

just broken through the soil, and a leaf just burst open from the bud, furnish ashes, which contain so much, and generally more, of the alkaline salts, than at any other period of their life. The experiments of *Becquerel* have shewn the manner in which these alkaline salts enter young plants. The acetic acid formed during germination is diffused through the wet and moist soil, becomes saturated with lime, magnesia, and alkalies, and is again absorbed by the radical fibres in the form of neutral salts. After the cessation of life, when plants are subjected to decomposition by means of decay and putrefaction, the soil receives that which had been extracted from it.

Air, water, and change of temperature, prepare the different species of rocks for yielding to plants the alkalies which they contain.

The original supply of alkalies in a soil must become exhausted by the vegetables growing upon it in the course of time, unless those alkalies are again restored. A period will arrive when it will be necessary to expose it from time to time to a farther disintegration, in order to obtain a new supply of soluble alkalies. But when one or more years have elapsed without any alkalies having been extracted from the soil, a new harvest may be expected.

Harvests of wheat and tobacco were obtained for a century from the same fields in Virginia without the aid of manure, but now whole districts are converted into unfruitful pasture lands. From every acre of this land there was removed, in the space of 100 years, 1200 lbs. of alkalies in leaves, grain, and straw. It became unfruitful, because it was deprived of every particle of alkali, which had been reduced to a soluble state, and because that which was rendered soluble again in the space of one year was not sufficient to satisfy the demands of the plants. Almost all the cultivated land of Europe is in this condition. *Fallow* is the term ap-

plied to land left at rest for farther disintegration. It is the greatest possible mistake, to suppose that the temporary diminution of fertility in a soil is owing to the loss of humus. It is the mere consequence of the exhaustion of the alkalies.

Some farms near Naples, which is famed for fruitful corn land, have yielded wheat for a thousand years, without any part of that which was taken from the soil being restored to it; nor is it known that humus was ever contained in the soil. The method of culture explains the permanent fertility, which is peculiarly applicable to that country. A field is cultivated once every 3 years, and is in the interval allowed to serve as sparing pasturage for cattle. The soil experiences no change in the two years, during which it there lies fallow, further than that it is exposed to the influence of the weather, by which a fresh portion of the alkalies contained in it, are again set free or rendered soluble. The animals fed on these fields yield nothing to these soils which they did not formerly possess. The weeds upon which they live spring from the soil, and that which they return to it as excrement must always be less than that which they exhaust. The field, therefore, can have gained nothing from the mere feeding of cattle upon them; on the contrary, the soil must have lost some of its constituents.

(To be continued.)

THE TURNIP FLY—(*ALTICA*.)

WE extract from the 2d vol. of Paxton's Horticultural Register, page 376, the following interesting remarks respecting the turnip fly. The writer made a variety of interesting experiments to ascertain whether these destructive insects came from other plants, or from the soil, but these were inconclusive, or rather proved that they did not come from other plants, and that the egg was not deposited in the soil. His fifth experiment, howe-