelsior, 60.6; Somerset, 54.2; White Scho-nem, 62.3; Black Swedish, 96.2; Prince Edward's Island, 92.2; Brook's, 68.6; Norway, 50.3; Surprise, 36.3.

MORTALITY OF CATTLE TAKEN SOUTH.—Robert W. Scott, of Kentucky, writes the South Land in relation to the mortality of fine stock taken south. He says: The blooded cattle which are brought from England to Kentucky have to experience acclimation, and many of them die in the process; and I have been informed that cattle taken from Mississippi and Louisiana to Cuba and Mexico have to pass through the same ordeal. To acclimation, therefore, I ascribe largely the fatality to neat cattle in southern states, when taken from higher latitudes. As the result of my investigations, I have not been able to trace it to any particular water, or herbage, or locality (except in the immediate vicinity of the Gulf of Mexico) the affection being too general for any of these causes. The mortality generally occurs in warm weather, and is greatest among the oldest stock taken south, and among those which are taken there late in spring and summer, while young calves taken in the fall and winter experience but little inconvenience.

A FEMALE SUPERINTENDENT.—The Whiteside Chronicle says the officers of the County Fair did a sensible thing in the appointment of a woman as superintendent of Floral Hall. Nearly all of the articles that are usually on exhibition in that department are the products of woman's skill and industry, or come directly in the line of her tastes, and who so fit to receive, handle and arrange them as she? Mrs. Electa Smith is the new superintendent, and she is well qualified for the position by years of experience on the committees in that hall.



CLEAN MILK.

A correspondent of the Congressionalist communicates to that paper the following plan for keeping milk perfectly clean: Having recently commenced selling milk, I find it requires much care to keep the cows perfectly clean, and have adopted some new measures which may be of some interest to other milkers. In the first place the floor on which the cows stand is raised so that water will run back into the trench which is about six inches lower than the floor. Before I begin to milk I take a hose and clean this floor. I then take a bucket large enough to take hold a cow's bag, fill it with cold water, with which I wash their bags thoroughly, which not only makes them clean, but prevents their teats from becoming sore.

Sawdust is then spread on the floor, and as I have some cows which are inclined to brush my face when milking, I take a cord, pass it over a pulley which is fastened overhead behind the cows; attach a weight to one end of the cord, slip noose the other end around the end of the cow's tail, which prevents her from brushing dirt into the milk. I then brush the cows and begin to milk where I began to wash. I milk into a wooden pail, turn it into a tin strainer pail, and then strain it into a tin can through a cloth strainer which is attached to the top of the can by a wire, and we hear no complaint of dirty milk.

COLORED CHEESE.

Among the advantages of not coloring cheese, an English authority thus states:

1. An uncolored cheese will ripen sooner and be fit for use.
2. No intelligent dairy farmer, either of Cheshire or Somersetshire, has on his table colored cheese. They always prefer one uncolored, as richer and higher in flavor.
3. It is curious to remark no country export Great Britain colors cheese. The only uncolored cheese is the Stilton, which is one of the best flavored and richest cheeses. We find no colored cheeses in Holland; none in Switzerland, where Gruyere is made; none in Lombardy, the country of the Parmesan; nor in France, which produces the delicious Rockfort cheese. It greatly behoves our dairy farmers to do all they can to improve their Cheddar, and to prevent it being lowered in value in the market by the superiority of the American. And as it is ascertained that coloring cheese affects its quality and richness, surely this ought to be a chief reason to abandon it, and bring into the market the best made Cheddar uncolored, to cope with that which comes from America.

HOW TO TREAT KICKING COWS.—A friend told us the other day of a method of treatment that he had found successful in curing cows of the habit of kicking while being milked. It is as follows: As the cow stands in the stanchion, he puts a bull-ring in her nose, throws the rope attached to the ring over a beam or girt above the head of the cow, and drawing her head as high as possible without raising her feet from the floor, makes fast the end of the rope. The cow cannot kick while standing in this strained position, and the milking process is then conducted gently and rapidly. As soon as she learns that she has nothing to fear from the ring—and this knowledge she is said to acquire rapidly—she is cured of her disagreeable habit. A young heifer may often be thus cured by a single application.

WHO SHOULD MILK AND HOW.—A subscriber of Beaver Dam, Wis., says: I saw in a recent issue of your paper an article about milking cows, and milking stools; it spoke of milking the front teats then the back ones, I milk corner ways, for the reason that the

cow cannot kick so readily, and that there is more room for the hand. About stools, I prefer one legged stools, for the reason that boys are apt to linger in milking; and if they have three legged stools, they can rest at their ease, while if they have one legged stool they will hurry and get done which is much better for the cow. There most always is quietness in my cow yard. I prefer women for milking to men or boys.

The butter in England is chiefly eaten fresh, within a week, or at the farthest two weeks, of its being made, and very little salt is used, not a fourth of what is mixed with it in America. When it is patted down it is done in the same way as in this country, but it is then called salt butter, and is sold at little more than hog's lard sells for.



TOADS AND BEES.

Toads are very useful animals to the farmer and gardener, and it is a pity that they are not equally so to the bee-keeper. The insectivorous propensities that incline them to swallow beetles, moths and caterpillars, unfortunately leads them to eat bees; and not the big fat drones alone—those fussy old fellows, that, like some bipedal animals of a higher order, make a great din and do little—but the industrious little workers that come home laden with honey or pollen, are taken in and no question asked.

His toadship sits quite still, and whenever a poor little bee comes within reach of his long flexible tongue, there is a quick snap, and presto, the bee is gone. Not content with catching bees on clover heads and among the flowers and grass, toady becomes impertinent; he marches up to the bee hive, and woe betide the poor wearied bee that drops short of the alighted board, when he is by.

We once had two hives placed closed to the ground, and with alighting boards that were easily accessible to the toad, if he chose to jump a little. One morning there were two middle ones seated on one of the alighting boards, like sentries, on each side of the entrance, and they exacted toll from every bee that attempted to enter, and the toll was like that levied by the old robber barons of the Rhine; it was all they had, and themselves too. The other hive had a great, fat, overgrown old fellow, playing the part of King Crane. The way he took down a bee, showed that he was an adept at the business. There he sat, squatted on the board, with head close to the entrance, and his big goggle eyes sparkling. Miss bee alights; the great mouth is opened, the tongue thrust out, and as quickly drawn back, and with it the gatherer of honey. Some minutes were devoted to the study of this trait in the toad's character, and then they found themselves taking an involuntary flight over a fence. The hives were raised after that, and toads were less encouraged to stay in that vicinity.—Ohio Farmer.

HOW TO JUDGE THE QUALITY OF HONEY.

This is an interesting question, and one, we believe, not very generally understood. Honey, of course, is judged mainly by its color; but owing to the fact that there is often a very great difference in the color of the comb, and the additional fact that bees often put white honey in dark combs, and vice versa, it is manifest that very great care must be exercised in taking into account both the comb and the honey. The proper way to judge honey is to strain it into glass jars. You can then readily judge of its color. But then there are at least two other qualities to be considered—thickness and flavor. In judging of its thickness, it is necessary for the judge to know whether that quality was imparted in the first instance, or whether it is due to the action of light; for light (the chemical rays) acts upon honey very much as it does upon the iodide of silver, on the photographer's excited collodion plate.

Take two bottles of honey from the same comb, and seal them up perfectly tight and keep them both at the same temperature—one one in the sunlight and the other in a dark room, and the former will gradually grow thick, and finally assume a semi-crystalline shape, while the other will retain its original fluidity. This is one reason why bees always work in the dark, and why honey should always be kept in the dark or in opaque vessels.

It would be very improper to award a first prize to a jar of honey that had become thickened by the action of light, because it thereby becomes deteriorated. Still, honey, to be superior, should not be very thin. Flavor is also a very important consideration, and must always be required. A good flavored dark honey may sometimes be superior to a white article which looks much better. The thickness and thinness of honey depends upon the source from which it is gathered, rather than upon the secretive action of the bee, whether we admit that the insect makes or simply gathers it.—Scientific Press.

A HORSE KILLED BY BEES.—The Cork, Ireland, Reporter says: "Mr. Hurst of Charlton, having occasion the other day to call on Mr. Duffield, in the same parish, tied his horse to a gate close to which stood a row of bee-hives. Being much teased by the flies the horse became restless, and in twisting about overturned one of the hives, when the swarm settled on his head. On seeing this Mr. Hurst slipped off the bridge, in hopes that when at liberty the exasperated insects would soon cease torturing the poor animal; but unfortunately in dashing off he overturned three more hives—the consequence was that the horse was literally covered with bees, which stung it to that degree that in its agony it rushed into a pond, where after rolling once or twice over, it crawled out and expired on the bank."

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1 Christ, 2 John, 3 Matthew, 4 Judas, 5 Andrew, 6 Simon, 7 James, the less, 8 Bartholomew, 9 Philip, 10 James, the elder, 11 Thaddeus, 12 Thomas, 13 Peter, 14 The Nativity, 15 Childhood, 16 Baptism, &c. 17 Sermon on the Mount, 18 Transfiguration, 19 Last Supper, 20 Crucifixion, 21 Resurrection, 22 Ascension, 23 24 Children praying, Also, the Lord's Prayer, in letters of gold, on design and beauty.

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