THE AGRICULTURAL WORLD.

SUBJECTS OF INTEREST TO RURAL READERS.

The Philosophy of Green Manuring --Ripening Cheese--Don't Forget the Compost Heap--How to Get Natural Water Cress.

The Philosophy of Green Manuring.

On this topic, not as generally understood by farmers as it should be, Prof. Storer, of Harvard University, makes some observations in his work on agricultural chemistry worthy of thoughtful consideration.

In temperate climates, he says, it is undoubtedly true that, if time enough be allowed, almost any land not absolutely arid or poisonous can be made fertile by persistently sowing buckwheat, or clover, or rape-seed, or lupines upon it, and plowing in the green crop before it comes to maturity.

This method of green manuring, as it is called, he justly characterizes as a singularly philosophical method. As a mere matter of reasoning, or of reasonableness, it will well repay careful examination.

In the first place, the seeds of plants are sown, which, like peas or clover, have a peculiar faculty for profiting by the food they find in the air and deep in the subsoil; or plants are chosen which like the lupin, or like buckwheat or rye, have the power of extracting nourishment from the earth, even under very unfavorable conditions.

These plants are allowed to grow until they have gathered from the soil all the matters they are capable of gathering; that is to say, the plants are left until they are in flower and then they are plowed under. By this process the land is manured with everything that the plants have accumulated, either from the air, or from the soil, or from the waters in the soil, and there is placed within the land a mass of organic matter which by its decay will give off enormous quantities of carbonic acid to disintegrate and dissolve the components of the crude soil.

As a matter of fact, while the practice thus described by Prof. Storer is not as widely practiced as it should be, it is really followed to a considerable extent upon the thin soils of New England, where hay is the staple crop, and indeed wherever the sod of old grass land is plowed under, for in such cases the land gets the benefit of what is really a green manuring of considerable strength.

One of the most thorough believers in this system of green manuring we have met was the late E. P. Roe, who at his place at Cornwall-on-the-Hudson constantly practiced it, and, as he firmly believed, with most beneficial results. The moment a crop of any kind was cleared off, in went a seeding of buckwheat, which was plowed under when in flower, thus at once enriching and aerating the soil.

Ripening Cheese.

Speaking of white specks in butter a writer in the Creamery Journal says that cheese is the most nutritious of all foods; one pound is worth more than 10 pounds of flesh meat, says a writer in the New York Tribune. We would tire of round steak or of turkey and soon he disgusted with it if no other meat were furnished. So with cheese; one kind palls on the appetite. The French have more than 100 kinds, made to suit various tastes, and in small sizes for convenience of consumers; consequently the French use more cheese than meat. Americans will never become cheese-eaters until similar diversity is offered. A great mistake prevails in regard to ripening of cheese, by which it acquires a peculiar flavor that pleases the majority of consumers, although many persons do not like it, owning to an under-ground fear of its unwholesomeness. This ripening process makes cheese more digestible and nutritious. The curing (refining the French call it) develops fat in the cheese. A well-cured skim milk cheese contains more digestible nutriment than a fresh whole milk cheese. There is nothing unwholesome about it. The ferments by which cheese is mellowed or ripened are useful, not injurious. Who would eat a hard green pear in preference to one mellowed by ripeness? And this ripeness is due to ferments, able to change the hard, indigestible tissue into sweet, buttery pulp. It is much the same with the "refined" ripe cheeses made by French dairymen, some of which sell here at 50 cents to $1 a pound. This suggests opportunity for home gains by diversity of products. Two Wisconsin girls recently went to France to study the cheese business. Strange that no man had enterprise to do this years ago. Women led the way in fine butter making, and will doubtless lead the way in fine cheese making.

Don't Forget the Compost Heap.

Many farmers manufacture hundreds of loads of the best manure in this way. They gather together on the premises forest leaves, corn stalks, including the roots, weeds, vines, offal and fence corners, muck from ponds and ditches, occasional sprinkling of lime through the mass, layers of barnyard manure, and thus build up oblong squares and let remain over winter. The mass has gone through fermentation and comminution and presents a mound of fertilizing matter better than a small gold mine would be to the proprietor of the farm. But we want to see these compost heaps in the garden, and there is no reason why they should not be there as well as on the farm. There is rubbish enough in the garden, with the assistance of leaves, some mold from the woods, if attainable: if not, from portions of the premises where it can be spared; scrapings from the turnpike, manure from the stable, and every attainable substance that will decay through the winter. A little slack lime will be a good assistance. A half dozen loads of excellent manure will be manufactured by the time it is wanted in the spring, without incurring a cent of actual expense, and at the same time the garden will be cleared of its vines, stalks, weeds, and all other worthless trash.—Germantown Telegraph.

Alfalfa Farms.

One of the greatest irrigation districts in the United States is in Kern County, California. Here are some thirty-five large canals with branches and distributing ditches, covering nearly half a million acres of very rich, sandy loam. The largest of the canals is the Calloway, thirty-two miles long. It has sixty-five distributing ditches, and covers two hundred thousand acres of very rich land. Its water appropriation is one thousand four hundred and seventy-six cubic feet per second.

On the lower side of the canal one can see fully twenty-five thousand acres in almost continuous alfalfa fields. Alfalfa, with water, yields five crops a year, and two tons to the acre at each cutting.

About once in six weeks, for eight months in the year, the alfalfa fields are cut, and the crops stacked in great piles. The vastness of some of the stacks near the ranch-houses of the "irrigation-belt" is a constant source of wonder to tourists. Eight hundred and fifty tons have been put into one stack.

There are some immense alfalfa farms in Kern Connty. The McClurg and the Rosedale ranches have about three thousand five hundred acres each, the Jackson ranch has over seven thousand, and the Poso ranch above ten thousand acres.

The process of handling alfalfa on a large scale is interesting. The derrick and derrick-fork are used. The stacks range from one hundred to four hundred feet long, and are usually thirty feet wide and from twenty-five to thirty feet high, and on the extensive ranches one can often see from fifty to a hundred stacks of alfalfa in sight at one time.

From six to ten teams are kept busy supplying the derricks, and from sixty to one hundred tons can be stacked in a day. Eight thousand tons have been stacked in a single ranch and fed out to livestock.

Cattle, sheep, horses and hogs all live, to a great extent, on alfalfa.

How to Get Natural Water Cress.

Every clear running stream of water, if of no great depth, may be easily made to grow a crop of salad in the form of water cress without price. A little seed scattered on the upper part of the stream will, of itself, soon crop all down stream. In the absence of seeds a planting of slips on the banks, although a slower process, is equally certain, as after the first year seeding will take place and a sure crop follow. The kind of location selected for the growth of the crop for market is the low bottom lands liable to overflow on the banks of the river. Here if it can be so managed that a spot can be selected where the water by sluice ways can be let on so as to cover the beds a few inches deep of water and yet all the time renew itself so as not to get stagnant, then the very state of things is at hand for a water cress bed. So fast do our wants increase that in all large cities there is a demand for fresh young water cress the year round. But this is to feed the epicure mostly. The time of all times when a good dish of water cress is tasty, is the first crop in the spring, and almost the first outside green thing that this northern latitude produces. To our mind this is enhanced by plucking them one's self, all as it were in a state of nature's providing.—Prairie Farmer.

Diphtheria and Roup.

It has been suggested, says Farm and Fireside, that if diphtheria and roup are the same, and if roup can be communicated to the human family as diphtheria, some one should have authority to "stamp it out." Some French scientists, from experiments, claim that the diseases are communicated from fowls to humans, and vice versa, but the probability is that some other form of throat disease results. Roup in fowls often remains for months, while diphtheria in children is immediately fatal. Whether the roup changes to diphtheria when a diseased bird comes in contact with a human or not we cannot state, but the suggestion to "stamp it out" is a good one, and should be followed. Hence, use the axe and chopping-block for roup. It is advisable to be at least very careful.

Farm Hints.

In pruning all large wounds should be covered with white lead and oil.

Buckwheat is a good crop to grow in the orchard to help build up fertility.

Corn meal is now the dearest food. It does nos contain but one-third as much fertility as linseed meal, and one-half as much as wheat bran.

Professor Farlow, of Harvard university, has discovered that simply painting black-knot in plums, with a mixture of red oxide of iron in linseed oil, has not only prevented the spread of the contagion, but has stopped the growth of the diseased parts, so that the knots have crumbled and fallen away with the least possible injury to the tree.

LAURA'S COTTAGE HOME.

HOW AN ECONOMICAL WIFE SURPRISED HER MOTHER-IN-LAW.

What Can Be Done by a Woman Who Loves Her Husband--Seven Hundred Dollars Invested to Advantage.

"And you intend to marry Laura Crawford," said Mrs. Elsworth to her son Robert, who had just announced the engagement to his mother. "And a pretty wife she'll make you," she continued, in a sarcastic way.

"Well, mother," answered Robert, "that is really what I expect, and it was her beauty that first bewitched me."

Mrs. Elsworth was a widow and had resided many years in Evansville, where at one time her husband had been a well-to-do merchant. She was still in fairly comfortable circumstances, but being proud of her son, she had built upon his marrying a wealthier girl than Laura, who, being poor, was not considered a suitable helpmate, according to her ideas, for one compelled to earn a living like Robert. She sat sewing at her cottage window, while her son, who was sitting near her, endeavored to break the news as lightly as he could. A young woman named Sarah, a servant, but more of a companion than the former, was also present and listened eagerly, for she was deeply interested in the conversation, being very friendly to the lovers.

"Now, Robert," continued Mrs. Elsworth, "I am not at all pleased, because Laura is extravagant even in her poverty, and as you are simply earning a salary, I can see no good coming of this marriage."

"Why, mother, I am surprised that you should be so hard on a poor girl," said Robert, "especially when I have selected her to be my wife."

"Oh, very well," replied Mrs. Elsworth, "I suppose it's none of my business, having never been asked for advice on the subject; but all I've got to say is that if she handles your salary you'll find living on it more difficult than you now imagine."

Robert was provoked and left the house, His mother was vexed and disappointed, and tried to find relief in the duties of her household. Sarah, being the recipient of all that was said, was more than anxious to unload the news. She was a tender-hearted girl and sympathized with Laura, who she felt had been unjustly condemned. A little later in the evening she determined on seeing Laura, and so strolled out in the direction of the latter's home. She found her in a merry mood, and, while Sarah disliked telling her what

LAURA'S COTTAGE HOME.

she knew, she still desired to let her know how stanch and true her lover was. Gradually the story was out, and, in a burst of tears and indignation, Laura declared that she would never marry Robert Elsworth. At this Sarah showed evidence of being horror-stricken, explaining how mean and ungrateful it would be to take such a step against one so worthy and devoted as was Robert.

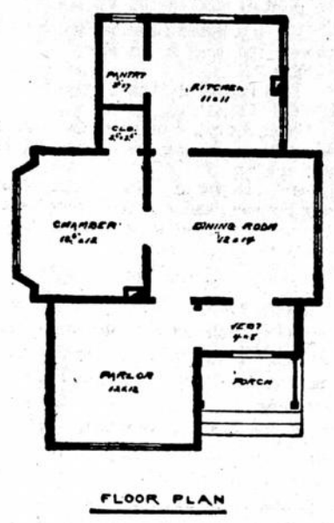
"I'll tell you what to do," explained Sarah, dramatically; "marry him for spite, and then show them what a good, true, economical wife you can be."

This proposition revived Laura's hope and courage, and forthwith she calculated on a great and noble revenge. It was not long before a quiet and unpretentious marriage ceremony took place, in which Laura Crawford and Robert Elsworth were united in holy wedlock. They went immediately to housekeeping in an humble way, and, true to his word, Robert made Laura treasurer of all his funds. Laura at once began a system of rigid economy and hoarded up money in little sums, never saying a word to her husband of his growing riches. As months went by and the savings grew larger, she began to wonder how she would exhibit to Robert the accumulated gains—whether she would have it converted into gold or silver and hand to him as a gift, or have it in paper money, and some evening when he came home have bills of different denominations tacked all over the wall to surprise him. This is what puzzled her.

Thus the time passed by and the amount grew larger. They were living in rooms in a thickly settled portion of the city and one evening, when Robert returned home from his business, he received a notice from the person from whom he rented, to the effect that within ninety days the building in which they lived would be torn down to receive new improvements. Robert and Laura talked the subject over about where they should move to; and although not well pleased with where they were, they still disliked the idea of being ordered out, even on a three month's notice. Robert was silent and seemingly discouraged, while Laura was cheerful and ready to divulge her happy secret; but delayed that she might better enjoy the climax she was at that moment contemplating. "Oh," said Robert enthusiastically, "if I only had a little home, even if it contained but two rooms and a kitchen."

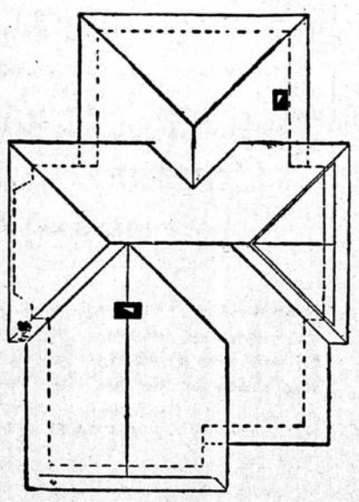
Suddenly Laura was seized with a scheme, and as soon as she could, without attracting too much attention, she withdrew to another room. She eagerly scanned the evening paper for houses for sale, having made up her mind to buy a home, if such a thing was possible, from her savings. She figured that with accumulated interest and all she possessed nearly nine hundred dollars, which she had hoarded up in three years by the closest economy. She read the real estate news through and through; she could not find houses in accordance with her bank account; and resolve. She scarcely slept that night, and in the morning after her husband had departed she went to a real estate dealer, to learn the cash price of a lot in the suburbs. She was given a low figure. She then visited a builder whom she knew and after being shown some designs of houses in the National Builders' Album of Beautiful Homes, she selected a house which she christened "Laura's Cottage Home," and which the builder offered to erect for seven hundred dollars.

Armed with all this information she visited Sarah to communicate her plans, as she was still her trusted friend, and Sarah having left Mrs. Elsworth's service and now being employed in Lawyer Thompson's household, they both went to him for advice. He entered heartily into the business, and feeling the compliment of this simple but important trust, he closed the bargains for lot and building after being satisfied that



FLOOR PLAN

they were really bargains. That evening Robert arrived home as early as Laura, and he seemed provoked and out of patience at her absence without any given reason. He became more so as she seemed indifferent and almost happy over his chagrin. Mrs. Elsworth and Laura had seldom met, and the breech between them had widened. Robert felt more and more despondent over his financial trials, and frequently complained, even to his mother, that Laura did seem a little careless of her duties and spent so much of her time away from home. She was playing architect and superintendent at the new homestead. Week after week was spent in house hunting. Laura had frequently piloted Robert towards her cottage, saying she particularly liked that neighboghood. On one of these visits to the little house, as it was nearing completion, Robert seemed pleased when he found Laura interested enough to want to rent it. She wouldn't hear of his seeking our the landlord. She would do that herself. One evening, on his return, she announced the fact that she had seen the owner, who was not a man, but a lady, and that she had actually become her tenant. They talked of their new home continually, and Robert seemed to brighten up over the prospects that Laura was really becoming herself again. It was agreed that they were to have a genuine house warming in their new home, and even Mrs. Elsworth was to be especially invited and of course. Sarah, too. Lawyer Thompson requested permission to be a guest, and they felt highly honored by this condescension. The night arrived. The guests assembled. Laura, who could scarce retain her tears of joy, prepared a most inviting supper. Robert's mother discussed the want



ROOF PLAN

of economy in the rising generation with the lawyer, and even went so far as to say that no man should marry without being the owner of a home. At this juncture the lawyer arose. Laura knew what he was going to say and was so nervous that she left the room. Sarah was fairly dancing with joy. Robert felt amazed and dumbfounded, and felt that his wife had become offended at what his mother had said. The lawyer told the story of how Laura was to surprise them. He spoke glowingly of her many virtues, and really astonished all present when he handed the deed to Robert for safe keeping. Mrs. Elsworth began to cry and sought out her daughter-in-law to beg her pardon, and there was finally a hearty rejoicing on all sides over the way in which Laura had become the owner of a cottage home.

JAMES HANNERTY.

SCIENCE AND PROGRESS.

INTERESTING FACTS FOR STUDIOUS READERS.

The Knlepp Cure--Machine Writing --Power of Dynamite--The Nicaragua Canal--Sorting and Cleaning Wool.

Sorting and Cleaning Wool.

The wool comes into the mill dirty, greasy, burry, sometimes washed by the farmer, but generally just as it is sheared from the sheep, a filthy and unwholesome thing, giving little sign of the beautiful white and flossy substance into which it is soon converted. It must first be sorted, each fleece containing from six to eight qualities of sorts, which the careful manufacturer separates, devoting each quality to the purpose for which it is best suited. No skill in carding, spinning, weaving, or finishing can possibly produce a soft or fine piece of goods from a coarse, hard fiber. When a woolen thread is to be spun to the length of 15,360 yards to a pound, or in the case of a worsted thread to twice that number of yards to a pound, everything depends upon care in the selection of the fleece and in the sorting. These sorts are impregnated with a greasy substance called the yolk or suint, caused by the animal secretions and the perspiration of the skin, a compound of potash and animal fat, which must be completely eradicated. The elimination of the yolk, dirt, and foreign substances, common to all wools, results in a shrinkage of from fifty to seventy per cent.

Our ancestors scoured their wool in tubs, much as our wives and daughters scour our clothes today. In the hand-washing of wool, a tub was filled with the suds, in which one or two men with long poles stirred the wool until clean, when they lifted it upon a traveling apron, which carried it between a pair of rollers which squeezed out the water. The same principle is applied in the automatic scouring now in vogue. Great forks or rakes seize the wool as it is carried by rollers from a feeding apron into the iron tanks, and by alternating motions of their teeth give it a thorough scouring. Thus cleansed, the wool is delivered by rollers to the drying machines, where hot air and great fans are now utilized to extract all the moisture without tearing the fiber.—Popular Science Monthly.

The Knlepp Cure.

One of the most novel resorts among the numerous "cures" of Europe, is a little Bavarian village, Vorishofen where the village priest, Sebastian Kniepp, now seventy years of age, instructs his patients in a method of treatment which he invented for himself nearly fifty years ago, and which he has thrived on ever since. His plan of hardening or invigorating the body is the practice of walking or running barefooted in wet grass or freshly fallen snow from five minutes to half an hour, after which the patient puts on dry socks of coarse linen yarn without drying his feet, and then takes a smart walk. This is said to cure everything from chilblains to tootoache. He also recommends cold baths during only five minutes, putting coarse linen underclothes on the still wet body, then the outer clothes, and a quarter of an hour's brisk walk. He has curious notions about diet, denounces tea and coffee, objects to much meat, and favors bread. fruit, vegetables, and milk in the main. He recommends brown bread, but his two particular fancies are peas and saurkraut. He believes the more moderately a man eats, the better chance he has of keeping his digestive organs in good order until old age. He advises drinking before eating, never while eating, and also hard beds, and cool-well ventilated bedrooms. He does not object to smoking. Three-fourths of his ideas we could indorse, but we do not doubt that his treatment is well adapted to gross, over-fed, dyspetic, rheumatic and gouty individuals who are still robust enough to bear all of his heroic methods.

Machine Writing.

Writing by machinery has now come to be almost the universal practice in the business world, and the click of the typewriter is heard in nearly evry business office. A different class of work, however, is that of authors and others who themselves operate the machine to put their thoughts upon paper, and it has been thought by many that it would not be adapted to this work, for the reason that the attention necessary to be given to the machine would interfere with the uninterrupted thinking necessary to do such work. Experience is proving, however, that this difficulty exists only in the imagination, and some of the best writers of the day, including Mr. Howells, Frank Stockton, Robert J. Burdette and Margaret Deland, are said to regularly write their copy on the machine, some of them declaring that the click of the keys seems to make their thoughts flow more freely. And after all there should be little surprise at this. The keyboard of a typewriter soon becomes as familiar to the operator as the keys of a piano to the musician, and after that the making of letters by striking the keys is really a more simple matter than by making them with the pen, for with the machine precisely the same motion is required for each letter, and they are made without the necessity for thinking of the means by which they are made. A number of our correspondents send in typewritten manuscripts and a constantly increasing proportion of the matter appearing in this paper is written by machinery.

The Nicaragua Canal.

Mr. A. M. Wellington, C. E., one of the editors of the Engineering News, speaks in very emphatic terms about the Nicaragua Canal. A member of the News staff, Mr. Stauffer, has made a personal investigation of the route of the canal, and both he and Mr. Wellington are satisfied that it is a feasible and promising project.

"The great trouble with the Panama Canal of De Lesseps," said Mr. Wellington to me "aside from the enormous amount of work involved in cutting through the mountain for a tide level canal, was the difficulty of controlling the Chagres River. A three hours' storm transfers it into a raging torrent, which has time and again done untold damage to the works. The canal will probably never be finished, even with locks, now that the American enterprise is progressing so favorably. The Nicaragua River, you know, is not subject to floods. The great lake at its source acts like an enormous reservoir to equalize its flow. It is like the St. Lawrence in this respect. The work of constructing a canal along its channel will be very simple. The entire route has now been very thoroughly surveyed.

"Another advantage the Nicaragua route possesses is its climate, which is by no means unhealthful, except, perhaps, in mid-summer."

Theory.

Theory is a word which has great terrors for some, but it should not have, for theory is only another name for speculation. The very men who abhor theory, as a term, often theorize the most. It is because the name is so frequently misapplied that men are afraid of it. Theory is supposed to be something which a practical man, so called, detests; but the practical man, of all others, uses it the most in daily work. He can not see the actual cause of the grunting in the cylinder, but he forms a theory as to what it is, and soon finds the remedy. Would that we could test all theories as promptly! Students and others theorize, or speculate in their researches upon the cause of cylinder condensation, but they can not put them to conclusive tests. Some men are called theorists, in distinction to practical men. We are all theorists in daily work when we can not obtain positive proof. Where we can not see with our eyes and touch with our hands, we must speculate, conjecture; build on a slight foundation of fact a superstructure of possibilities which may stand or may tumble down. It seldom does this last if the speculator is well grounded in practical work.

Power of Dynamite.

Shooting a candle through a two-inch solid plank without disturbing it in the least is being outdone by dynamite, which is so quick in its action that a tender green leaf can be compressed into the hardest steel before it has time to flatten. One of the experiments of the United States Torpedo Works was to place some leaves between two heavy, flat pieces of iron, set them on a firm foundation and see what gun-cotton would do in forcing the iron pieces together. The reaction was so great from just being exploded in the open air that one of the iron pieces was driven down upon the other quick enough to catch an exact and complete impression of the leaves before they could escape. It is also a singular fact that the gun-cotton itself should sink deep into the iron when it explodes, showing the points of the letters stamped into the cartridges. This novel method of engraving by gun-powder is one of the wonders of this century.—Cleveland Plain Dealer.

The Printing of Wall Papers.

In machine printing the plain paper arrives at the factories in great rolls of various qualities to suit the different purposes and prices for which it is required. These long rolls are useful for machine work, which is not cut into lengths until after it has been printed. In hand work, on the contrary, the rolls are cut into eight-yard lengths the first thing. The paper is grounded with one coat of color, although sometimes two coats are given. The cylinders are fitted with scrupulous exactness. The paper then enters the machine, taking up one color after another as it passes around the great drum; entering the machine as plain paper it passes out embellished with a pattern of many colors, Then, by a species of aerial railway, it is carried up and over elevated rods continually moving until, at the very end of the factory it is rolled up dry into ordinary roll lengths.

A Novel Electric Climber.

At Seattle there is about to be put into operation a novel method of running electric cars up steep grades. The electric railway there has a very steep grade about 800 feet long, and it has been found that the motors on the cars are inadequate to surmount the hill. To correct the difficulty a small conduit about two feet square is constructed, and in this is to run a small car as a counter-balance. Two ropes will be attached to the counter-balance cars, with grips at each end, and will run around pulleys at the bottom of the incline up the counter-balance car at the top. When an ordinary balance car is attached to the rope, the counter-balance car runs down the hill, but when the cars reaches the top of the hill it runs down the other side, and, aided by the motor, it pulls up the counter-balance car, which is now ready to bring up another car.