THE FARM AND GARDEN.

ITEMS OF INTEREST ON AGRICULTURAL TOPICS.

Manuring Hillsides—Growing Foreign Grapes—The Best Turnip—Continuous Egg Laying, Etc., Etc.

MANURING HILLSIDES.

Because the level valley is richer than the hillside, it is quite common for farmers to suppose that there must be each year a heavy deposit from the hillside in the valley below. But if anyone manures a hillside with the expectation that it will appreciably fertilize the soil farther down the hill he will learn his mistake. We have several times tried it, and could never see that the manure had any appreciable effect more than two or three feet below the line where it was applied.—Boston Cultivator.

GROWING FOREIGN GRAPES.

To our liking, some of the best kinds of American grapes have much better flavor than do foreign varieties. But tastes differ, and there are those who think no grapes are so good as the foreign varieties that in this country have, until now, been grown only under glass. But these varieties are hardy enough to stand our winters and ripen early enough to succeed in our summers, if the foliage can only be kept from mildewing. What has been learned about fungicides for destroying mildew and rot is very likely to succeed as well on foreign grape vines, enabling them to be cheaply grown out of doors instead of as now in hothouses.—American Cultivator.

THE BEST TURNIP.

For winter use there is no better variety of turnip than the Yellow Aberdeen, especially if one can get hold of a pure strain of honestly grown seeds. This old well known kind has been given a multitude of names altogether in the past twenty years. It is not a quick grower like the Flat Dutch, but it is a turnip that will keep a long time after being made. It is equal to a rutabaga in texture, but is not prone to rot like the rutabaga.

The southern dairymen or stock growers cannot well dispense with the crop; that is, unless he raises a large crop of artichokes or sweet potatoes for his stock. But as an acre of turnips need not cost over $3 there is no need of not having them in abundance, even then. With cotton seed boiled they constitute the cheapest milk-producing food the southern dairyman can get.—Atlanta Journal.

CONTINUOUS EGG LAYING.

No breed of hens will lay an egg each day for any very long time without a period of rest. This is true even of what are called the non-sitting varieties. There are a few days rest, generally, though sometimes not more than one or two between different settings. It is really surprising to see a small hen—and some of the best layers are usually of small breeds—producing her weight in eggs within three or four weeks. For its bulk the egg furnishes the most nutritious food that a man can eat. Except its shell, everything is eatable and nutritious. But all hens have to pass some time in moulting. To produce a new coat of feathers takes much the same kind of nutrition as to produce an egg. During this period, therefore, egg production ceases, and if moulting is delayed until cold weather the fowl does not usually begin laying until spring.

GREEN HAY IN THE MOW.

When hay, especially clover, begins to heat in the mow the safest way is to pitch it all on the rack and take it out in the barnyard, spreading it as much as possible. By the time it has all been pitched over once the hay will be dried out enough so that it will not sweat or heat again. Few realize that the heat developed by fermentation dries out of grass quite as rapidly as would the same temperature out of doors. But it is much easier to prevent this injury than to cure it after it has been done. One or two layers of dry straw on the mow will absorb all the surplus moisture. It is well also to put some of the dry straw on the mow, to hold the moisture given off by the warm air from the mow as it comes in contact with the cold air that blows over it. Quite often the top of the mow will be entirely rotten, while all the hay beneath it has dried without injury. If dry straw had been thrown over such mows the moisture from the clover or the grass beneath it would be absorbed, greatly increasing its value for feeding purposes.

RUSTED OATS.

The oat crop is much more likely to rust than any other grain, mainly because it ripens later in the season, and when increasing warmth has filled the soil so full of plant food that the grain gets more sap than it can use. This is especially true if there has previously been a good deal of rain to make the plant food available. Oats will also rust if they have been sown so thinly as to make their growth very rank. Thick seeding is necessary, so that the plants being from the first crowded will find use for all the fertility their roots can gather. Oats nearly always rust in the Northwest, where the soil is rich in nitrogenous matter but is not so rich in mineral fertility. It is partly to prevent rusting that we advise heavy seeding and a dressing of 150 pounds per acre of phosphate. It is probable that one effect of the mineral is to obstruct the sap, preventing it from flowing faster than the plant can use. Potash for this use is quite as good as good as phosphate, though to perfect the grain the phosphate is also needed. Potash dissolves sand, and it is this silicate of potash that makes grain straw gritty, and dulls the tools used in cutting it. The straw of rusted grain lacks grit.

A CHICKEN-PROOF FENCE.

C. P. Reynolds, of Michigan, writes:—I have tried various modes of fencing chicken yards with more or less success, but have never found anything that gave really good satisfaction until recently. One of my former difficulties was to so arrange the posts that the fowls could not alight on the tops and then hop out.

Two years ago I built another yard and worked another idea into my fence. I procured some short posts four or five feet long and placed them in the ground the usual depth. I then finished out the remaining necessary height by nailing a three-inch board to the outer edge so that it made the post six and one-half feet high. At the bottom I placed two six-inch boards five inches apart. I then used five-foot netting, which was put on in the usual way, making a fence between six and seven feet high.

If I were to build the fence again I should do everything as I did before except possibly make my posts seven feet high as I found later that I could easily have stretched the netting the extra distance. In fact to give the netting a good shape I was obliged to nail it from four to eight inches below the top of my base-boards. I think, also, I should place my posts eight feet apart instead of twelve as I now have them. I find the wider the netting the nearer the posts should be.

SELLING POULTRY.

Farmers have learned that they cannot afford to keep any kind of poultry that does not bring the highest price to be obtained. No matter how low the regular quotations may be, there are sometimes good prices paid, as the very fact that the supply is abundant induces buyers to select more carefully, because they have a larger amount from which to do so, as there is no sentiment or favoritism shown in the trade when the buyer desires the best to be had. The farmer who gets into the market with a choice article will secure the highest price. It may be an admonition that is disregarded, but the time will come, or has already arrived, when the farmer cannot afford to ignore the value of breeds; and he must also give his personal attention to the poultry, for by so doing he can keep more fowls and have fewer losses of chicks. Whether the fowls are sent to market alive or dressed, the condition in which they reach the stalls will have much to do with the prices obtained. It will be useless to keep good breeds, or even common stock, if the advantages are to be sacrificed at the last moment by carelessness in shipping. The wise farmer will not fill a coop with fowls of all kinds—roosters, hens and large chicks—to be sold in one lot, as the price will be influenced by the inferior birds. The maxim that "a chain is no stronger than its weakest link" applies also to shipping of fowls to market, as the very best will be governed by those that should not have been sent at all. Fat hens sell on sight, and should be separated from the males, while poor hens and late chicks will not bring good prices at any time.

FARM AND GARDEN NOTES.

Just as soon as young chicks, as the saying goes, get "off their feed," growth ceases and they stand still, and such chicks never afterward grow with the vigor they previously did.

There is one point in favor of corn as a crop which should not be overlooked, and that is the large amount of fodder, produced. The value of the fodder however, depends upon how it is cured and cut down.

The farmer with a few acres can only compete with the large farm by growing more produce on an acre. He can give personal supervision to all details and afford better cultivation than can be given by owners of very large farms.

The food controls the flavor of milk and butter. When the hay is properly cured it will be better than if any defect exists, because it will affect the flavor to a certain extent. All foods for cows should be of the best quality if a superior product is desired.

There is one product of the farm that the majority of farmers buy—beans. The white navy bean can be produced in all sections, and if not profitable as a crop should at least be grown for home consumption. Compared with the staple crops, however, it will be found more profitable than some.

What the farmer grows to sell is not for himself, but for others. He may have his personal preferences for some kinds of products, and can grow such for his own use, but the articles that are to be marketed must be of the kinds and quality to please the customers. Study the markets and endeavor to learn what is wanted and then supply the demand.

There is no crop more neglected than fodder and the waste of this valuable cattle food over the whole country is enormous. In some sections the fodder is considered of sufficient value to pay the cost of the corn crop, but there are farmers who attach little or no value to it if they have hay, but such farmers make a mistake in not using the fodder in connection with the hay.

Every year deep and shallow cultivation of corn is tested at the experiment stations and there has been no conclusion as to which is the better method, owing to the difference in soils and location. Thirteen stations, however, have made experiments with results rather favorable to shallow cultivation. At the Ohio station the average yield from cultivating one inch and a half deep with a spring-tooth cultivator was six bushels per acre greater than from four inches cultivation with a double shovel. Deep cultivation may be beneficial when the plants are very small, but after the roots have spread through the surface of the soil the cultivation should be shallow.

Knowledge is power in farming. The farmer who reads what others are doing is receiving the experience of those who have been successful or made mistakes, which enables him to adopt any superior methods or avoid errors that he may make unless informed. The most unwise course pursued by some farmers is their opposition to anything seen in print, and it is strange that this class of persons is a large one. Without experiment and improvement, and a diffusion of knowledge of agriculture, the farming interests would retrograde instead of progress. The farmer who reads about what others are doing can sift the wheat from the chaff and adopt the best.

New Material for Matches.

It is predicted that paper is the coming material for matches. The prospect of the wooden match industry being appreciably affected by a new process for manufacturing matches of paper is held to be extremely probable, particularly as the best wood for this purpose is constantly growing scarcer and more costly. The new matches are considerably cheaper than the wooden product and weigh much less, which counts for much in exportation. The sticks of the matches consist of paper rolled together on the bias. The paper itself is rather strong and porous, and, when immersed in a solution of wax, stearine and similar substances, sticks well together and burns with a bright, smokeless and odorless flame. Strips one-half inch in width are first drawn through the combustible mass and then turned by machinery into long, thin tubes, pieces of the ordinary length of wood or wax matches being cut off automatically by the machine. When the sticks are cut to size they are dipped into phosphorus, also by machinery, and the dried head easily ignites by friction on any surface.

There is some talk of utilizing the new invention in the manufacture of matches on an extensive scale for export in India. The invention involves no waste whatever and the paper is delivered in rolls like the telegraph tape, and converted at one operation into match sticks, and by a second into matches that would dry without stoving for a large part of the year in India. One thing, however, must be made sure of—that a wax is used which will harden at a shade temperature of 140 degrees Fahrenheit at least.—Boston Transcript.

Eyes in Finger Tips.

The gray matter brain cells of perception have been dissected out of the finger tips of the blind. Standing point up beneath all the ridges so plainly seen with a magnifying glass on the skin of the inside of the finger ends are the so-called corpuscles of Pacini, which are arranged in the exact semblance of the keys of a piano, and are said by Meissner to crepitate and give forth a different sound in every age of each person. This Pacinian corpuscle, which contains within its lining membranes a nerve-trunk, an artery and a vein, lines all the tactile surfaces of the body, particularly the inner finger and thumb tips.

A medical man recently assisted in an autopsy on a person blind from birth, and he sought to discover by scalpel and microscope the secret of the extraordinary delicate touch the blind man had acquired during life. Sections perhaps a sixteenth of an inch thick were carefully sliced off the inner surfaces of the index and middle fingers of the right hand. Under a high power these showed, instead of a single nerve-trunk and artery and vein of the average man, a most complex and delicate ramification of nerve filaments, dainty and minute nerve twigs in immense numbers branching from the main stem. Through constant use the finger tips of the blind acquire this unusual development, with more and more perfect performance of function.—The Microscope.

Power of Sunshine.

A French scientist calculates that in an average day the sun will pour on two and a half acres of ground heat which might be turned into energy equal to the muscle power of 4,163 horses.

M. Mouchot believed that this heat might be utilized and made to do the work now done by steam and electricity. He found that by condensing the heat playing on less than a yard and a half of ground he could boil two pints of water. By arresting sunshine and condensing it, small steam engines have been operated successfully in Paris, but nothing has yet been done to realize practically the great hopes of revolutionizing civilization by using directly the enormous power which comes to us daily from the sun. This power is calculated at that of two hundred and seventeen trillion, three hundred and sixteen billion horses, and a thousandth part of one per cent of it would run all the factories the world will ever need.

A GOLD MINE WIZARD.

Rothermel's Remarkable Success in Finding "Pay Dirt."

Locating Rich Veins of Precious Metals by Methods Known Only to Himself—How a Skeptical Claim-Owner Was Convinced.

A Deadwood (S. D.) letter to the Chicago Record says:

The railroad managers were unwilling to rely upon current reports in determining whether to build branch lines into the Ragged Top district. They knew that rich ore had been found there, but they could not be certain that the district promised to afford traffic enough to warrant the expense of construction of stub lines until experts had made a thorough inspection of the district. So the two great railway companies whose lines penetrated the hills pooled issues and employed Dr. A. W. S. Rothermel, a mining engineer who possessed a most wonderful faculty for locating ore deposits wtth unerring accuracy. The doctor made a thorough inspection of the district, and upon his report the railroads determined to build their tracks. . . .

Dr. Rothermel is a veritable wizard of the mines. He is known to the miners of Colorado quite as well as he is to the men of the Black Hills. His almost supernatural gifts have won for him fame and fortune, and he is in great demand in mining circles all over the West.

His most notable work in this region was on the Holy Terror property. The owners of this mine, which had produced large quantities of valuable ore, were in despair by reason of the fact that the vein which ran along the edge of the chain struck off into the adjoining claim, and, of course, could not be followed by the owners of the Holy Terror. They heard of the doctor's marvelous powers and sought to engage his services in an effort to find a ledge on their claim which might be tapped by a crosscut from one of their levels.

A contract was entered into. The doctor took several samples of ore from the mine and made a casual survey of the surface of the claim. Then he locked himself up and began to work. In ten days' time he was ready to make a report, yet he had not entered the shafts of the mine, but made his deductions solely from a study of the rock and ore samples taken from the various levels. He told the owners just where they would find another vein of gold, gave them instructions how to proceed at the least cost to get it, and also outlined the drift of the deposit, showing its extent and depth.

The owners, not without some misgivings, proceeded with the digging of the tunnel according to instructions, and in the exact spot measured in feet from the starting point the owners ran into a vein of fabulous richness, placing the Holy Terror again in the forefront of great producers of gold ore. Dr. Rothermel was given an interest in the mine as a reward for his labors.

It is little wonder that this remarkable performance caused no end of talk. The doctor became the idol of the miner's heart. There was one man, however, disposed to rob the doctor of any credit which might attach to his work in the Holy Terror. This was Ed Blackwell. Ed took it upon himself to go about Deadwood and berate the doctor, saying that anybody might have done the same thing; that the finding of the new vein was but the happy culmination of an intelligent guess. Rothermel's friends told him what Blackwell had said, and grew impatient with the doctor when he did not express some resentment.

"Let him say what he pleases. I'll fix him later on," responded Rothermel.

The following week a small party of prospectors went up the gulch to look after their claims. Blackwell was a member of the party, which was later joined by Rothermel. A tent was pitched and lunch set out. While they were eating the doctor spoke to Ed.

"You have a claim here, Ed?"

"Yes."

"When I finish eating I'll go out and find a ledge for you."

Ed was the first to leave the table, and the doctor soon followed. They walked possibly a hundred feet.

"This is my claim," said Ed.

"All right—go and get a pick and shovel."

With some hesitancy Ed complied. In his absence the doctor took a hurried survey of the contour and surroundings generally. He pulled a red ribbon from his pocket and tied it to a bush. Then he walked further down the slope. When Ed came back he was told to go to the bush and dig three feet, when he would encounter the ledge and find pay dirt there.

The day was hot and Ed had his doubts. His countenance denoted the misgivings he certainly felt. The doctor urged him on, and he began to dig in a half-hearted way. But he managed to go down two feet, and the shovel brought up indications which strengthened his faith perceptibly. Down he went. At three feet he encountered the ledge and his pick took out enough ore to make a showing. He was nonplussed, yet overjoyed with his find.

"Now," said the doctor, "walk down to that stump, dig it out and go down twenty-one inches. There you will find another ledge which crosses the first one." Ed did so, with successful results. By this time he was wild with excitement. Rothermel turned upon him and savagely said:

"Ed, you have been talking a good deal about me. Now you go back to town and tell every man you meet what I have done before your own eyes. If you don't do it I'll cram every tooth down your lying throat!"

Ed lost no time in setting the doctor right again, spending most of the night in reciting the interesting exploits of the day, and as the new day dawned they took him home in a hack.

Rothermel's methods of work are known only to himself. He has a system of recording his deductions on paper, and the studies resemble huge spider webs wrought in vari-colored lines. He says every kind of rock has its affinity, and the presence of one attests the nearness of others. On some stones he sees the photography of their native surroundings, but the lessons thus taught he alone can read.

There is no necromancy in his art, for he reaches all his deductions along scientific lines.

THE LONGEST TUNNEL.

Passes Beneath Pike's Peak, 7,000 Feet Underground.

Two gangs of workmen have just begun digging in Colorado the longest tunnel which man ever attempted to construct. The main bore will be twenty miles long, and connecting with this are subsidiary miles. So, in reality, the task that has been put under way is that of digging fifty miles of tunnels, and every foot of this vast system will be under Pike's Peak and the mountains that tower on each side.

The starting point of the main tunnel, says the Cripple Creek Times, is at the foot of the mountain leading up to Pike's Peak, near the old town of Colorado City. This point is but a short distance from the railroads which span the country between Colorado Springs and Manitou. From here it runs almost due southwest. The further edge of the tunnel is at the edge of the mountains at Four Mile Creek, over in Fremont County, Colorado, six miles south of Cripple Creek and near the little town of Sunol. Two gangs of men, as stated, are working on the tunnel, one at each end. Just at present they are making progress at the rate of thirty feet a day. It is believed that the mammoth task they have undertaken will be completed in seven years from the first of the present month.

The main tunnel will pass directly under the cone of Pike's Peak at a depth of nearly 7,000 feet and 2,700 feet beneath the town of Victor. Its average depth from the surface will be 2,800 feet, and it is designed to test the mineral deposits of the territory at these great depths. Thirty miles of laterals are contemplated, and these will pass underneath all the Cripple Creek district at an average depth of 2,800 feet. Cripple Creek, Victor, Gillettee, the various small towns and a thousand mines are to be made tributary to this vast system.

Under present circumstances the distance—the shortest way—from Colorado Springs to Cripple Creek is fifty-four miles. By way of the tunnel the two cities will only be sixteen miles apart. It is estimated by the contractors that the average cost per foot of excavation will be $80. This makes the total probable expense of digging the tunnel and its subsidiary branches $20,520,000.

A Donkey's Fall.

"Jim," one of the pet donkeys at Glen Island, disgraced himself in the eyes of the management to-day by going on a spree, and as a consequence is now locked up. A careless attendant left the gate of his inclosure open this morning and Jim took advantage of it and began a tour of investigation.

He made his way to the back of the large cafe at a time when the beer pumps were being cleaned. There were two buckets of stale beer standing near the door, which had recently been drawn from the pumps. The donkey sniffed at the beverage, then plunged his head in and never withdrew it until his nostrils pressed close to the bottom. Then he turned his attention to the second and was busily engaged with it when an attendant discovered him and attempted to drive him away.

Jim was not in a mood to permit liberties being taken, so it was not surprising that when the man took him by the tail and began to twist it both of his hind legs shot out with one accord and caught the man on the chest. The distance from Jim's hoofs to the water's edge was about ten feet and the man covered the space in remarkably short time and reached the water in a sitting posture. He had to be fished out to save him from drowning. Then the donkey was dragged off to a box stall and locked in.—Chicago Chronicle.

He Swamped Chicago's Violet Market.

The original "Allegretti" ice cream man is now living in Chicago at the age of seventy. Ignazo Allegretti left Italy in 1860 for political reasons, and went to the United States. In the early '70's he sought San Francisco and made money as a confectioner.

Five years ago he shipped 1,000,000 violets from California to Chicago in a refrigerator car, and, placing them on sale in the Masonic Temple, offered them at prices that broke the market there. In 1895 he went to Chicago and opened a little candy store in State street. The first day he made fifteen cents. Now he occupies an entire building and has a large corps of clerks to attend to his business.—London Sun.

It is estimated that the daily supply of needles for the entire world amounts to 3,000,000 of varying shapes and sizes, while the United States alone calls for a yearly supply of 300,000,000.

A CONTENTED PEOPLE.

Mexican Villagers Whose Habits Are Very Simple.

The inhabitants of the little interior villages of Mexico retain many of their primitive customs. They are peaceable, congenial and religious. Their life, though monotonous in the extreme, is a happy one. They cultivate corn, beans, wheat, and possess small herds of cattle and goats. The women, in addition to performing their household duties, cultivate vegetables, flowers, fruits and plants for medicinal use. They raise cotton, from which they spin and weave manta (a cotton fabric) for clothing.

On their feast days, which are many, they go to church dressed in their bright costumes, those of the maidens being white adorned with ribbons of many colors. The senoras wear striped dresses of white and blue. The hair is worn plaited in two braids, while upon the head is the indispensable "mazclohuati" (a head dress worn by the lower caste Mexicans), woven in red cotton. The women's eyes are large and expressive, and their teeth perfect and brilliantly white. The form is slight and the movements graceful.

The young men dress in jackets without sleeves and knee breeches. Upon the day of their marriage they adopt trousers, which are made by the "Novia" (sweetheart) who has already woven the manta. They take their places in the church with the children, senoritas and senoras on the right and the men and boys on the left. They pray and sing in the native Mexican language, which is richer, sweeter and more expressive than the Spanish.

In the "Dias tianguis" (market days), they assemble and exchange their goods. Money is a superfluity, and the interchange is made by means of barter and trade.

Their meals consist of "maza de maiz" (flour of corn), which is mixed with powdered chile, in making tomales, tortillas, frejoles (beans), and the native fruits and vegetables, of which there is an endless variety, including aguacates, nanches, tetecezas, tilapos, sandias, chicozapotes, melones and others.

Every year the people assemble to elect their judge, or alcalde, whom they usually obey implicitly. This magistrate is selected from the older men of the pueblo.—City of Mexico Letter.

Eel Blood for Snake Bite.

Some years ago the naturalist Mosse found that the blood of eels, particularly that of sea eels, contained a poison which acted, when transferred into the human system, similar to the venom of vipers, although weaker, inasmuch as the eel poison brought about a similar reduction of the temperature of the blood as the snake poison.

Based upon this fact, Professor C. Phisalix made very interesting researches, which he presented recently to the Academy of Sciences at Paris. He concluded that the blood of eels possessed immunifying agencies upon snake poison. He succeeded by heating a solution of eel poison to 58 degrees centigrade to destroy its virulence, so that it was possible to inoculate a guinea pig with the fluid, the only effect being the raising of the temperature by a few degrees. This reaction of the organism was followed by a perfect capability to resist the poison of the vipers, which was administered in a deadly dose fifteen to twenty hours after the inoculation with eel blood, but it absolutely failed to kill the animal. Even a very small quantity of the heated eel serum was sufficient to produce immunity from snake poison. This discovery is most important, since it can be employed for immunifying human beings against snake bites, and, if not too far progressed, it will even insure a more rapid recovery from snake bite of victims who had not previously been immunified with the serum.—Philadelphia Record.

Cargo of Cannibals.

That Brussels shall have a unique exhibition, scores of cannibals are being brought into Belgium from the Congo Free State territory. How these queer individuals shall be fed is one of the perplexities of the managers of the fair. People accustomed to diet on their fellows find it difficult to get used to the delicacies of civilization. Years ago a Fiji Islander was brought to the United States to negotiate a treaty. He couldn't adapt himself to the mild meat of the Americans, and he sickened and died. His body is buried in the little graveyard of the Brooklyn Navy Yard. With a carload of cannibals the difficulties of the situation greatly increase. Belgium evidently wanted to create a sensation, so Afrikanders of the most pronounced peculiarities were secured. On one ship 268 Congo natives were brought to Antwerp. A score of them belong to the tribe which recently revolted against Baron Dhants.

Some of the black men come from an upper Congo tribe which thinks that the beauty of its people is greatly enhanced by what white men would consider disfigurement. When young, these natives have their cheeks sliced in two places. The intervening flesh is drawn up and made to protrude like a cock's comb. In some of the tribes this comb is made to extend from the forehead to the crown of the head.

Two members of the nation of dwarfs mentioned by Stanley are included in this strange cargo. They do not seem capable of imbibing any intelligence.

Man tills but one-fourth the land of the earth. The rest is mountain, desert, swamp or barren.