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AGRICULTURAL

GRAIN CROP OF MINNESOTA.

A tour of observation through the grain producing counties of Minnesota, by Mr. Pusey, commissioner of statistics, shows the condition of the grain crop in that state to be as follows:

The random, fitful and unequal distribution of the summer rain has produced great disparities in different parts of the state. As a general rule, the river counties, as they are called—that is to say, those adjacent to the Mississippi river — have enjoyed a better supply of rain than the interior counties traversed by the Milwaukee and St. Paul railroad, and through the Minnesota valley, where the July drought raged with fearful intensity. The crops in the former, therefore, will be up to the full average; while in the latter, that is to say, along and west of the Milwaukee and St. Paul road, through the Minnesota and Blue Earth valleys, the crops will be considerably below the average. North of the Minnesota river, however, in and west of the Big Woods country, especially the northwestern frontier counties, the scorching July drought was broken by timely rains, which were even abundant on the frontier, and the crops through this whole district will be generally a full average with some local exceptions.

But apart from inequalities produced by the capricious rain distribution, the crop is everywhere marked by very great local differences, resulting wholly from the manner in which the crop was put in. Wheat sown on fall plowing, especially on deep plowing, is generally a good crop, even in the drought-stricken districts, while that sown on spring plowing is thin and stunted, and this deterioration is aggravated by the shallow plowing which generally prevails.

Now it happened that last fall the farmers throughout the state, discouraged by the ruinously low price of wheat and hindered by the premature cold snap, very generally neglected their fall plowing, or did very much less of it than usual. But when the warm and early spring, with its improving prospects, came round, many of them attempted to make up for the lethargy of the fall by vigorous spring plowing, and it thus happened that a considerable part of the crop this year was sown on inferior tilth. The contrast in the results of the two modes of cultivation was never more strikingly exhibited than this year.

Of two patches of wheat in the same field, that sown in deep fall plowing is found to have a good, thick growth of straw, with a a well-filled head, yielding averages in the districts where the July drought prevailed of 18, 20, and in some cases 30 and 35 bushels per acre, as the conditions were more or less favorable and the cultivation more or less thorough, while that sown on shallow spring plowing is thin and short with a meagre head, and will hardly produce from six to eight bushels per acre, and the quality and quantity of the crop generally correspond accurately to the mode of cultivation. The general experience is that the July drought, intense as it was, had comparatively little effect on soil plowed in the fall, plowed deep and thoroughly cultivated, except to stunt the straw, while it blasted and all but destroyed that sown on the shallow spring plowing. The result of the harvest will, therefore, be an emphatic lesson in favor of thorough cultivation, as the best security against drought and other accidents of the weather. The area of the wheat crop is estimated to be about the same as last year, or a little over a million acres. In consequence of the low price of wheat last fall and winter farmers throughout the state have generally put less land in wheat, but even in the old counties this contraction of the wheat tillage has been to some extent compensated by the opening of new fields, while it has been more than compensated by the extension of wheat cultivation in the new settlements of the frontier counties. In consequence of the diminished yields, the average product will be somewhat less than last year, or probably 15,000,000 bushels, against 18,500,000 last year.

Mr. Pusey's conclusion is that the yield will be about 14 or 15 bushels per acre, or some 12 per cent. below the average, which in this state, for a series of years is 17 or 18 bushels per acre. But the diminished quantity is more than compensated for by the improved qualities of the crop. The berry is almost universally plump, white and heavy, and even where the stalk is lightest the grain is good. Mr. Pusey found no where any appearance of the slightest deterioration of the grain from rust, blight or other causes. Nearly the entire wheat crop of Minnesota this year will grade as No. 1; while last year various circumstances, and chief among them the hot, sultry weather while the wheat was heading out, and the heavy rains during and after harvest, greatly damaged the wheat, so that nearly the whole crop graded at Nos. 2 and 3. Last year harvest hands could only be obtained at from $3 to $6 per day, while this year they have been hired for $1.50 per day. These things being taken into consideration, the wheat crop of Minnesota cannot fail to be a much more paying crop to the farmers than was that produced last year.

Barley was nearly matured before the drought began to tell on vegetation, and as it is, therefore, an excellent crop, yielding more than the full average. Oats have suffered more than any other of the grains from the drought, and is nearly everywhere a thin, light and meagre crop. Last year the oat crop was luxuriant beyond precedent, yielding about 45 bushels to the acre, and weighed about 40 per cent. more per bushel than the legal standard. This year it will hardly produce more than 20 bushels to the acre, while the weight will fall very largely below the legal standard. Of corn a largely increased area was planted, and the season, on the whole, has been very favorable to its growth. A splendid crop is anticipated.

SANTA BARBARA COUNTY, CAL.

This county to a stranger looks very uninviting, because the amount of land under cultivation is comparatively small; and unimproved land looks, to a casual observer, as though it would not sprout white beans. But such is not the fact; where now are broad fields of waving corn, and large stacks of barley showing an abundant harvast, last year looked to me a barren waste; but even then the ground was covered with burr clover—dry, the seed of which enclosed in a prickly capsule, contains a rich oil. Cattle do not care much about them till they are dead ripe and scattered over the ground; then during the entire summer, and when to our eyes scarcely noticeable, it supplies a nourishing food to their lapping tongues. The first grass that comes after it commences to rain, is alfilerilla; it resembles the wild parsnip in appearance, and is considered superior to clover. Horses and cattle are extremely fond of it, and fatten on it very rapidly. It makes excellent hay, but is harder to gather than clover. When this grass shades the ground, the burr clover, spoken of above, commences to grow.

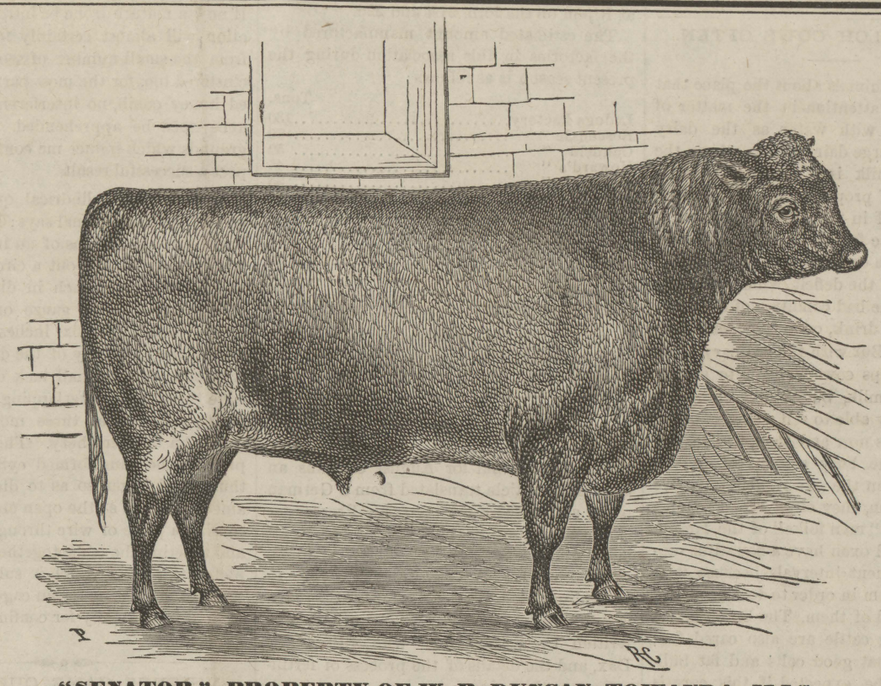
It may be supposed that a good rain in summer would be hailed as a blessing. Nothing would be more disastrous. Everything seems to be arranged in the order of Nature, to suit the long period of our drought. By reason of the manner of growth, all seeds hold firmly to the containing envelope, instead of shelling out as elsewhere. All grasses that dry standing, cure like hay, and carry their usual nutriment which they retain on the field till the first rain. The rain loosens the capsule, casts out the seed and rots the grass-hay beyond resuscitation—since it would not suffice to make new pasture from the seed with one or even several showers—nor could it, even then survive the arid sun, and the newly baked surface soil. All cattle would inevitably perish for the summer feed prepared expressly for the long dry season, would be entirely destroyed, leaving not a tuft behind.

Last winter rains were late and scanty, so much so that till February 11th and 12th, we feared a total drought; they proved sufficient, however, to make a fair crop on land well cultivated. Just now let me say a few words about the preparation of the ground here for the corn and root crop. As soon as the ground is sufficiently softened by the rain it is plowed and dragged or harrowed. then left till after the heavy rains are over, This gives the weed seeds a chance to germinate and grow. It is then plowed again and thoroughly pulverized, when it is ready for the crop; which often receives not a drop of rain, and many farmers, especially in Santa Clara Valley, do not cultivate it at all. It is considered better it many respects to cultivate it, however, especially if it rains. A farmer near San Buenaventura, harvested last year five thousand one hundred bushels of corn from fifty acres, which was not cultivated at all, and received no rain after planting. The crib containing this corn was measured, and the estimate made by a gentleman on a visit here from Bloomington, Ill., Mr. Barnard. The one important thing with us is to plow deep and thoroughly pulverize the soil for all crops, and it will retain the moisture to a remarkable degree. Now this may be an item to remember, even in Illinois; and in the light of the present drought, every farmer should remember it. Here we have no rain from May to October—certain—yet on the best land corn is raised every year that yields one hundred bushels to the acre. Beat that, if you can, Illinois.

From all that I can learn this county differs from the rest of California in regard to corn. Wheat, though the principal crop in most of the state, has received but little attention here, as it is not considered a good crop on account of the rust; but good judges say that if sown early in winter on table land it will do well. Oats are raised to a small extent, mostly for hay. Barley being considered a sure crop is raised principally, both for grain and hay. The crop this year is good, yielding from three to four and even six tons per acre; it is selling from $10 to $15 per ton, with a fair prospect of going higher. Not enough potatoes are raised in this valley to supply the home market, but are shipped here by the thousand bushels, mostly from Humboldt county. Sweet potatoes the same.

Pork is shipped here by the ton, either from the northern part of the State or the so-called Western States, and not enough fresh pork is in market to supply the daily demand. There is a wide field here for pork raisers, with the prospect of a good profit. If hogs have timber land for pasture, they fatten readily on acorns, or "mast," as the acorn crop is called. I feel as though I must speak of a few of the troubles that assail the farmers, as I do not wish to give the impression that this is wholly a paradise. Gophers abound almost every where, and their multiplication is enormous. They do little or no injury to the grain fields, but in orchards, gardens and shrubberies they are very destructive. Ingenious devices are numerous, and poison is extensively employed. Ground squirrels which live under ground, but feed on the surface, are also very destructive, but easier to get at than gophers. They are drowned in their holes during the heavy rains of winter, by the millions, and many farmers carry poison already prepared to put into every hole they see a squirrel enter. But for these grand slaughters their vast increase would make the country they infest almost uninhabitable. It is not my intention to make the good people of Illinois "discontented," but we would be glad to have some of those go-a-head, enterprising farmers, so liberally scattered over the west, come here; we need them very much.

SANTA BARBARA, CAL. MRS. E. G. KENNEY.



"SENATOR,"—PROPERTY OF W. R. DUNCAN, TOWANDA, ILLS.

This animal was one year old last January. He was bred by Thomas Crisp, Butler Abbey, England, and imported in September last by M. H. Cochrane, of Compton, Canada, who sold him, with Rosedale Duchess, to Mr. Duncan. He is considered by good judges to be one of the most promising young bulls ever imported.

AGRICULTURE IN HUNGARY.

We are now in the very heart of Hungary, in the midst of its richest farming and wine producing district. We left Pest, (where we had been stopping for some three weeks,) Sunday afternoon, arriving here Monday morning early. From Pest here—a distance of about 150 miles—it is a plain, unbroken except by occasional groves and ranges of gentle hills. We pased through many towns and villages, built in true old Hungarian style, the houses long, and low, thatched, and whitewashed, struggling along filthy streets and covering very much more ground than towns or villages in any other country where we have been. The country in surface is very much like that of Illinois. It is prairie, with climate, soil and "flora" like that of the central portions of our State, and is really well cultivated.

We saw large fields of Indian corn in every direction; one field must have had at least one thousand acres in it. Here there are no fences—division furrows indicate the lines between farms; and the cattle, with which the country seems well supplied, are herded in large numbers, so with the hogs and sheep. Everything indicates that nature fashioned and intended this and our own State to be alike—climate, surface, soil and productions the same, but further all similarity ceases.

Here there in no progress; the tillers of the soil live and dress, plow, sow, plant, till, reap and thresh as they did a thousand years ago, with but little exception. True, modern agricultural machinery to some extent has been introduced; but one might travel days and not see a reaper, a modern plow or scarcely an indication that such things existed.

In Pest there were so many steam threshing machines on the docks that I had an idea that when we got in the country we should see some of them at the stations or at the farms;—we have not seen one since we left Pest. Indeed the country is so extensive that the few machines, comparatively, which are brought here are absorbed and lost. These threshers are of English manufacture, very large and coarse, driven by steam, and cost delivered from $2,000 to $3,000. I asked one of the dealers in them, an Englishman, how many bushels of wheat they could thresh in a day; he answered, "with good luck, 300." The grain appears so fine and straw so clean, that I was much surprised at the small quantity mentioned.

Looking out from the car window it seemed as if we were riding in western Iowa, the prairies are so large and unbroken by fences and trees, and not as in Illinois diversified and relieved by the many farm houses, orchards, hedges and fences. These broad lands, covered with golden grain, and the gentle hills green with luxuriant vineyards, are owned by large land proprietors, the best and most extensive domains belonging to the church or the priests. These proprietors lease out to middle men, some of whom farm quite extensively, who sublet to the peasants or employ them in the cultivation of the farms so leased. Of course the tenure, not being perpetual, there is no inducement to those who occupy the land to improve or beautify.

The scattering farm houses are rude though extensive buildings, and are occupied by the farmer and his many domestics, consisting of such as manage the teams, oversee and make the tools, or supervise the field peasants. These last are mere brutes—shaggy, swarthy, wild looking devils they are—in the hot summer clad in sheepskin vest, woolly inside, with breeches — not pants — sandals and sheepskin coats, wool out. They live always out doors, eating and sleeping where ever their work or the flocks they attend may be—their woolly coats answering for roof, bed and covering—until the seasons are over and all the crops gathered, when they retire to their villages, or huts in the mountains, where they worry or sleep through the winter as best they may.

These "mud-sills" of Hungarian life are principally Wallachians and Roumanians. Ignorant, prejudiced, priest-ridden, they seem content to grovel in the dirt with the swine they attend, and resist every attempt at elevation or civilization. So with its system of land "proprietory," its lack of system of education or progressive advancement, with its priests and nobles and ignorant peasants, this country, one of the most favored of nature (in this similar to our own,) with all its advantages of time in which to have been developed, is so infinitely inferior to ours in everything socially desirable according to the standard of modern or American civilization, that it is folly to make any comparison.

Still the people are waking up; they are endeavoring to shake off priest-craft and caste. Railroads are being built; telegraphs put up; the iron bands, the steam whistles and the clicking wires will arouse even these stupid boors. Improved machinery will be brought in, and Hungary, if allowed a free government, will yet be, among the nations, one of the richest.

Here, next Monday, commences quite a modern reaper trial. Twelve machines have been entered, one of which is the "Buckeye," and the programme reads much like that of an American. We are here with our machine — unfortunately a little defective from long travel—but still we trust in trim for the fight. Of the result and all its peculiarities I will write you in due time.

NUGY VARAD, HUNGARY. C. W. MARSH.

EARLY ROSE POTATOES.

In answer to Mr. Stephenson's inquiry as to the reason why the Early Rose is no better or earlier with me than the Early York, I will say that I am not able to state the reason.

The Early Rose potatoes that I planted were received April 17th from Mr. H. B. Dalton, in Cook county. They were barely started. They were cut in pieces having from one to three eyes each, and were planted in ground that had been deeply stirred with a double share plow; the ground had been manured the previous season. I should also state that they were planted between rows of raspberries, the stalks of which had been nearly destroyed by borers the previous season, so that they were not shaded, until nearly ripe. Since where the new growth of the raspberries has partially shaded them, they were cultivated three times and hoed twice.

Our spring and early summer was very favorable for plant growth, just rain enough. They were planted April 8th, and the first were dug June 15th, being then as large as hen's eggs. The Early York were taken from my cellar, and had started less than the Rose, were cut in the same manner, planted in the same situation the same day, given the same culture. The Yorks were dry and mealy and much the largest, the Rose being hardly anything but water and unfit for use. At present there is not so much difference in the quality but the Yorks are larger and yield more to the hill. Both were dead ripe some time ago.

I am of the opinion that like many new things the Rose got its due share of petting and praise during the past two seasons, but having now become common, has to take its chances in the field along with common potatoes, and like some people when placed under the same circumstances, has proved itself to be no *better* than others that made no pretensions to superiority. No new seed can be regarded as thoroughly tested till it is submitted to the same cultivation as old varities.

CHAMPAIGN, Aug. 1st. H. J. D.

MICHIGAN AG'L COLLEGE.

Carpenter Shop, Farm Implements, Etc.

In the carpenter shop there are a couple of large closets like cupboards without shelves, six or seven feet high, five feet wide and sixteen inches deep. A narrow strip runs up and down the front side, to which are attached two locks to hold the doors. Within are fastened pegs, cleats, and various little devices for supporting the saws, squares, bits, augurs, planes, &c. Upon the surface back of where the implement belongs is painted a black figure just the shape and size of the tool, so any one can see at a glance what is absent and where to put it when returned.

A farmer could, if he chose, have one such place for carpenter tools and another for heavier, coarser implements, such as iron wedges, crow-bars, chains, pickaxes, shovels and the like. The large number of students make it necesary to have one employed to look after the tools, repair them and see that they are kept in the proper place. Everything taken out is charged on the book to the person using it, and credited to him when returned. Written near by on a post in the the center of the shop are these words, "All tools remained charged until returned in good order." On the inside of the closet door would be a proper place for a small slate or memorandum for every farmer to keep a record of tools lent to neighbors or to be taken away for any length of time. It seems impossible for some people to live according to any system, but those who attempt it get along with much less confusion and trouble. Here boys are taught these things, and soon it becomes easy and natural to keep every article where it belongs. It appears to me this is one of the most important things for farmers to learn—better order, definite plans, more head work and tact in changing plans according to circumstances; here they learn to think, to lay out farms, ditches, lanes, to build roads properly, and hundred of other things for which they must not always give plans, but reasons for their plans. For farm use it is necessary to have about sixty axes, sixty hoes, twenty-five corn cutters, numerous rakes, scythes, hay, dung and digging forks, pick-axes, cross-cut saws, &c. There are a half a dozen or more different kinds of harpoons and forks to use by horse power, which are labeled unless in use, with the donors name if it was a present to the college. For example, "From Chapman, Hawley & Co., N. Y.," was in large black letters on white board suspended over a hay fork. Every article as presented is fairly tested, and if superior all the students and visitors will find it out; thus, you see, proving a capital advertisement for the manufacturers.

We have seen a number of farm implements highly recommended which have not yet found their way to the college farm. This is a hint to those who have confidence in their new machines to send along a sample.

Editors usually know the value of advertising. So many country papers, agricultural papers, near and remote, find their way regularly to the college reading room. We think more publishers would do likewise if they saw how eargerly papers were read by the crowds of students who visit the library. They read them all and get acquainted with them. One monthly or weekly paper is not enough for an intelligent farmer in these times—he must have half a dozen or even twenty or more. One paper may be his favorite, yet it cannot contain everything of interest at all times.

To contain the larger implements the College has a shed about twenty-seven by seventy feet, without floors, with large double doors on each side, so a team can easily drive in or through with the broadest reaper or wagon. Here are three grain drills. Beckwith's roller drill is kept bright in season for sowing. By this we mean it is a favorite drill. The furrows are made with cast iron wheels, which run to an edge instead of being flat like a common wagon tire. This packs the earth a little in the places where the grain is left so it soon roots. There are three horse rakes. The Bay State is brightest (most used). Pheifer's wheel cultivator is much liked. Bullard's Hay Tedder works well and draws easily; the American performs best in heavy clover. We are informed by Dr. Miles that these have already paid for themselves the present season. The Excelsior horse hoe for hilling potatoes has been used, but not yet thoroughly tested; so we could get no opinion from the superintendent as to its merits. There are eight or ten kinds of corn cultivators and harrows, some best for one thing and some for another, none good for everything. The old fashioned A harrow, with about twelve teeth, is valuable, and about the only one fit for use on newly cleared, stumpy or stony ground. The teeth are one and a fourth inch square,

sloping slightly backwards, and are stout enough to fetch a team up standing without breaking. No one, however, who had tried other kinds or had seen them used would think of recommending them for general use on smooth land. They have two mowers, one of which is Thayer's Iron, the first used, when only one is wanted. Over head there are five or six sleighs, high and dry, instead of rotting in exposed places all summer as is too often the case with farmers.

Here are a dozen or more plows, several of them prominently labeled, as we said of all such gifts to the institution. Which do you like best? The reply is complimentary to Holbrook, who has several kinds in use; one with changeable mould-board for turf or stubble ground, and another plow for hillside or gardens where the furrows should all be turned one way, or where a bed furrow is not desired. There is one instrument called a "Grubber" from England, used to loosen soil down deep without turning it over, by means of narrow teeth sloping forward at the lower end of stout perpendicular bars. It can be set for any width or depth. It is heavy, all of iron, and about eleven feet long, looking rather rusty, though we are told that it works well. They use a roller a good deal as a pulverizer in preparing corn ground, or land for any other crops, or rolling sward ground right after plowing and before harrowing. There is one heavy implement which I cannot describe, neither can I find out who made it or where it came from. It is nearly triangular, has seven shovels or paddles, a handle to steer it, and runs on three wheels. It had a fair chance and failed. The Professor mentioned it to his classes as not fit to use, and the next morning found it on top of the shed. It had gone up mysteriously. He says that it is the best place for it. There is still room left up there for other worthless trash of this character. Whether it was intended to run on sea or land, by wind, water or horse power, we could not learn. It looks some like a combination of hay-rack, wheelbarrow, cultivator, schooner and hen-coop.

They could not get along without Fairbanks' hay scales and several other smaller ones in the barns for carrying on the experiments. They are fitting up a blacksmith shop, intending to mend their own chains, shoe horses, and much other work of the kind. This would not be best for every small farmer, especially if he live near a near a good shop, but the college is three miles from town and many "jobs" can be done in half the time it would take to go to town and back. Their two horse tread-power from Albany is handy for sawing wood, threshing, cutting straw, stalks and turnips. Harder's patent, first prize separator does the work very nicely, and gives excellent satisfaction.

The Professors not only seem quite willing to show editors, reporters and members of the legislature about the premises and to answer any questions, but common, "ordinary people" are also shown much respect and attention. So many visitors must take up considerable of their time, yet we have never heard any complaint for want of attention. Visitors should be considerate and remember the arduous duties which each professor has to perform in teaching, directing experiments and in writing them up, looking after work and answering correspondents. W. J. B.

AGRICULTURAL ITEMS.

CORN LEAF FODDER.—It has long been the habit in the south where hay is scarce and poorer than here, to rely largely on cured corn leaves for wintering all kind of stock. These leaves are stripped from the corn, the stalks being left in the field till winter. The Arkansas Farmer tells how it should be done: "As soon as the shuck ripens, begin to strip the blades. Do not put the fodder on the ground, leaving it until evening to bind. The method of tying in small bundles as it is stripped, and hanging on the stalks to dry, is best. When about three-fourths cured, gather and throw in good-sized close heaps, late in the evening, and let it go through a heating process during the night; next day throw open the heaps—the heat will dissipate the remaining moisture, cure the fodder sooner, and give it, at the same time, a tenderness and flavor much relished by the stock. Spare no pains to cure it well—if moldy and dusty, it may prove more than worthless."

LICE ON HOGS.—A correspondent of the Rural New Yorker says: The past five years I have used the following remedy, which will clean off the lice in two days: Put about one gill of kerosene oil in any old dish, and with a paint brush or old woolen rag rub the oil up and down the back of the animal and behind the fore leg and on the flank. Be particular about the last two places, for it is where the lice deposit their eggs, which, if not destroyed, will hatch out in about five days. If it be a black hog, these eggs can be plainly seen, being about the size of timothy seed and laying close to the skin fast to the hair. No one need fear to use the oil freely, as it will not injure the hog in the least. Hot water will not kill these lice, for I have seen them crawl after the hog had been scalded in a barrel after being butchered.

SCANDINAVIANS IN MAINE.—The last session of the Maine legislature made an appropriation in aid of Scandinavian immigration. The region they wish to people is in the northern part of the state and is watered by the Aroostook river. The first colony has already come over. The State gives each family 100 acres of land, a comfortable log house and several acres of trees felled upon each lot. It also appropriated $4,500 for commission, provisions, implements, &c.

INSECT ENEMIES IN THE SOUTH.—The grass worm is making great havoc in the corn and cane fields of southwestern Louisiana. It strips the corn and cane leaves, eats the tender tops of cotton, and devours grass and weeds extensively. All the crops will be somewhat injured by them, except early corn. The real cotton worm has not made its appearance, but millers abound in many cotton fields.

WHO BEATS THIS PEA?—A Clinton correspondent of the Carolina Farmer says, at a recent meeting of an agricultural society there, Wm. H. Falson exhibited a specimen of field peas. From the vines of one pea he picked 604 pods containing 6,557 peas, weighing two pounds in the aggregate. This is probably about the largest pea yield from a single seed which the present season can boast.

MR. BIRCH, of Scott county, Ky., sold recently an Abdallah mare for eleven thousand five hundred dollars. She was sired by Alexander's Abdallah, the sire of Goldsmith Maid and other noted trotters.

ONE farmer in Yuba county, California, has harvested a hundred and twenty-five acres of castor beans. Eight hundred acres have been cultivated in catsor beans in Yuba and Sutter this year.

A CHEESE factory has lately gone into operation in Lane County, Oregon.

THE DAIRY.

WATER MILCH COWS OFTEN.

There are no animals about the place that require so much attention in the matter of being provided with water as the dairy cows. On the large dairy farms, where the production of milk is a specialty, there is seldom a want of proper care in this respect, since a falling off in the yield of milk as it is delivered at the factory or railroad station, will soon lead the owners of cows to investigate the cause of the deficit, which too often he will find in the bad condition of the water his cows have to drink, or in the insufficient quantity of it. But with the ordinary farmer, who only keeps cows enough to supply his family with milk, butter and cheese, or who may be only able to sell a small surplus of dairy products now and then, the case is different. In the busy seasons of haying and harvest, when the cows should receive the most attention, they often receive none, at least from the "men folks" of the family.

The horses and oxen have a bountiful supply, and at frequent intervals, because it is necessary for them in order to do the amount of work required of them. The brood mares and the fattening cattle are also cared for; for the reason that good colts and fat bullocks can only be expected if this care is taken. But with the cure of the hay and grain the poor cows are often neglected or left to the tender mercies of the women, who have no time with their manifold duties to dig wells or to clean out springs. Meantime the supply of milk falls off, and at every successive churning there is a less amount of butter.

The truth is, cows that are giving milk, not only require a very considerable amount of water, but they need it often. The process of secreting milk is one that goes on constantly, and as this fluid is so largely composed of water, enough of it should always be within reach that the animal can get a supply. There are very many Western pastures that are not supplied with living water, and there are not a few farmers, who put their cows in such an enclosure only furnishing them water at milking time, morning and night. This practice is not only very poor economy—as far as any profit from the cow is concerned—but it is downright cruelty. In weather like that of a large portion of the present season, much water is needed for perspiration and for supplying other functions of the system.

If the supply of water is not abundant, the cows become restless, feverish and fretful. One day passed in this manner will do very much toward drying up the best of cows. A dairy cow will very soon show a falling off in the supply of milk in the same pasture where an animal not in milk is gaining in flesh all the time. On the comparatively arid plains of Texas, there are a plenty of well fattened cattle; but even the domesticated cows give scarcely any milk. The increase of the flow of milk after a rain is often attributed entirely to the improved conditions of the feed in the pasture, whereas much of it is due to the increased supply of water. It is to be regretted that any pasture where dairy cows are kept is deficient of living water, but as such is the case an artificial supply can only insure a flow of milk. If cows have to be kept for a part of the time in a pasture where there is no supply of water, they should at least be let out at midday to enable them to quench their thirst. They need this opportunity much more than horses and working cattle do, and no one would think to stint their allowance to a watering at morning and night.

ACCOUNTS WITH THE COWS.

The author of Ogden Farm Papers in the American Agriculturist says: We are just commencing to keep a record of the weight of milk given every morning and evening by each cow. A printed blank for each week is tacked against the wall, and a lead-pencil hangs near it. As each cow is milked, the pail is hung on an ordinary spring scale. The pails being of uniform weight, it is easy to make the record sufficiently accurate for practical purposes. At the end of each week the total yield for each cow is footed up and divided by seven for the daily average. The total weekly yield of the whole herd is also recorded. The utility of such a record, especially if continued for a series of years, will be great. It will show: 1. The performance of each animal in her different conditions, and especially the degree in which she holds to her milk towards calving time. 2. The relation that the progeny bears in its milking qualities to its dam. 3. The milk producing quality of the progeny of certain bulls. 4. The effect of different kinds of food, and of different systems of feeding on the production of milk. 5. By comparing the weekly yield of milk with the weekly production of butter, the effect of feeding can be determined in regard to this latter.

The practical results of the knowledge thus obtained will be valuable. We shall know which animals to sell and which to keep; which bulls to breed from; which families to depend on for the final herd, and what methods of feeding it is best to pursue in winter and in summer — this will be especially valuable as showing the relative advantages of soiling and steaming, as compared with dry feeding and pasturing, and the relative value of corn meal, wheat, bran, &c.

CHEESE EXHIBITION.

At a recent meeting of the Fond du Lac County Dairymen's Association, an invitation to unite with the Fond du Lac County Agricultural and Mechanical Society in their Annual Exhibition, to be held on the 13th, 14th and 15th days of September, 1870, was accepted. And further resolved that each dairy and cheese factory represented should present from their products on the above named days, at the fair grounds in Fond du Lac, not less than ten nor more than twenty cheeses for exhibition, and a similar number at Ripon on the 20th, 21st and 22d.

The estimated amount manufactured by the factories in this association during the present season is as follows:

	Tons.
Ladoga Factory	130
Rosendale "	50
Oakfield "	50
Howard's "	45
Ripon "	35
Alto "	25
Curtis' Dairy	7
J. A. Smith's Factory	5
Ellsworth's "	15
Leroy "	20
Trelevan's "	25
Spafford's "	25

THE APIARY.

CONTROLLING FERTILIZATION.

The Bee Journal for August contains an interesting article translated from a German paper and entitled a Hungarian Process for Controlling Pure Fertilization. The process is the invention of Mr. John Dax, of Hungary, who has had forty years experience in bee culture, and who has prepared a treatise on bee management. The article was written by a gentleman who visited Mr. Dax, and the details of the process of fertilization are thus given:

For our purpose we need, first of all, a common, cylindrical, wire gauze, queen cage, fastened securely to the middle of a piece of board one quarter-inch thick, and having a three-quarter inch hole through its centre. This board must be sufficiently large to cover the hole in the top of the hive. A second similar board serves to have a queen cell attached to its under side with melted wax, and is laid on the first mentioned board, with the queen cell passing through the three-quarter inch hole—thus closing the queen cage. Next we need a tin plate six or seven inches square, perforated with numerous holes, so small that a worker bee cannot pass through. And finally, we need a four-sided case of wire gauze or a glass cylinder, six inches wide and six or seven inches high, open at the top and bottom, and having within on one side, three or four inches from the bottom, a wooden peg or spear on which a small piece of honey comb may be suspended. These are all the requisite materials.

When we are having queens reared, it is important that we should note the day on which the cells are sealed. On the second day thereafter cut out a queen cell, attach it by means of melted wax to the under side of the second board above described. Then inverting the board pass the cell through the three-quarter inch hole of the first mentioned board, into the queen cage, so placing the board that the cell shall be freely suspended in the cage, with room all around and below for the young queen to emerge when mature. With the second board then placed on the first, the queen cage is perfectly closed. Now open the hole in the top of the hive, and place the board on it, with the attached queen cage passing down into the hive, as far as the board to which it is fastened will permit. Close all crevices tightly, and cover the whole with a piece of blanket doubled and securely fastened. By lifting the blanket and raising the upper board to which the queen cell is attached we may at any time ascertain whether the queen has emerged or not. On finding that she has left the cell, we wait four or five days longer, or more, precisely from after the third till the first fine, warm and favorable day that occurs, such as young queens themselves select for their bridal excursions. On such a day, we lift out the queen cage with all its adhering bees, cover the hole in the the top of the hive with the perforated tin plate, and set the wire gauze case or glass cylinder on it; thrust it into the adhering bees from the queen cage, liberate the queen, let her pass down among the bees, and cover the top of the case or cylinder. There ought to be somewhat more than a hundred bees in the cluster. Should there not be so many, draw back the tin plate gently and let an additional number of workers pass up. Now suspend a piece of honey comb on the peg or spear, cover the case or cylinder, and place it in a dark chamber. At any time between eleven o'clock in the forenoon and three o'clock in the afternoon, a selected drone may be introduced, light partially admitted, and fertilization will soon follow. Should it not take place on the first day, the experiment must be repeated on the next, when it is almost sure to occur. Mr. Dax assures me that he had frequently used the process, and only on two or three occasions had he found it necessary to introduce a second drone, and was then invariably successful. "Make the trial," said he, "it will not fail."

Apart from the undoubted credibility of Mr. Dax, other strong reasons lead us to presume that a successful result would follow a properly made experiment. Why does not fertilization take place within the hive itself? Evidently because in the crowded condition of a colony it could not be effected without interference, leading to commotion which might endanger the life of the queen. This being so, natural instinct has provided that, for this purpose, the queen shall leave her hive. Even should the bee-keeper undertake to interpose in the ordinary manner, by catching, confining and removing the queen, she would still be filled with alarm, and all her efforts would be directed to effect her escape and return to her hive—excitement and anxiety dispelling every other passion or natural impulse. Whether a queen thus removed be liberated in a roomy chamber and permitted to fly among workers and selected drones, or allowed to fly in the open air, restrained only by a silken string, the desired result will rarely be attained. But by the method employed by Mr. Dax, the queen becomes neither alarmed nor excited, for she is born in a state of confinement; and when permitted to mingle with a limited number of workers she feels herself free and companionable, yielding readily to her natural impulse to provide for the growth of the small colony. If now a mature drone be introduced, fertilization will almost certainly follow, because, from the small number of workers present, clustered too, for the most part on the inserted honey comb, no interference or disturbance need be apprehended. Such are the grounds which induce me confidently to expect a successful result.

To make the cylindrical queen cage required, the Bee Journal says: Take a piece of board three sixteenths of an inch thick and with a brace bit, cut out a circular disc one and three-quarter inch in diameter. Now take a piece of wire gauze one and a half inches broad and six inches long, pass it around the periphery of the disc and fasten it thereto with a small tack driven into its edge through the overlapping portion of the gauze, and also at three more equidistant points on the periphery. Then, gently compressing the thus formed cylinder between thumb and finger, so as to diminish the diameter slightly at the open end, secure it by passing a piece of wire through the overlap and twisting the ends together. This completes the cage which is substantially the same as the Kleine queen cage, now generally used in Germany for confining queens on the comb.

WHENCE CAME OUR HONEY BEES?

That our common honey bees are of foreign origin is universally admitted; but it is still a matter of dispute whence they came, or when they were introduced; though it is generally supposed that they were brought from England. Those in the Eastern States may have been thence derived; but we doubt whether those in the Middle States came from that same quarter.

In a pamphlet republished in the "Historical Magazine," Vol. VI., September, 1862, page 268, entitled "Good Order Established" in Pennsylvania and New Jersey, in America: by Thomas Budd, originally printed in the year 1685, occurs the following passage, referring to those then colonies:

"Bees are found by the experience of several persons that keep them, to thrive very well."

Hence it is obvious that bees must have been kept in Pennsylvania and New Jersey, long enough prior to the close of 1685, to make the term "experience" applicable to those who kept them. It is also well known that bees were abundant, even in the forests of Pennsylvania, while they were yet comparatively rare in New England, where they were introduced from "the mother country," in 1680. They must thus have been derived from a distinct importation, if not from a different stock. We incline to the latter conjecture, and for this reason: We know that the bees in the Middle States were free from the ravages of the bee moth till about the year 1805, and that this pest came thither from New England. How long the insect existed there before it became so devastating as to attract the notice of bee-keepers, is not known; but its progress south and west is traceable, and establishes the fact that it was a stranger south of the Hudson. Though not noticed early, it was doubtless imported with the first bees carried to New England, for it is a fact that importations of Italian bees, whether made from Italy direct, or from Germany, always bring with them the moth or the miller, or both. This we believe is invariably the case. We are creditably informed that the trunk and wardrobe of Herman, who accompanied the stocks imported by Mr. Parsons, of Flushing, were thus infected; and observation shows that it is so common an occurrence that it may be regarded as invariably true. It follows, we conceive, that the bees of Pennsylvania and the Middle States came from a country where the bee moth did not exist. That country, and the only country in Europe thus free and having early communication with the New World, is Sweden; and the Swedes and Finns had settlements in Pennsylvania and Delaware as early as 1627. Mead was their favorite beverage; and they would certainly be likely to carry with them in their emigration, the means of supplying themselves with it, and would thus introduce a bee *not troubled with the moth.* They could do this, and emigrants from no other country could; for the bee moth was not known in Sweden till within the last twenty years—the desire to possess the Italian bee having carried that baneful pest thither also. — *Bee Journal.*

BEE KILLERS ABROAD.

On page 168 first annual report of State Entomologist of Missouri, an illustration and description of a "Bee Killer"—*Trupanea Apivora*, Fitch— is given and having recently witnessed it preying upon the honey bees while on wing a quarter of a mile from the apiary, must confess that I feel somewhat alarmed and am fearful much of the new swarming and poor honey season has resulted from the loss of bees by this insect.

Cannot some means be devised to protect the bees against its ravages? If nothing can be done to prevent their increase, I can see no security for the future of the bee; as a single bee killer can materially affect a whole colony, and a dozen or twenty ultimately destroy it. Compared with it the much dreaded moth sinks into insignificance, numbers being considered. It may be that but few of these enemies of the bee ever make their appearance at a time or in a season, but if on the increase it is high time bee keepers were on the elert, lest a more formidable enemy than ever dreamed of in their philosophy bring their labors to an untimely and unhappy end. F. BREWER.

WAYNESVILLE, MO., July 27, 1870.

NOTICE TO BEE-KEEPERS.—The time for holding the National Bee-Keepers' Convention at Indianapolis, Ind., has been changed from August 10th and 11th to December 21st and 22d, 1870.

ENTOMOLOGICAL.

CONDUCTED BY Dr. Wm. Le BARON,
State Entomologist for Illinois.

[Questions upon entomological matters will receive attention in this department. Specimens of insects are solicited; and, they may be sent to Dr. Wm. Le Baron, Geneva, Ill.]

ANSWERS TO CORRESPONDENTS.

1. Small green insects without wings, and some black and green with wings, covering the under side of apple leaves by millions. J. W. B., Van Buren Co., Iowa.

These are the apple tree leaf-lice (*Aphis mali.*) These insects, though not ordinarily very injurious, nevertheless become so when they multiply to the extent here stated. They are tender insects, and are often suddenly removed by natural means, such as predaceous birds and insects, and severe changes of weather, especially from hot to cold. The artificial remedy consists in syringing the tree, or bending down the branches, and dipping the twigs into soap suds, three cups of soft soap to a pail full of water, or what is still better, tobacco water—quarter of a pound of tobacco to a gallon of water. Some use this wash of double this strength. The practical rule is to use the wash as strong as it can be without permanently discoloring the foliage.

2. Countless numbers of minute black flies, supposed to be about one million billions visible at any one given time, insinuating themselves into the eyes and ears and every other practiable aperture. F. G., Bazzie's Hill, Christain Co.

This letter was opened in the PRAIRIE FARMER office, and if any specimens were sent they failed to reach me. The insect which, in my own experience, answers best to your description is the Black Fly or Gnat belonging to the genus Simulium, which inflicts a sharp wound, and which formerly caused much annoyance to the inhabitants of the State of Maine. There were two species, one of which was much smaller than the other. The common remedy resorted to by the people living in low or wooded localties, against the attacks of gnats, mosquitoes and such like troublesome visitors, is to make small fires about the house of such materials as will produce a dense smoke. So if your midges have not already left you, and you do not consider the remedy worse than the disease, you can give it a trial.

Katydid's Eggs, Montana.;—3. The flat, slate colored eggs, over lapping each other, on the twig of a cherry tree, are the eggs of that noisy but harmless creature the Katydid. These insects do not produce their monotonous ditty until they have acquired wings, and are capable of breeding. They begin to be heard about the first of August, and continue till they are killed off by sharp frost, usually in the month of October. The Kattydid furnishes a remarkable instance of the acuteness of the senses in insects. If you lay your hand upon a tree on which one of these insects is singing, it will instantly stop. No matter how dark the night, nor how stealthy your approach, nor how light you touch, he will detect it with the certainty of a telegraphic dispatch. How he does it, whether by a marvellous delicacy of the sense of hearing, or, what is perhaps more probable, of feeling, is a matter of conjecture.

4. Wart-like exercises on the leaves of the Clinton grape. From Duquoin.—These are galls produced by one of the gall making aphides or leaf lice. They are probably the same as those described many years ago by Dr. Fitch, of New York, under the name of *Pemphigus vitifoliae*, but the specimens sent were in too immature a state to determine the species with certainty.

The gall making insects are very numerous, but they usually do not conflict seriously with human interests. The few species, however, which are injurious, bid fair to become pests of the most troublesome character, for the reason that being safely enclosed in their cells, they cannot be reached by the usual outward applications. Such is the present species, and also the cockscomb galls which are disfiguring and ruining many of the young elm trees cultivated for ornamental purposes in various parts of the country, and which are produced by an insect of the same family, known as the *Byrsocrypta ulmicola.*

If the infested leaves are not very numerous, the surest remedy is to pick them off by hand; or what would be a quicker method, clip them off with a stout pair of scissors, catching them in a basket carried in the other hand, so that they can be burned or othewise destroyed.

I shall be glad to get specimens of the other insects spoken of as eating your grape vines. And here I wish to make a request, generally, that persons sending insects shall send a considerable number of specimens, say least from half a dozen to a dozen, according to their size. It is always desirable to have a number of specimens, and it is usually as easy to send a dozen as one.

5. Large, flat, blackish bugs, found on apple tree. A. M. S., Clay county, Ill.

These are interesting insects and are new to me. They belong to the same order of insects as the Squash bug and chinch bug, but to a different family, that of the *Pentatomidæ.* They do not answer exactly to any described genu, but come nearest to the genus Loxa of Amyot and Serville. The specimens sent were all females; as you say they are abundant, I should pleased to have you send me a dozen specimens in a small paste board box, with a little cotton wool to keep them from being broken. The specimens sent were somewhat damaged from being enclosed loosely in a letter. I wish you would watch and see whether they draw their nourishment from the tree, or whether they feed upon other insects. You have it in your power to learn their habits by a little observation, and I shall be glad to hear the results.

SPECIAL NOTICES.

The President of the oldest Life Insurance Company in New York is insured in the Washington Life.

If you were to die to-day, wonld you leave your family independent of charity? Insure in the Washington Life Insurance Co., of New York.

Asthma.—We cannot, we believe, render to those of our readers who suffer from the Asthma, a greater service than by inviting their attention to the advertisement of *Jonas Whitcomb's Remedy* in another column.