

which among the various benevolent societies, according to the best of my judgment."

The Rev. John Wesley, "when his income was £30 a year, lived on £28, and gave away £2. The next year his income was £60, and still living on £28, he had £32 to give. The fourth year raised his income to £120, and steadfast to his plan, the poor got £92."

The Farm.

[From the Puritan Recorder.]

PROFESSOR JOHNSTON'S EIGHTH LECTURE.

SOILS, THEIR INGREDIENTS, EXHAUSTION AND MIXTURE, DEEP PLOUGHING, SUBSOILING AND DRAINING.

We copy the following table, showing the composition of soil in 1000 parts.

	Fertile without manure.	Fertile with manure.	Very barren.
Organic matter	97	50	40
Silica	648	833	778
Alumina	87	51	91
Lime	59	18	4
Magnesia	8	8	1
Oxide iron	61	30	21
Do. Manganese	1	3	trace
Potash	2	trace	do
Soda	4	do	do
Chlorine	2	do	do
Sulphuric Acid	2	1	do
Phosphoric Acid	4	2	do
Carbonic Acid	40	4	do
Loss	15	0	do
	1000	1000	1000

From the first column, we learn what is requisite to constitute a fertile soil; in the second, what ingredients manure must supply to produce fertility; and from the third, what deficiencies render soil unworthy of cultivation. Such results we obtain from analysis. The excess of a given ingredient, as salt in marshes, must be removed by drainage to remove sterility and induce productiveness.

But soils of the same ingredients in fixed proportions, vary in fertility on account of the different condition of their component parts. In one soil, potash may exist in the condition of a wood-ash which increases agricultural capability; but in another, the same ingredient may exist in the condition of feldspar or some other mineral which does not fertilize it in the same measure.

The physical condition of the constituents may differ, as clay, which may be either in its natural state or indurated like a brick, and unfit for cultivation. One ingredient may exist in excess. Water may superabound, and require drainage.

A reference to the table at the head of this article, will aid our explanation of exhaustion. A soil of great natural fertility which belongs to the first column, is by continual cropping brought into the second column. The farmer says it has run out, this is, successive crops have abstracted from it certain ingredients which manure is requisite to restore. In such a case, the proper business of the cultivator is to ascertain by chemical analysis or otherwise of what element it is deficient, and then what manure will supply it.

Soils may be improved by processes either chemical or mechanical. Every farmer knows the importance of mixing soils, as clay with sand and vice versa, or light sandy soils with marls. By such mechanical operations, which are not generally very expensive, whole districts, both in England and America, have lately been greatly increased in value.

Deep ploughing is another mechanical operation of great importance. In this, American farmers are generally deficient. If a soil cultivated to the depth of six inches, sustains a given amount of vegetation, that amount will be increased by cultivating the soil twelve inches in depth.

In this country, the subsoil is seldom disturbed; and this is well, where immediately under the top soil there lies a stratum of yellow clay or other substances injurious to vegetation. But such cases are rare. It is more common to find immediately under the top soil marl, (lime-stone or common clay) yellow loam, etc., and in all such instances, subsoiling is advantageous. But where subsoiling is not at first advisable, subsoil ploughing may be very valuable, by loosing the under soil, exposing it to the atmosphere and the rain, and gradually preparing it for subsoiling.

Dyking is useful for the reclaiming from the sea, or from lakes and rivers, low, wet ground, as in Holland, in Lincolnshire, England, on the borders of the Bay of Eundy, and on the

marshes in New-England. When dykes are constructed to a considerable distance inland, it is useful to allow the tide and inundations to overflow the ground and deposit on the same mud and other fortifying matter.

Arterial drainage conducts off the water of lakes, ponds, etc., to render the land on their borders capable of cultivation. Spring drainage has ditches from three to four feet in depth, as near to each other as occasion requires for, without drawing the water from low, cold and springy land. In thorough drainage, the ditches are generally fifteen or twenty feet apart and three feet deep, and sometimes lined on the bottom with stones or tiles. This is very beneficial, rendering much ground otherwise useless, very productive and valuable.

[From the Maine Farmer.]

Porous Soil for Potatoes.

It has been remarked by moralists that "blessings brighten as they take their flight." The good old-fashioned potato used to be raised so easily, and were so abundant that we never realized their worth until the potato rot came, and then the blessings began to brighten after they had taken their flight beyond our reach. Some remarks in regard to the culture of them we think would not be amiss, even if not quite in season to apply them in the act of planting.

We have always noticed that the best crops of potatoes are raised in what may be called porous soil. For instance, new grounds that have been burnt over, and are full of half burnt leaves and sticks, and ashes and coal—and green swards that have been turned over by the plow and are not compact.

From these facts we have supposed that although the vine of the potato requires some source to obtain potash which enters into its substance largely, yet it requires a chance where the atmosphere can have access to its tubers, and that while it is necessary that they should not be exposed to the scorching sun or drowning water, yet air is a very important element in its successful cultivation, and this it obtains in such situations as we have described above.

In looking over some of the writers who have ventured to suggest anything on this subject, we find one quoted in the New York Farmer and Mechanic, who seems to think that the atmosphere affords the principal part of the nourishment to this crop. It is true that we do not yet, after all the researches in the chemical action of the elements, know how they are always assimilated, nor what peculiar changes and affinities are effected during the growth of plants. It is not impossible that decompositions and re-compositions which are silently going on in the plant, may be such as to form substances from the ingredients of the atmosphere and the aeriform substances and vapors with which it is filled, that we supposed must have come from the soil alone. That the potato, for instance, can derive in some mysterious or hitherto unknown process, potash, and lime, and soda, and the other mineral matters it contains, from the atmosphere, and hence the reason why it thrives best in such porous soil as we have mentioned.

Among the many plans devised to cultivate the potato, if you have not a piece of burnt ground or turf, the breaking up of sward-land and manuring with coarse strawy manure, if you are sure of sufficient moisture, is the best.

The writer to whom we alluded above, says that the following is the most successful plan that he has found in the cultivation of this vegetable, and that he speaks from experience.

Select a piece of hard trampled ground, the harder the better. A lot on which stock of any kind but particularly hogs have been kept and fed, will be found to be the best. Break it up well, thoroughly and deeply, one way, no matter how cloddy; and do not harrow it any, but let the clods remain unbroken. The ground being thus broken one way, lay it off into rows the other way, or across the plowing, two and a half or three feet apart. Open these with a plow, running it back in the same furrow so as to open the trench as widely and as deeply as possible; cut all the large seed potatoes so as to have a sufficiency of eyes on each piece. Then drop them in about six inches apart. Now fill the trench with straw or chaff, or if neither of these can be obtained, with leaves from the woods or trash of some sort. This is very important to a successful cultivation of the potato, not as is generally supposed, because it gives the potato room to grow and expand in, (though this is of some importance,) but because, as we have shown, it furnishes it with a kind of bed or nursery to grow in. We

do not deny that it may receive some nutriment from the decomposing straw, but then it must be entirely different from that afforded by soil, as the straw must be entirely decomposed before it can enter into a composition of soil. Trenches thus filled may be covered with the plow, and the "middles" entirely broke by the plow to the ridges, so as to leave a furrow only between each. Two workings, a weeding, and then afterwards, at the proper time a hilling up, each aided by the plow about twice between each row, will generally complete the cultivation.

Corn and Potatoes together.

The idea advanced by some, that potatoes planted in rows alternating with corn, would prevent the potato rot, induced many last year to try the experiment. As the potato disease did not prevail so extensively during the last season as usual, the results of the experiment in this respect are not so definitely ascertained as we could wish. It has also been believed, by some, that this is a better mode of raising those two crops than by planting them separately. We have been reminded of this idea by reading the address delivered by Mr. Newhall before the Essex County Agricultural Society, at their last Cattle Show. We find that he advances the same idea, and brings forward some facts corroborating it. Premiums had some years ago been offered by that Society for mixed crops of corn, beans, potatoes, &c. Mr. Newhall says—"But one premium has been claimed, which was for a crop of corn and potatoes planted in alternate rows; the experiment made at the time, by measure of of land and produce, showed that the mixed crop yielded some *nineteen per cent.* more than that which was planted separately.—The corn and potatoes planted in this way were mutual helps to each other; the potatoes shading the roots of the corn and protecting it from the effects of drought, and the corn in the months of July and August screening the potatoes from the sun. The crops planted in this way, adding the value of potatoes in corn, yielding from eighty to one hundred bushels per acre.—*Ibid.*

Effects produced by Rains as they descend through the Soil.

1st. *It causes air to be renewed.* It is believed that the access of frequently renewed supplies of air into the soil is favourable to its fertility. This descent of the air rain promotes. When it falls upon the soil, it makes its way into the pores or fissures, expelling, of course, the air which previously filled them. When the rain ceases, the water runs off by the drains, and as it leaves the pores of the soil empty above it, the air follows and fills with a renewed supply the numerous cavities from which the descent of the rain had driven it. Where land remains full of water no such renewal of air can take place.

2d. *It warms the under soil.*—As the rain falls through the air, it acquires the temperature of the atmosphere: if this be higher than that of the surface soil, the latter is warmed by it, and if the rains be copious and sink easily into the subsoil they will carry this warmth with them to the depth of the drains. Thus the under soil in well drained land is not only warmer, because the evaporation is less, but because the rains in the summer season actually bring down warmth from the Heavens to add to their natural heat.

3d. *It equalises the temperature of the soil during the season of growth.*—The sun beats upon the surface of the soil, and gradually warms it; but even in summer, this direct heat descends only a few inches beneath the surface. But when the rain falls upon the warm surface and has an easy descent, as in open soils, it becomes itself warmer and carries its heat down to the under soil. Then the roots of the plants are warmer, and general growth is stimulated.

It has been proved by experiment with the thermometer, that the under as well as the upper soil is warmer in drained than in undrained land, and the above are some of the ways by which heat seems actually to be added to drained land.

4th. *It carries down soluble substances to the roots.*—When rains fall upon heavy undrained land, or upon any land into which it does not readily sink, it rises over the surface, dissolves any soluble matter it may meet with, and carries it into the nearest ditch or brook. Rain thus robs and impoverishes such land; but let it sink where it falls, and if it dissolves anything, it will carry it downwards to the roots, will distribute uniformly the saline

matters which have a natural tendency to rise to the surface, and will thus promote growth by bringing food everywhere within the reach of plants.—*Johnston's Agricultural Chemistry.*

Land Monopoly.

BY REV. DR. L. BEECHER.

Hitherto the majority of mankind, who have tilled the earth, have been slaves or tenants. The soil has been owned by kings, and the military chieftains and nobles, and by them rented to landlords, and by these to still smaller dealers, and by these again it is divided and sub-divided, until the majority who have paid the rent, sustained by the sweat of their brow, not only their own families, but three or four degrees of society above them; while they themselves have been crushed beneath the weight, and lived on the borders of starvation; the sickness of a week, and often of a single day, rendering them paupers.

The same monopoly of the soil has sent another large class of the community into manufacturing establishments, to work out their days in ignorance and hopeless poverty; and another to the army and navy, where honour and wealth await the few, and ignorance and an early grave the many.

The consequence of excluding such numbers from the position and healthful cultivation of the soil, has been ignorance, reckless indifference, turbulence and crime. Tortured by their oppressions and unrestrained by moral principle, they have been prepared for desperate deeds. Such a state of society cannot be made happy; the evil is radical, and can only be remedied by giving a new direction to the physical, moral and intellectual energies of men. We might as well band with iron the trees of the forest, and expect their expansion, or throw upon them in stunted measure the light and rain of heaven, and expect their luxuriant growth, as to cramp the mind by unequal institutions, and expect the development of its resources, in a happy state of society.

Room for action must be afforded, and light must be poured upon the understanding, and motive pressed upon the heart. But, to accomplish this, the earth must be owned by those who till it.

This will give action to industry, vigor to the body, tone to the mind, and by the attendant blessings of heaven, religion to the heart. From agriculture, stimulated by personal rights, will result commerce, science, arts, liberty and independence.

The attraction of gravity is the great principle of motion in the material world, and the possession of the earth in fee simple by the cultivator, is the great principle of action in the moral world. Nearly all the political evils which have afflicted mankind have resulted from the unrighteous monopoly of the earth; and the predicted renovation can never be accomplished, until this monopoly shall have passed away, and the earth is extensively tilled by the independent owners of the soil.

The English Press.

A foreigner, who had visited our courts of justice, remarked to Lord Mansfield that he was surprised to find them attended by so few of the public. "No matter, Sir," replied the Chief Justice; "we sit every day in the newspapers." It is the newspapers that secure that publicity to the administration of the law, which is the main source of its purity and its wisdom. "To say that an English judge is incorrupt," observed Dr. Parr, "is scarcely to praise him." This is one triumph of the newspaper, but it boasts others than this not less glorious. The press informs, purifies, and directs public opinion. There is a perpetual action and reaction between the two going on, and thus there is a perpetual interchange of qualities.

A youth seeking employment came to this city, and on inquiring at a certain counting-room, if they wished a clerk, was told that they did not. On mentioning the recommendations he had, one of which was from a highly respectable citizen, the merchant desired to see them. In turning over his carpet bag to find his letters, a book rolled out on the floor. "What book is that?" said the merchant. "It is the Bible, sir," was the reply. "And what are you going to do with that book in New-York?" The lad looked seriously into the merchant's face, and replied, "I promised my mother I would read it every day, and I shall do it," and burst into tears. The merchant immediately engaged his services, and in due time he became a partner in the firm which is one of the most respectable in the city.