

tom of the quarry by some of the convicts, and nothing else was put on them." This was a light yellow loam laying between the joints of the lime-rock, and brought from a depth of 50 or more feet, and did not look as if any thing would grow on it.

I have within a few years fertilized a mere clay bank, by bringing on soil from the road-side; and any mixture of soils of different qualities, so far as my experience extends will improve the crops equal always to the expense incurred, and often much more. B

*Kennebec Co., Me.*

### A WORD TO YOUNG MEN.

Wishing, and sighing, and imagining, and dreaming of greatness, said William Wirt, will never make you great. But cannot a young man command his energies? Read Foster on decision of character. That book will tell you what is in your power to accomplish. You must gird up your loins and go to work with all the indomitable energy of Hannibal scaling the Alps. It is your duty to make the most of talents, time and opportunities.

Alfred, king of England, though he performed more business than any of his subjects, found time to study.

Franklin, in the midst of all his labors, found time to dive into the depths of philosophy, and explored an untrodden path of science.

Frederick the Great, with an empire at his direction, in the midst of war, and on the eve of battle, found time to revel in all the charms of philosophy, and to feast himself on the luxuries of learning.

Bonaparte, with Europe at his disposal with kings at his ante-chamber begging for vacant thrones, and at the head of thousands of men whose destinies were suspended on his arbitrary pleasure, had time to converse with books.

And young men who are confined to labor or business even twelve hours a day, may take an hour and a half of what is left for study, and which will amount to two months in a year.

Is that nothing? Ask Elihu Burret. Ask Simpson, the great mathematician. Ask Herschel, the first of astronomers. Simpson worked at the weaver's loom, and Herschel was a poor filer boy in the army. Ask the year 1844.

Let your own experiment of what can be done in one year settle the question, whether to acquire useful information by regular and hard study, be practicable or desirable."

### RUST, CHESSE, AND SMUT.

The great bane to successful wheat-growing is rust; and although it is now pretty generally admitted that the disease is caused by the bursting of the sap-vessels of the plants, while the sap is in a state of rapid circulation, being produced from a close, warm, or humid state of the atmosphere; or by showers of rain, followed in close succession by hot sunshiny weather; still the mode of cultivating the land, to prevent the ravages of this enemy to the farmer, is not so generally well understood as it ought to be. In treating upon this, as upon all other Agricultural topics, it is quite impracticable to lay down any set

of rules that could be applicably carried out in every instance; but we would wish to be understood to assert, that, in the great majority of cases where rust is most frequent upon the wheat plant, it might almost, if not solely be prevented, by a judicious system of management.

The best wheat land in the world is that description of soil where calcareous matter constitutes the principal proportion. On a farm in one of the southern counties of England, where seventy-five per cent. of the soil was composed of carbonate of lime or marl, and only a small proportion of the remaining 25 vegetable matter, an average crop of wheat equalling forty bushels per acre has been harvested for the past twenty years, on the four-shift system, without any perceptible deterioration of the fertilizing quality of the soil. It does not necessarily follow, because a soil containing such a large proportion of lime scarcely ever fails of yielding a good return of wheat crops, that a soil containing a less quantity, with skilful and scientific management, might not be equally productive. The exact amount of lime in the soil, to constitute it good wheat land, depends greatly upon circumstances. A soil containing equal parts of carbonate of lime, clay, sand, and vegetable matter is, probably, when all things are considered, the most productive and profitable land cultivated. Any farmer, when once acquainted with the true science and practice of husbandry may, in a few years, change the texture of his soil, be its original qualities what they may; and thus, in process of time, convert the most barren into the most productive soils.

A soil naturally deep with vegetable matter, to produce a crop of winter wheat, of a superior quality, should be ploughed deep, in order to give a proper consistency to the soil; and, unless the land is previously made very sterile indeed by constant cropping, a dressing of barn-yard manure would be likely to be prejudicial to the crop. As evidence of this opinion, the circumstance is worthy of notice, that, on all soils where there is the least vegetable substance, the crops, although comparatively short in the straw, are seldom, if ever injured by rust. It is also a notorious fact, that, on all deep black soils, winter wheat seldom comes to perfection: the rust is almost sure to catch it; and the owner of such a crop is almost sure to calculate largely upon the yield, if only it escape the rust.

Much of the land that is sown with autumn wheat is not at all adapted to this crop, inasmuch as it contains too great an amount of vegetable or putrescent, and two small amounts of mineral matter. A soil of the quality just mentioned, averaging the depth of six inches, would, if sown with fall wheat, in nine cases out of ten, prove to be a failure, if ploughed only to the depth of the surface mould; but if it were practicable to mix about six inches of the sub-soil with the surface-soil, the two would become so closely blended together, that it would be most easily managed, and become a part of the most profitable land under cultivation.

On soils composed of nearly pure clay, or sand, the application of a liberal dressing of raw unfermented barn-yard manure would be of great advantage to the wheat crop; but when vegetable matter is the principal ingredient, in order to insure a good return, the addition of barn-yard manure is not only unnecessary, but the sub-soil should be liberally mixed with the surface soil, as a means of imparting the proper food to the plant, to produce a hard outer coat to the straw, and also to lessen the chance of being removed and destroyed by the freezing and thawing which takes place at the opening of spring.

As the bursting of the sap-vessels of the plant is clearly the cause of rust, any operation that would have for its object the effect of hardening the straw would lessen the chance of the wheat-crop being attacked with this direful enemy to the successful and profitable cultivation of wheat. Depositing the seed in rows, either by a drill or ribbing plough, would have a tendency to impart this result, inasmuch as the air would have a free circulation among the plants.

Deep ploughing, where the sub-soil contains any considerable amount of lime and potash, would also have a favourable influence upon the crop, as both lime and alkali will dissolve and separate the sand in the soil, even so minutely that the small particles may be conveyed to the stem of the plant, and thus form a harder outer surface to the straw that if putrescent manures alone were used.

There are so many influences that have a bearing upon rust, that it would occupy a whole number of this Journal to enter minutely into all the details; but suffice it to say, for the present, that no opportunity will be lost, or trouble spared, in placing this subject before the entire