

ricultural purse is empty, these facts are magnified and paraded with an air of triumph and satisfaction, which legitimately belong only to those who are removing a great wrong, or abating a great nuisance.

Agriculture not Declining.

Now, to a calm and fair observer, agriculture is neither unsuccessful nor declining. It is a many-sided occupation, not easily destroyed. Its channels are numerous. Its opportunities are various; and its energies should be equal to its opportunities. The closing of one channel is but a signal for the opening of another, and suppressed at one spring head it will break forth in newer fields, like the sacred fountain of the fabled Arcthusa. If any man supposes, either for the confirmation of a theory, or the gratification of a prejudice, that the great tree is dying because a single branch has withered and perished, he will find himself, when, perhaps he least expects it, enjoying the blessings of that generous shelter and shade.

The County of Essex, perhaps, affords as good an illustration as can be found of the readiness with which agriculture adapts itself to attendant circumstances, and finds prosperity in one way, if it cannot find it in another. Time was when the farmer of this County was devoted to the production of all those crops which enter into the general business of agriculture. Beef was raised on his pastures, and fattened in his stalls, on corn of his own raising. Hay and potatoes were his staple crops. The dairy of the county was quite distinguished for its butter and cheese. The prosperity of agriculture was undoubted. But as time went on, a change took place, which can be well set forth in the following figures, indicating the comparative condition of agriculture in that county in the two periods of 1860 and 1870:—

	1860.	1870.
Number of cows	10,425	9,076
Number of oxen	3,585	2,319
Number of swine	5,787	4,938
Amount of corn	153,355 bushels.	91,233 bushels.
Amount of butter	440,340 pounds.	335,835 pounds.
Amount of cheese	50,532 pounds.	22,782 pounds.
Amount of hay	56,833 tons.	50,299 tons.

These figures, said Dr Loring, are somewhat discouraging, but they tell only one-half the story. For while the amount of corn, and hay, and butter, and cheese has declined, and the number of oxen and cows in the county has diminished, the growth of market garden crops has largely increased. The value of the market gardening in 1860 was \$175,000; in 1870 it was nearly \$400,000. Now, what does all this prove? Not that agriculture is declining, but that an acre of onions or cabbages is worth more than an acre of corn or grass; that it is more profitable to supply the market with milk than with butter and cheese. To specific crops, then has the county turned its attention; and never in its history has the soil of the county been a source of more profit to the owner than it is to-day. All around the great centres of trade and industry, Lawrence, Haverhill, Salem, Lynn, Newburyport, and Gloucester, the farmers are prosperous; and everywhere the farm houses present an air of neatness and comfort, and the fields indicate a prosperous application of agricultural skill.—Address of Dr. Loring, at Springfield, Mass., from Massachusetts Ploughman.

Slab and Stone Drains.

A walk into the meadow revealed the fact that an under drain had become choked up, and that the water was finding its way to the surface. The job of digging it up looked uninviting in the extreme. But the vision of water grasses generally, and of bulrushes in particular, and in abundance, nerved me to the task. A half day's work opened up the difficulty, and the water passed off again under the surface. The mischief of choking the drain was laid to the mice, but upon examination we found the slabs had settled into the soil, so that the water could not pass along.

The drain at this particular place was made of hemlock slabs, placed back to back, leaving an open space between the lower edges. Stones were placed between the bank and the slabs to hold them in place. Green brush, from pasture hemlocks, was liberally thrown in, and the whole covered with soil. For ten years they have proved all right. The slabs were taken out, but no signs of decay appeared. They were returned to their old place in the ditch, and I hope they will not behave badly for another ten years.

Just above this was a short drain, that was made differently. Small logs, or large poles, were placed on either side of the trench, and slabs placed upon these, leaving a place for the water between the sticks or poles. These slabs were entirely rotten, and had caved in. I presume the water did not

come in contact with the slabs all of the time, and they became partially dry during the dry season.

My stone drains, made in the Scotch style, never fail. I have over 300 rods in all, and wish I had 500 more. It is a pleasure to see the cold water pouring from them, when the plough is turning a light mellow soil above them.—Cor. Mirror and Farmer.

Ashes, Gypsum, etc., as Manure.

The *American Rural Home* thus tells how a New York State farmer accumulated \$12,000 worth of bank stock, through the use of ashes, plaster, and other manures:—

During the year 1857, a man named Arthur Dugan, went to the town of Palermo, N. Y., and bought sixty acres of dry, sandy land, with here and there a little pertaining to gravel. He paid \$1,800 for it. He knew nothing about farming, being a machinist by trade, and never held a plough. After prying for his land, he had \$200 left. He began, and found his land was worn out. His first crops were—wheat, five bushels per acre; rye, eight bushels; potatoes, seventy-five; corn, mere nothing. The second year was even worse. He had to hire part of his sheep pastured out; he could not hold his own. But, being a man of excellent judgment, and a great reader, his good judgment, aided by theories, carried him through.

He began by buying ashes and plaster; would draw potatoes fourteen miles to Oswego, and load his team back with manure from the lively stables. His crops increased. His ashes were spread correspondingly thick. He raised principally potatoes and wheat. Now, 2,000 bushels of ashes per year is about what he buys. His potatoes, for several years past, average 250 bushels per acre; his winter wheat, thirty bushels, and over; and he has saved, from his farm alone, till he now holds \$12,000 in bank stock, and would not sell his farm for \$100 per acre. He sold in 1869, in potatoes and wheat, over \$2,300 worth. He is known as the best farmer in this county. Yet when he began buying ashes, old farmers shook their heads, and said:—"He will know better when he has farmed it as long as we have."

EXPERIENCE IN RAISING WHEAT.—In the fall of 1872 I sowed one piece of wheat broadcast and harrowed it in, another piece sowed the same way and ploughed in with a double shovel, and a third plot I drilled in—drilled north and south—all equally good ground, and only a few days difference in time (from the 15th to the 18th of September), and that drilled in made nearly double the amount of wheat of any other method. I am satisfied that of an ordinary season a farmer can make the price of a drill (say \$30) in seeding twenty acres to wheat.—Cor. Ohio Farmer.

Experiments made by VonPettenkofer on the amount of water evaporated from an oak tree, show that atmospheric humidity, in so far as it depends upon the presence of forests, is promoted rather by the roots of trees drawing moisture from the earth, than by attraction exercised on rain clouds by the leaves. The latter serve rather as outlets through which the moisture drawn from the soil passes into the air. The oak tree observed by Pettenkofer was estimated to have between seven and eight hundred thousand leaves, and the total amount of evaporation in a year was computed to be eight and one-third times more than that of the rainfall on an area equal to that covered by the tree, the moisture exhaled by the leaves being equal to some 211 inches, while that from the rainfall was but twenty-five inches.

ECONOMY IN HEDGING.—I have just been engaged in driving down a few stakes in the line of a young hedge, and drawing through the tops of the hedge plants a single wire, fastening it to the stakes in the usual way. This young hedge was plashed by nicking near the ground and laying over at an angle of about forty-five degrees, last spring. The object in putting the wire through it at this time, is to make it an effective fence, to enable me to turn cattle, sheep, etc., into the part of the corn fields already husked. Now for the exhibition of economy. One hundred rods of such fence as would answer the purpose of restraining my stock as well, would cost one hundred and twenty-five dollars in cash. I find by careful estimates, the cost of plants, of setting, of culture, of plashing, and of the one wire, and work to place it, is less than twenty-five dollars, and the only cash expense of this, is the one wire, and this was drawn out of a hedge row where it was no longer needed. Again, this hedge is a honey locust, which will not be liable to injury by winter. I not only have a present fence at small cost, enabling us to use much needed feed six weeks perhaps before we are done husking, but I have the probability of having a life time fence at only the cost of annual pruning.—Cor. Farm Journal

Grasses and Forage Plants.

Grass Land Self-Sustaining.

Grass land can be made self-sustaining, without manure, on ordinary soil, as we well know. We will give a fair case: On the old homestead (in Stark, Herkimer Co., N. Y.), was a lot of seven acres of yellow drift soil, with considerable clay in it. It had been run for many years, first to grain alone, then grain, clover and timothy. The grain crops towards the last could rarely be made to pay—only in a good season; the clover and timothy being sown sparingly, only a few quarts per acre, the crops were rather light, and lasting but a few years, the clover running out and the timothy dwindling, the weeds in part taking their place. So the land was again ploughed and seeded down. This was done for quite a number of terms in succession. Usually two crops of grain were taken and then the land seeded. There was too little clover and timothy to form a good sod, so the crops were but a little improvement over the old grain crops before the advent of the clover and timothy.

A new system was now adopted: this fourteen years ago. The aftermath, instead of being fed off, was left untouched; not a hoof was permitted in the lot. The crop being generally harvested early, the after-growth, by winter, was a large one. Plaster was used every second year. The second or third year a little manure was spread on some of the poorest spots. This was all the manure or top-dressing it received. But, yearly, the aftermath was retained, and yearly there was a crop of two tons per acre, varying but little from it, and that little caused by the season. The crop, with little exception, was yearly, all timothy. The exceptions were the moist seasons, when clover would show; but generally there was a clean field of timothy. Nothing could be finer of its kind. The field attracted attention each year, and was known for its clean, even appearance, not over stout, though a good stand. The expense here was simply to harvest the crop, which, at two tons per acre, worth twenty to twenty-five dollars per ton, for a number of years, realized forty or fifty dollars per acre. Thus, remember, on land originally not very good, and considerably run down after that, and receiving but a drublet of manure and biennial dressings of plaster. It was the aftermath that did it. This was the only difference from the previous treatment.

Last year the sod was turned down. It revealed a rich, mellow surface. There seemed to be life in the soil—the effect of the enrichment (the debris of the annual crops, including aftermath, roots, and stubble), and of the frost, which for many seasons in succession had left its effects upon the soil. The field was put to oats, fodder corn, field corn, and potatoes. The growth was one of the finest we have ever seen, and was a novelty on the farm, and in the neighborhood. The present season it was ploughed and put to grain—a good crop—and seeded down. About a peck of clover, and a corresponding quantity of timothy per acre was sown, and the harrow passed over to cover the seed. This is the best catch we have seen this season, and comes up to the old fashioned seedings of other years.

This was not properly a clover sod, though started with clover, and having occasional appearances of it. It was a network of timothy roots, bulbs, and stubble, and aftermath adding their tribute. The soil in some spots, where the clay prevailed, was moist; and in the spring would sometimes, when the frost was severe, bear the dead plant on its surface. These spots needed draining.

It is in this way, by retaining their growth, or part of it, that the wild lands maintain themselves. Thus the prairies. Thus our muck beds. It is a lesson Nature has been ever trying to teach us; but we are slow to learn. We pity the grass, such a dense, rich growth, so much needed in the fall. "And was not intended to be fed?" And so it is