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THE INDUSTRIAL AND EDUCATIONAL INTERESTS OF OUR PEOPLE PARAMOUNT TO ALL OTHER CONSIDERATIONS OF STATE POLICY.

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"I am standing now just behind the curtain, and in full glow of the coming sunset. Behind me are the shadows on the track, before me lies the dark valley and the river. When I mingle with its dark waters I want to cast one lingering look upon a country whose government is of the people, for the people, and by the people."—L. L. Polk, July 4th, 1890.

EDITORIAL NOTES.

The Windsor Orient says: "Vote, vote early and late." Bro. Johnson evidently forgot that under the new law no man can vote more than once on election day.

One of our exchanges says: "An Oklahoma girl advertised for a husband and got him. The advertisement and wedding outfit cost eleven dollars. Within a year he died and left her five thousand dollars life insurance. It pays to advertise."

THE PROGRESSIVE FARMER has made a splendid reputation as a "kicker." Is was not so very long ago that some said that our motto was: "Whatever is, is dead wrong." Although not so pessimistic or cynical, we did not get angry at this remark, for kickers some times do some good work. Says The Commonwealth:

"The Governor of one of our States, in a recent speech, asked a vital question, how the so called best citizens can be compelled to take an active part in city affairs in some other capacity than as mere fault finders. The question has pungency in the way it is put. Fault finding alone is poor evidence of being the best citizens, and when divorced from active endeavor to reform abuses, it only produces irritation and discontent. But the earnest and brave fault finder has an important mission in this world. He has an ugly name, it is true, and is pretty sure to be found fault with and ultimately hated. Still the world needs him. Jeremiah and other of the prophets were mighty fault finders, and they fulfilled their mission by exposing the corruptions of their day. Literature and art need their critics. So does civic life. Men who see what ought to be, and have power to point to better things and lead the way, will always be needed in this imperfect world."

The Western Plowman denounces in the most emphatic manner the chronic practice of the partisan vulture press of perpetually attacking public men whose political creed of acts are not pleasing to these libellers of character. It says: "If a man is a defeated candidate for high office, or is one who while in office acted in an independent manner in his policies and opinions, the flood gates of abuse and mud are opened and the flood of slime never ceases to deluge the victim as long as he lives. Tilden was abused as if he were a pirate; Hancock was ridiculed as if he were a clown; Greeley was blackguarded into his grave; Hayes was treated with all the disrespect that a devilish ingenuity could invent, and now Bryan is the bespattered object of this sort of fiendishness. It is no crime to run for the Presidency and be defeated. It is no crime to become the Colonel of a regiment and to attend strictly to one's own business, as Bryan seems to be doing. The Plowman has no special interest in Bryan and never had in any of the men whose names we have mentioned, but it does admire decency even in the treatment of a dog. When editors become byenas, they cease to be men and ought to be ostracised."

If the editor of the Plowman had lived in North Carolina during the recent campaign, he would have witnessed a kind of journalism worse than that he so well describes here. In this State the "hyenas" did not stop at abusing and villifying public men, but even attempted to degrade their native State in the eyes of other States because her officers happened to be men with whom they did not agree politically.

AGRICULTURE.

HOW CROPS GROW.

Correspondence of the Progressive Farmer.

The growth of crops is never an accidental circumstance. For every step in the development of vegetable matter, nature has provided laws which may not be broken. With care and attention to particular wants, crops improve both in quality and quantity. This improvement of plants is the underlying principle of agriculture.

Plants are improved in quality and quantity of their products, by surrounding them with conditions most favorable to their growth and development, this may mean simple tillage of the soil, liberal feeding with fertilizers or other manures, or protection from injurious diseases and the attacks of insects. In a manure, all of these methods of improvement are dependent upon another. Liberal manuring of itself cannot make good the damage caused by improper or insufficient cultivation. Plants illy cultivated or scantily fed, fall an easy prey to the various plant diseases.

Plants grow, therefore, by giving them soil conditions favorable to their development, and by giving them ample food of the right kind and at the right time; in this is comprised practically the whole art of successful agriculture. The soil must be thoroughly broken, and kept in a high state of tilth by frequent cultivation Heavy soils should be plowed in the fall, or very early in the spring; light soils are not improved by fall plowing. The seed bed must consist of open porous soils, and this means a deep soil in most cases. No two soils are precisely alike, so that the farmer must exercise judgment for his individual conditions. It will never do to let well enough alone An effort should be made to make each crop an improvement over its predecessor. Each year's work should be studied closely, or nothing is gained from experience.

The feeding of plants is perhaps the most important feature in modern farming; because it involves the use of materials in a more or less blind manner. Manures or fertilizers are applied to the soil before the crop has appeared, and once applied are no longer under the apparent control of the farmer. As a matter of fact, the action of manure is very much under the control of the farmer throughout the whole stage of plant growth. If the soil is kept thoroughly tilled and a surface layer from one to two inches in thickness maintained constantly in a dry pulverized condition, either fertilizers or farm manures are much more effective.

In a large manures, the profits in farming depend on the amount of sales made off the farm; and, consequently it is impossible to keep returning to the soil, all that is taken off. No farm can be maintained in normal condition by the sole use of the manures made by feeding the roughage, as in such cases more plant food is taken from the soil each year than is returned. As a result, chemical fertilizers must be used sooner or later, and it is a wise farmer who does not wait until his soil is nearly exhausted before making use of them.

The proper use of commercial fertilizers is one of the most important problems in agriculture, and one on which there are many disagreements. The best practice at present seems to be in using the farm made manures on corn, or other crops having a clean cultivation throughout the year. On all other crops the chemical fertilizers are best used. and even on the clean-culture crops, applications of the mineral fertilizers, (potash and phosphoric acid), are very profitable in most cases.

As all farmers now know, chemical fertilizers are materials of commerce which contain the fertilizing principles found in farmyard manures; that is, they contain ammonia, potash, and phosphoric acid. Some of these chemical manures contain only one of the fertilizing ingredients, others two of them, and in a few cases all three are found. They are generally much richer in plant food than farmyard manures, and are consequently much more cheaply applied. One of the points of disagreement is the proper quantity of fertilizers to use, and the pounds of potash and phosphoric acid which should accompany any given amount of ammonia. There seems to be no positive agreement as to the proportions of ammonia, potash, and phosphoric acid likely to prove most profitable, but it may be taken as a fairly safe rule that the chemical analysis of the crop indicates about what the crop needs. Tables containing the analyses of all ordinary farm crops may be obtained from any State agricultural experiment station, free of cost to farmers.

Besides these chemical fertilizers, indirect fertilizers such as lime are a most important aid. Lime not only improves the mechanical condition of soils, but also tends to increase the effectiveness of chemical manures. It should be applied at least once in every rotation, say every third or fourth year, and at the rate of 20 to 40 bushels per acre. In conclusion, it is well to note that plants grow by and with the aid of the farmer's skill as a husbandman. He must not blindly follow the track laid down by past generations, but must study his business and take advantage of every step forward proved by the experience of others as well as the points gathered from his own experience. R GARWOOD.

FARMERS AND RAILROADS.

Correspondence of the Progressive Farmer.

Farmers cannot get along without railroads and certain it is that railroads would be poor property were it not for the farmers. The interest of railroad companies and farmers are, or should be, mutual. There should be a good understanding at all times between them One should not wrong or attempt to wrong the other. On the other hand, each should champion and guard the interests of the other as occasion may require.

It must be admitted, however, that the farmer has little opportunity to wrong the railroad, while the railroad has abundant opportunity to wrong the farmer by demanding excessive charges for the transportation of his products. One does not need to try hard to remember when railroads were prospering, drawing the corn crop of Nebraska and some other Western States, while at the same time the money that the farmer got out of the same crop hardly paid him for drawing it from his farm to the railroad station, to say nothing about the use of his land and the labor expended in raising the crop.

Of course the railroad officials would claim that they were working on a very close margin, yet at the same time they were not only paying good dividends, but in many instances paying them on stock heavily watered. More than that, the officials of the roads were all liberally paid, as were most of the employees, many engineers, conductors and even firemen earning in a year more than many a farmer would receive for his labor in three years.

The above is not written to stir up ill feeling between farmers and railroads, but to call attention to the situation, hoping to suggest some way to improve it.

The foundation on which any government must rest is a good understanding. Yes, thoroughly good relations must first be established and then constantly maintained. And where any advances are to be made they should as a rule be first made by the railroads. This, because they are the stronger party and the one having all the advantage. Let the railroad companies show to the farmers on their respective lines that they appreciate their patronage and feel an interest in their farming operations and their successful results, then the first step towards a good undertaking has been taken,

Representative railroad men should meet representative farmers. Where shall they meet? The answer is that many good opportunities are to be had at agricultural conventions and farmers' institutes, whenever and wherever held. At such gatherings the officials connected with the freight department of railroads could learn direct from farmers what grievances they have or think they have. And at the same meetings they could present the railroad's side of the case.

The writer holds that anything that tends to make farming pay better helps at the same time the railroads. Therefore the latter should do all they can to encourage farmers to adopt better methods. The more agricultural meetings held and the better attended the greater will be the improvement in agricultural matters in the sections of the country where held. This is a statement that can be easily proven and one of which no intelligent observer will deny the truth.

Railroads should not only be represented at agricultural meetings, but they should encourage the holding of such meetings. Further, they should sometimes take the initiative in getting them up. At all times they should render all reasonable assistance to those farmers who spend their time in organizing and conducting them.

F. W. MOSELEY.

Clinton, Iowa.

MORE WHEAT EXPERIMENTS.

The Kentucky and Ohio stations have also been experimenting to ascertain the best varieties of wheat and the best methods of treating rust and smuts.

At the Kentucky Station Early Arcardian gave the best yield of twenty varieties tested, Jones' Winter Fife and Early White Loader standing second. But the Arcadian was one of the poorest milling wheats in the lot, and the other two heavy yielders also ranked rather low in milling qualities. The best milling wheat was Jersey Fultz, which stood eleventh in yield.

Acid phosphate seemed to give better results than any other fertilizer containing but one element, though a complete fertilizer consisting of one-fourth (by weight) of nitrate of soda, one fourth muriate of potash, and one-half acid phosphate, gave much better results than acid phosphate alone. This was in western Kentucky. In the limestone lands of the bluegrass region, potash is more needed than phosphate.

In regard to rust, this Kentucky bulletin (No. 71) says:

"This rust grows on all the small grains and many of the grasses. In becomes common here in midsummer and does its greatest injury then. From what has been said of its development it will be apparent that direct applications to the attacked plants cannot be made with any assurance of success. The parasite grows in the interior of its host plants, and only appears at the surface to form its spores, and after its growth is complete and its injury done. Applications of such substances as bluestone at this time would doubtless destroy many of these spores, but we not consider the application of any solution of this kind practicable after grain is pretty well grown; and, as has been intimated, the spores do not become apparent early in the spring.

"The fact that winter spores remain in stubble and straw is the most important one from the practical point of view which my sketch of the development of red rust discloses. It is always this old straw and stubble which furnishes much of the rust which appears on wheat, and where rust is trouble some, injury can be reduced by care in removing and burning straw refuse, and in burning off the stubble after the grain is harvested. Stable manure containing straw from bedding is a common source of injury from rust, and is not to be recommended for use until well rotted.

"I have no evidence on this head myself, but it is believed by good authorities that red rust is hereditary; that is, the small growing threads of which I have spoken penetrate the kernels of grain while the latter are still immature and remain there dormant until the kernels produce plants, when they become active and produce spores. It is asserted that seed grain saved from badly rusted wheat or oats produces badly rusted plants, and that by avoiding such plants in getting seed, then using the precautions in the matter of straw and stable manure which I have recommended, rust need not be feared."

The Ohio Agricultural Experiment Station has, for several years past, conducted experiments in the prevention of the smuts in wheat. There are found on wheat in Ohio, loose smut and stinking smut. The loose smut is that noticeable at blossoming time, which destroys, usually, the entire head. It is, perhaps, more general, though usually much less destructive than the stinking smut, which converts the kernels of wheat into masses of dark brown, ill smelling fungus spores. This station has been successful in preventing both of these smuts and recommends the following methods:

In all the methods employed for stinking smut it is probably advisable to immerse the grain in cold water, with stirring, and to skim off the smut balls which will, in this manner, rise to the top of the water. After this is completed the following treatment may be employed:

Immerse this skimmed seed, contained in gunny bag or suitable wire mesh vessel, for ten minutes, in hot water, at a temperature of 133 degrees Fahrenheit. Then dry on smut free surface, cooling quickly by thoroughly stirring, or cold water may be employed to cool the grain. Remember, these temperatures are to be determined by a thermometer; longer immersion than ten minutes, at that temperature, may injure the grain.

For loose smut it is best to use a modified hot water treatment as follows: Soak the seed grain for four hours in cold water, let stand four hours more in the wet sacks, then immerse for five minutes in hot water at a temperature of 133 degrees Fahrenheit, spread at once on a smut free surface to dry, and sow. Use one-half more seed to replace that injured by the treatment.

LETTER TO THE BRIGHT BOY ON THE FARM.

No 2

[From Wallace's Farmer.]

Last week I talked to you about matters and things in the cow lot and asked you to open your eyes and test certain theories and see how they work in with your father's practice. Inasmuch as you are in the habit of feeding pigs, sometimes at least. I want you to test some theories in the pig pen. I have a theory that farmers are going a little daft on pigs; that they think a good deal more of the nice, fine looking, chuffy, animated lard keg that waddles around the yard with a pretty little kink in its tail and makes the young girl who visits your father's farm exclaim, "Oh, how cute, aren't they sweet little things; too sweet for anything!" If you have this kind of pigs on your farm, which I suspect you have, I want you to notice how they are fed. You will find they have about all the corn they want to eat. If your father is a breeder of fine hogs and is fixing them up for the fair you will probably find that he gives them of the milk of the dam and probably slips in a little fresh cow's milk in addition. Now my theory is that nature don't intend a pig to grow that way; that she intended it to grow in bone, in muscle, and to be something of a rustler, and when you come along, whistling in the dog fennel or rag weed in the pasture and get close to them, they start off as fast as they can and make a queer noise which I cannot put on paper, but which, I think, is intended for a pig's laugh when something touches its tickle bone or when it sees the point of a joke. They mean to say to you, "You young rascal, catch us if you can." These fellows have corn, but they run on clover, and they have oats once a day or possibly some bran and shorts, and they feel as funny as a boy going out the Fourth of July or racing home from school when he knows that his mother has prepared a supper of fried chicken, sweet potatoes and apple dumplings for her boy when he comes.

Now my theory is that these last pigs are fed what we call a balanced ration; that is, the proper proportion of flesh formers, foods that make muscle, of bone formers—that is, of the ash elements and of carbohydrates, or the fuel element, that which keeps the pig warm and stores the surplus as fat—while the little chuffy fellows are like spoiled children, filled up with sweets—corn, the milk of their dam and cow's milk—and hence, like some boys who are pretty to look upon in these nice suits and with their hair parted in the middle and well oiled, but of not much account when it comes to running a race or doing a hard day's work, or even hunting rabbits.

I want you to notice further the brood sows that run your father's fattening cattle, and notice particularly the strength of pigs which they will furnish next spring. My theory is that a brood sow is a pig factory and that she must be fed with food that furnishes the raw material that makes a little pig—bone, gristle and muscle; blood and hair, with not much fat about it—and, therefore, the brood sow must be fed with food that furnishes these; and that the corn which she gathers up in the droppings of cattle furnishes too much fat, which is not wanted, and not enough bone and muscle, which are wanted. I want you to notice carefully and see whether your Uncle Henry's theory on this works out. He likes to construct theories and repair them from time to time when they don't account for all the observed facts. He finds it to his advantage to have a working theory, of the correctness of which he is never right sure until he sees that all the facts fit in nicely about the theory. When he gets this one he puts it in the paper. He has a great lot of theories which he has not worked out yet, but he thinks this one is pretty near correct. Now I want you to notice whether these brood sows, and especially the younger ones that run after the cattle, have full litters that are up on their feet before you can find them in the morning, or whether they come weak, lazy; born tired, and don't care whether they live or not. My object in writing to you is to make a sort of farm sharp eyes boy who notices everything that is going on and put this and that together and draws conclusions. UNCLE HENRY.

THE DAIRY.

—EDITED BY—

FRANK E. EMERY, M. S.,

Agriculturist North Carolina Agricultural Experiment Station, and Secretary-Treasurer North Carolina Dairymen's Association.

Inquiries regarding Dairying cheerfully answered.

CREAMERY SHARKS.

Correspondence of the Progressive Farmer.

It seems as though the same class of men who at one time were engaged in the sale of lightning rods had found a better paying kind of swindling, and one that can be worked on a larger scale, in the organizing of stock companies for the purpose of erecting, outfitting and selling to such companies public creamery plants at never less than double legitimate prices and many times at much higher rates.

A few years ago this class of swindlers plied their vocation for a time unmolested and at that time their profits were even better than now. But after awhile the agricultural and dairy papers got after them, roasting them pretty thoroughly under the title of "creamery sharks." This went on till one concern by which the "creamery sharks" were mainly sent out, finding its business was being seriously interfered with decided something must be done.

We soon find that concern very liberal advertisers in agricultural and dairy papers, which they had not previously been.

Soon after that took place the term "creamery shark" fell into disuse in such papers, and the 'promoters," as they were called, of stock companies for building creameries had smooth sailing.

Such companies were organized and large butter and cheese factories erected and fitted out where there were not cows enough to supply milk for even a small plant.

The average cost of such plants complete was for a time about $7,000. The average history of a large majority of them is that they were usually operated one season, and a short one at that; in some instances only a few weeks the first season and that ended it. Such plants have come to be shunned by insurance companies as they have a habit of mysteriously disappearing in smoke. There were some exceptions, but that was the rule.

It is worthy of note that the one word or term that was used largely by the "promoters" of such companies was "co operation" or "co operative creameries." These terms seemed to take with farmers and helped to secure their subscription for stock.

The above state of affairs continued because there was no one to champion the cause of the farmers, who had been swindled and others who were prospective victims, until a paper in this city (Clinton, Iowa,) took the matter in hand and ventilated it thoroughly in an editorial. The immediate cause that led to this was to protect farmers in the paper's own county. But the effect of that editorial did not end there, but extended all over the country. It resulted in dealing a blow to the creamery shark interest, from the effect of which it has never recovered.

The above is a brief account of the cause set in motion that brought about the second and lasting reaction against

[CONTINUED ON PAGE 8.]