

that we were expending our time and money, with out a hope of remuneration. The case is now respectfully submitted, and it will depend upon the encouragement we receive, what course we shall pursue, in regard to continuing the publication.

SCIENCE & PRACTICE OF AGRICULTURE

BY THOMAS SKILKING.

Dublin: James M'Glashan; W. S. Orr and Co. London.

In regard to labour, which is a most important subject with the farmer, the quantity and quality greatly depend upon the state of the drainage. If the land is of a heavy clay description, and undrained, the labour will be severe both on man and horse, and of course expensive; but if dry, even the most tenacious soils will be comparatively easy, and cheaply done. Besides, wet land can only be laboured at certain times and seasons—always late. Late ploughing causes late seed time, and late harvest, which seldom turns out well. The early crop is always the safest and most productive. Besides, the ground is never in a proper condition to receive the seed; it is either too wet or too dry. If sowed when wet, a scurf will form on the surface in dry weather, exclude the air, and injure the crop. If suffered to get too dry, it is then of the consistence of brick, and no extra labour will break it down to a fine state of tilth, to cover the seed properly; and the same consequences follow—the dry spring will injure the crop. But the most retentive soil, when properly drained, can be ploughed at any season (early of course); the winter's frost will act on and ameliorate it in various ways. The first indication of spring will find it ready for the seed, loose, friable, and easily managed; much less seed will suffice, the seed will get a favourable bed, and a loose fine cover. Such advantages must produce an early and abundant crop; not to speak of a dry warm soil in winter for the autumn sowed crops, and the difference of preparing wet and dry land for potatoes and other green crops in the spring and summer.

A great portion of the farmer's difficulties are in prospective. We are in dread of a goblin, yet we have never seen one. The farmer is in dread of the pernicious qualities of the subsoil, because he has not tried it, or if he have, it has been done in such an injudicious manner as to ensure a failure in the expedient. But the question arises—What is the difference between the surface and the subsoil? They are in general composed of the same ingredients, of like materials; but the surface soil has been cultivated, repeatedly turned over and exposed to the ameliorating influence of the atmosphere, air, heat, light, and frosts, the grosser particles broken down, the metallic substances oxydized, all mixed with, and enriched by organic and inorganic matter, in the form of manure. This being the case, why should not any portion of the under soil, which is lying idle, be brought up and treated in the same manner, with like success, and rendered equally fertile; but the subsoil has renovating and enriching qualities, which are always required above. Land which has been long cultivated, and the crops carried off, is exhausted of the inorganic manure, the salts of lime, magnesia, soda, potash, &c.; but these substances are in general contained in the subsoil, lying idle or dormant, and will become available when the soil is brought up, acted on, and decomposed by the atmosphere. By this means land is renovated, and the necessary food supplied to the

crops. The popular dread or dislike of trenching up the subsoil, has arisen, in a great measure, from the well known fact, that certain subsoils contain ingredients of a deleterious or poisonous character, which, coming in contact with the roots, produce disease and weakness in the plant; but this is the best reason why such subsoils should be improved, the poisonous qualities neutralized and removed. To bury and keep down a bad subsoil, is only perpetuating an evil. It has been found that the deleterious substances in the soil are the salts of certain metals, of iron in particular. The well known *red till* abounds in this, and its noxious qualities arise from it. Now, red till, or any other such substance may remain buried under the surface soil for centuries, as it has done, without being changed in its properties; but trenching it up to the surface, exposing it to the action of the atmosphere, and mixing it with quick-lime, the lime will decompose the salt, by combining with the acid, and forming inorganic manure (a salt of lime,) at the same time, the metal being free, will immediately combine with the oxygen of the atmosphere, and form a harmless, if not a useful ingredient in the soil. On this principle of removing those noxious salts from the ground, merely subsoiling, stirring, or breaking up the subsoil, and allowing it to lie or remain below, is recommended; the water and air get a free passage through it, and the noxious salts being soluble, are washed down in the drains. Besides the chemical changes produced in the soil, by the free admission of air and water, and its exposure to the atmosphere, trenching has the effect of permanently improving it in regard to the principal constituents, the earths, sand, clay, and lime. In mixing and blending them together, both surface and subsoil are put into a better condition, and a more happy combination is produced. It very frequently occurs that the subsoil contains some of the earths in excess, which are required above, and *vice versa*. Say the upper soil is light sand, gravel, or peat, they may be clay, or marl, or both below.—Land that has been frequently limed always contains much of this substance in the under soil, as its disposition is to sink. Now, if these are trenched up and intermixed, they are both brought into a favourable and fertile condition; the sand, gravel, or peat above gets a mixture of clay and lime, which will give them a consistence and a capability of carrying all kinds of crops, and the light soil that replaces the heavy below, keeps the bottom free and open. In fact there is nothing to prevent almost any farmer to have a fertile soil, and of any required depth, if he will only exert himself with skill. The same results follow the throwing down a heavy, and bringing up a lighter soil. The condition of the soil, in regard to a proper mixture of the earth, is of the first importance.—They must be in due proportions to ensure high fertility.

THE SUN FLOWER.—This plant should be cultivated much more than it is at present, in rich soils. It yields a large quantity of seed per acre, and it is especially valuable for fattening poultry, making the flesh exceedingly sweet and delicate. It is also excellent food for cattle, more especially when ground up with a mixture of other grain. It is said that from 30 to 40 lbs. of oil can be extracted from 100 lbs. of seed, and that it brings a good price. The leaves make good cigars.—*American Agriculturist.*

A person in North Shields has a rabbit of the Spanish breed which has in four litters produced forty-seven young ones—first litter, nine; second, fourteen; third, twelve; and the fourth, ten.—*Newcastle Journal.*