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B. N. SUTHERLIN,
EDITOR AND PROPRIETOR

The ROCKY MOUNTAIN HUSBANDMAN is designed to be, as the name indicates, a husbandman in every sense of the term, embracing in its columns every department of Agriculture, Stock-raising, Horticulture, Social and Domestic Economy.

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AGRICULTURAL.

The healthiest people on the face of the earth are those who follow the occupation of farmers. The noblest specimens of humanity that figure in the world's history of all ages since the days of the good old patriarchs, are from the ranks of husbandry. Then why should we of the present day not look upon our calling with a due sense of pride? As it was in the time of ancient Rome, and has been through every decade since, so it is now; the farmer is the only true sovereign and monarch among men; all other classes must do him homage. He feeds the world. If there is independence anywhere it is with the man who owns and tills the soil, and "who owes no penny he cannot pay." Seed time and harvest come and go, as Time pursues his endless cycles, and his stores are always full and his board supplied with plenty. If happiness exists anywhere on earth, certainly it is beneath the cool shade of a country home, and within the love-lighted walls of the farmer's cottage what a treasure of health, innocence and beauty—life's greatest wealth—may be found. What though the farmer's sons be puny and sun-bronzed, and his daughters' cheeks mantled with a crimson glow; 'tis the insignia of toil—the proudest that can be worn. Then stay by the farm; lead a life of usefulness and independence; the reward cometh each day that you live.

INEXHAUSTIBLE SOIL.

I will try to answer Mr. Kauntze's question regarding the "inexhaustible soil." First of all, let me demur to his statement that "what these ingredients (i. e., the ingredients that determine fertility) are, real-ly we do not profess to know." So far as I know, no doubt regarding these ingredients exists, or has existed for 30 years past. They are those out of which are compounded the commercial fertilizers, in the manufacture and purchase of which untold millions are annually invested. The practical-proved fact that these substances maintain or restore fertility, and that they are contained in the products which we draw from the fields, sets at rest, it seems to me, all doubt on this question. It is true that the mere presence of these ingredients, in an available form, well known and indispensable, is nevertheless not all that is needed. The physical condition of the soil, yet not excessive moisture, heat and dryness must also be fulfilled, in order that the plant food may be available for the plant. It is in regard to these conditions of availability that our knowledge is as yet as definite as it is in respect to the nature of the ingredients; and the same is true as regards the specific influence of such conditions upon the development of the several cultivated plants. But when a soil has borne good crops of grain kinds for a number of years, and then ceases to bear them while still undergoing the same treatment, and subject to the same natural conditions, there cannot hardly be any question that the failure is due to the withdrawal of plant food from the soil, and that a replacement of these in-

gredients is called for as the first condition of the restoration to fertility. This is the teaching of the experience of 3,000 years, quite independently of "the reason why," as developed by the progress of science. Conversely, when in one out of ten thousand cases we find a soil which continues to bear crops indefinitely without returns being made by its cultivators, the first and reasonable supposition must be that, through some exceptional natural cause, the replacement of ingredients takes place without the intervention of man.

In all cases that have been fully investigated so far, such an outside natural source of supply has been found. That of the "bottom lands" of the Nile is the flooding from the rivers traversing and washing away the fertile uplands of Abyssinia. Similar cases, on a smaller scale, are abundant; and, as regards California, the testimony of many in the flooded district would seem to show that if the sediment of the Sacramento were allowed to cover the valley every six or eight years, we need seek no farther for the inexhaustible soil. It is true that here we get a new soil with every flood.

Then there are cases in which waters naturally hold, in solution, large amounts of plant food, and therefore continually supply the latter to the soils which they permeate. This has, in fact, given rise to the broad statement that irrigation will, by itself alone, maintain fertility. It will do so in certain cases, and some such seem to obtain in California. If your correspondent will refer to my late report, he will find on page 50 a case in point, in the water running from a mine in El Dorado county. But there are more striking examples found among the "alkali soils" of the State. On pages 45 to 47 of the document referred to will be found analyses of the alkali from some of these soils occurring in the southern part of the State, in which potassium salts form a prominent ingredient. These soils, in all probability, will never need potash manures, even if they should be reclaimed by under-drainage—they certainly will not if reclaimed with gypsum only. Since then, soils have come to hand whose alkali contains both of the other chief manurial substances, viz: phosphoric acid and nitrogen, the latter in the shape of potash nitrate. As it is likely that these substances will always be supplied in sufficient quantities by the soil water, I shall not be surprised if the Utopian "soil that never gives out" should be found among the reclaimed alkali lands of California.

Whether or not the everlasting wheat soils of the Andes, mentioned by Boussingault, owe their perpetual fertility to similar causes we are not informed, as no special observations have been made. There is one other possible cause that has been occasionally noted, in the case of soils formed out of every decomposable volcanic rocks, whose continued weathering makes up for all the drafts made upon the soil by cropping.

As to the assertion that "maize may likewise be produced continually upon the same soil without inconvenience," American farmers have, unfortunately, a very different story to tell. Ask the "prairie farmers" of Illinois where are the 80 bushels per acre they used to make when their land was fresh? It is true that maize is not to be accounted a very exhaustive crop, when all but the ears is returned to the soil, and that it can usually be grown without rotation better than most crops. But apart from the Peruvian experience (which probably relates to certain volcanic soils), more than that can hardly be said of it.

But there are some crops whose nature happens to be such that what they withdraw from the soil becomes imperceptible in land naturally strong, whose available plant food receives considerable annual accessions through the natural action of the atmosphere, in farther decomposing (fallowing) the soil. One such crop is cotton, which,

when all but the lint is returned to the field, can be raised on one and the same soil almost indefinitely. The simple reason is, that in the lint only an insignificant amount of soil ingredients is carried off, viz: about one per cent. of what the whole plant removes; and in strong soils that small quantity is annually made good by the natural fallow. Such a soil may therefore be considered inexhaustible so far as cotton is concerned, provided the stalks and seeds be given back; but it would not be so for flax or grain, unless these crops were bodily plowed in whole instead of being harvested. In other words, the "residues" of some crops contain the greater part of the entire amount absorbed from the soil during their growth; while the stubble of grain, the vines of potatoes, etc., restored but a small percentage of that sum total.

When a fresh soil is taken into cultivation it contains the accumulated riches of centuries in plant food. There is nothing surprising in a sixteen years' unchanged crop of 50 bushels of wheat, in fact, I think California could "see" that and "go better" in a good many districts. But sixteen years is a very short time to base agricultural experience on, and if Mr. K. were to visit these same Western wheat fields to-day, he would hear of 12, 10 and 8 bushels more frequently than even of 20. The truth is that a great many of these broad statements regarding continuous fertility, that have passed current in books on agriculture, will not bear investigation on the spot. Louisiana with her three feet of black alluvial soil, has found out to her cost that sugar-cane cannot be planted continuously on the same land; and the culture of indigo in the Gulf States was well known to be "very hard on" the soil, before it was abandoned for cotton.

With the rare exceptions mentioned, the vast majority of mankind will always find it necessary to provide against soil-exhaustion by rational methods of culture and returns to the soil.—E. W. Hilgard in Pacific Rural Press.

THE POULTRY YARD.

THE BEST BREED OF FOWLS.

The best fowls are those which will return the farmer the most money for time, labor, and food expended. If a common or cross-bred lot of fowls will do this, they are better for the farmer's purposes than a breed which, in a fancy point of view, will command higher prices. As far as we are concerned, we confess a leaning toward the best blood in all kinds of stock, whether in horse flesh or neat-cattle, or other live stock; and we have invariably found it to pay well. But here's the rub; many farmers do not care to expend a considerable sum of money to possess an entire flock of pure-bred chickens, and so dismiss the matter entirely, not even, in many instances, procuring a good, pure-bred cock, to bring up the quality of their home-grown birds.

There are many persons who think it not only possible, but comparatively easy, to have both large size and superior laying qualities united, and that by uniting a breed noted for large size with a breed renowned for the production of eggs the thing is done. That it is possible to increase the laying properties of the common flocks of the country by coupling the best hens and pullets with a first-class cock or cockerel from an egg-producing breed, we well know; but we can assure those who are anxious to make such a trial that you cannot combine extreme large size with superior laying qualities, and cannot ever tell what will result from such a cross until you see and test the produce, for the more violent the cross the more uncertain will be the result, invariably. Though some breeders overlook this very important point, and, consequently, fail to succeed.

If, for some reasons best known to the parties, it is not thought best to have flocks

of pure bred fowls, by all means, at least, infuse some new and special blood into your flocks, which will not only give you chicks which possess much of the qualities of the male used, but will increase the stamina of the flock—will make them stronger and more vigorous. Where it is more desirable to market the flesh of the fowls and chicks, a large breed of fowls should be looked for to increase the avoirdupois. In such a capacity we can recommend the Light Brahma and the Partridge Cochins, having experimented several times with both on numbers of different flocks, and the result was invariably increased size and hardness.

Where nearness to large markets permits the farmer to get the cream of the prices by putting the eggs before his customers nice and fresh, the production of eggs pays handsomely. If some of the laying breeds, such as the Leghorns and others, be beyond the reach or desire of the farmer, then let us say, from experience, what will result in the best possible manner to the farmer's interests. Select some of your best and most vigorous hens and pullets, and have a well-bred, pure-blooded Game cock to run with them, killing off all other male birds. The result from such a cross will be a class of birds which will lay splendidly; and especially are they noted, by those who have tried the experiment, as winter layers; and winter layers, we all know, are the most profitable.—Farm Journal.

EGGS.

If an increase of eggs is desired in the poultry yard, before very large sums of money are expended in the purchase of everlasting layers, we would recommend the keeping of no hens after the first, or at most, their second year. Early pullets give the increase, and the only wonder is that people persist, as they do, in keeping up a stock of old hens, which lay one day and stop three, instead of laying three days and stopping one. In some parts of England it is the invariable rule to keep pullets only one year. Feeding will do a great deal—a surprising work, indeed—in the production of eggs, but not when old hens are concerned; they may put on fat but they cannot put down eggs. Their tales are told, their work is over; nothing remains to be done with them but to give them a smell of the kitchen fire and the sooner they get that the better for all parties. Of course there are some old favorites whose lives can be spared as long as they can send forth their representatives. Judicious mating, by which we mean the advantage of a youthful cockerel, may be the means of even exhibition poultry making their appearance from the eggs of a good hen, and here we have the exception to the rule upon which we insist.—London Agricultural Gazette.

THE HOUSEHOLD.

RECIPES.

- Scotch Cake.**—One pound brown sugar, one pound flour, one-half pound butter, two eggs, one teaspoonful cinnamon; roll very thin and bake.
- Apapinimies.**—Yolks of two eggs, one pint flour, one-half pint milk, two teaspoonfuls butter, a little salt; roll very thin like wafers and bake.
- Waffles.**—One pint sweet milk, four eggs, one large cupful cold rice or hominy, a little salt, flour to make a stiff batter, baking powder in the proportion of three teaspoonfuls to a quart of flour.
- Buttermilk Muffins.**—One quart buttermilk, two eggs, butter the size of an egg, two flat spoonfuls soda mixed in a little water, or one spoonful saleratus, two teaspoonfuls salt, flour to make a thick batter; bake in rings in a quick oven.
- Baking Powder.**—Three ounces of tartaric acid, four ounces of Babbitt's saleratus, nine ounces of flour. Pulverize the acid and saleratus, mix thoroughly, and box. This quantity will make a pound.