## THE BRITISH AMERICAN CULTIVATOR.

## Means of Increasing the Productive Powers of Soils.

The means at our command of increasing the productive powers of soils may be comprehended | under the following general heads:

1. Supplying to the soil those organic and carthly substances which may be required. 2. Altering its texture, deput, and properties, by tillago and other means.

3. Changing its relation with respect to moisture.

4. Changing its relation with respect to teniperature

ing state, appear to act in various ways in increasing the productive powers of the soil. They ( improve its texture, and they may be supposed i to increase its power to absorb and retain moistore; but above all, they supply that matter. which, in whatever form conveyed to the organs of plants, tends to nourish them. This matter being absorbed by the roots of the plants, it must

or increasing its fertility.

besides the animal and vegetable match that the source the source the annosphere, and the community of its fer-is mixed or combined with the immeral part of of its parts by t llage, add permanently to its fer-the soil, and is essential to its productiveness, the tility Thus we learn from experience the good, halding to be carried off and destroyed by hawks numeral part themselves, it has been seen, require ( to be mixed together in certain proportions, and in certain states of division. in order to produce | the greatest degree of fertility.

Silica and alumma form the principal mineral ( part of the soil. It one or other of these earths be in excess, the soil is defective in its composition. If the alumina prevail, the soil is too adhesive; if the silica prevail, it is too loose. A medum is seen to be the tost: and although the precise proportions in which the allimning and the exposure to the atmosphere it is generally at conclusion in protecting its later from the takes wing suites should exist have not been determined, it long exposure that it becomes productive. This and carries the warmte some other quarter, where

ving the composition of a soil, to add to it siliceons matter when it is found to be too stiff. an aluminous matter when it is found to be too loose; and, further, to reduce these substances to their greatest degree of mechanical division.

Sometimes, accordingly, we have the means of improving the constitution of soils, by mixing sand with clay, or clay with sand. But, in practice, the direct mixing of these two substances for the purpose of producing a soil of hetter tex-ture is rare; first, because the expense of this species of improvement is considerable; and second, because, in the state in which sand and clay are usually available for this purpose, it seldora happens that the aluminous matter of the one, or the siliccous matter of the other, is in that state of minute division which is favourable to fertility.

in all cases, be reduced by heat to that state of minute division which is favorable to the productweness of soils; and hence it can always he applied with benchi to those soils in which it is wanting.

Lime is sometimes mixed, in its natural state. with aluminous and soliceous matter. It then forms marl, a substance which is frequently applied to soils to improve them It is chiefly to the lighter soils that marl is suited; for thein, not [ only is lime supplied, but alumina, which improves the texture of the soil. It is by means of this mixture that some of the greatest improve-ments on gliceous sonds that have taken place in Europe have been effected.

There are cases in which even calcareous matter is in excess in soils. This occur especially in districts where the chalk formation exists. When the earthy stratum resting upon the chalk is very thin, the chalky matter becomes mixed with it, and, being then in excess, forms a barren soil.

An obvious method of amending the composition of a soil of this kind is by adding any of the other earths, whether siliceous or aluminous. We need not here scruple to apply them, because, i

the clay is coarse or the sand gritty. We may her clauns to the title of a good servant and will add them in almost any form in which they can most amply reward her keeper for whatever exthe conveniently procured, for the effect will be to improve the composition of the soil. There is another case in which, in his man-ner, silicous and domineus matter may be ap-

plied direct, in abnot any slate in which they never regard their establishment as farmshed, it from he found — This is in the case of peat. Here, is said, without a flock of hens, and whose man-the veget d'u matter is in everys, and the addition agement is considered as much a matter of imporaccordingly of any of the carthe is an amendment of the composition of the soil.

We see, then, that the composition of soils may be improved by the addition of animal and

productive powers of soils, is that of altering their texture, depth, and properties, by tillage

be supplied when exhausted. Experience has in every age accordingly taught mon operations of tillinge is seen to have a hence, nuschief in this particular, and where, the the husbandman to supply those substances to the influence on the productive powers of the more regulary than those that are not. Buck-the husbandman to supply those substances to the influence on the productive powers of the atmost wheat is excellent forhens, and as it is more pre-the soil; and the doing so terms one of the most soil. Whether the soil inhibits from the atmost wheat is excellent forhens, and as it is more pre-the soil; and the doing so terms one of the most soil. Whether the soil inhibits from the atmost wheat is excellent forhens, and as it is more pre-the soil; and the doing so terms one of the most soil. phere anything besides aqueous vapour or not. Inic, and more casily produced than almost any it is known that the caposure of the matter of other kind of grain is much cheaper than corner Besides the animal and vegetable matter which the soil to the atmosphere, and the comminuting oats effects of tilling lands well. Soils once tilled and oxis. In sense suitations this is a serious are rendered for the most part more productive objection, as the hen, if suffered to run at large by the process. Peaty turf, if suffered to remain, with her chicks, is al most certain to be lost. in its original state, may continue to produce. But this objection, although the most weighty nothing but heath and the most uscless plants; perhaps that can be urged against the practice but, if merely ploughed, and exposed to the in-of keeping fowls, looses its validity in a great but, if merely ploughed, and exposed to the in- of keeping fowls, looses its validity in a great fluence of the atmostphere, it will at once tend degree, when we consider how easily the evil to produce grasses of a better kind, and of greating be avoided. A Guinea hen, if suffered to ervariety, and again, if a subsoil of coarso clay associate with the flock, will at all times prove be exposed to the atmosphere it is generally at a flictent in protecting the latter from the bawk, for the protecting the protection of the subsoil of the protecting the latter from the bawk. alica should exist have not been determined, it is unset remarkable in the case of clay-mark a his murderous propersities for slaughter may be of silica. Further, the forthur of the soil depends is inhere rout shelf containing the materials of a more easily gratified, and without the foar in-or the state of mechanical division of these mine-rals.

by pulverization and exposure to the atmosphere. In our examination of the constituent parts of soils, we have seen that their fertility is in a great degree indicated by the proportion of minutely divided earthy matter which they contain. The effect of tillage, therefore, may be reasonably supposed to promote this division, both by the mechanical action of our instruments, and by exposing the particles of the soil to the action of tho air.

Another purpose sometimes promoted by tillage, and subservient to the amendment of the soil, is the deepening of the upper stratum.

he, or the siliccous matter of the other, is in that ate of minute division which is favourable to rtulty. It is otherwise with the earth line. This can, is obring less suited to the nourishment of plants; and in certain cases it is found to be injurious to vegetation. It is generally important, however, that there be a good depth of soil; and thus it is often expedient for the effecting of a permanent improvement of the surface, to plough up and mix with it a portion of the subsoil, even though that subsoil should be in itself infertile.

These, then, are the principal mechanical means by which we can improve the soil, and they will be considered in detail under the various heads which relate to the operations of tillage.

Hens. There are but few domestic animals mere pro fitable, perhaps, to the famer than the hen -And yet there are many who regard these cheer ful and industrious companions of rural life as a useless incombrance, and as calculated rather to duninush than increase the products of the farm

This, however is unquestionable a most grievous error The hen if properly kept, and subject to a system of discipline so strict as to prevent the gratification of her more harmful propensities, while at the same time it admits of free exercise and a plentful supply of food, is able to vindicate

pence he may meur, within the limits of prudent economy, both for coop and keep.

The French, who are probably the most rigid conount in the management of domesus affairs, tance by the household, as the management of their cows or pigs. It has long heen a question with our New England + henologists,' whether the 4. Changing is relation with respect to tell-erature may be improved by the addition of animal and vegetable and animal matters, in a decompos-g state, appear to act in various ways in mi-reasing the productive powers of thesol. They inprove its texture, and they may be supposed increase its power to absorb and retain mos-prove its texture, and they may be supposed increase its power to absorb and retain mos-to increase its power to absorb and retain mos-tors is texture. hen should be confined during winter or suffered disadvantage, however, is nover experienced except in cases where they are subject to a scarcity of feed, which renders them discontented and dicir texture, depth, and properties, by tillage disposed to incide with every thing which holds and other means The more effect of that comminution of the parts of the soil which it undergoes in the con-line, brick dust, &c.,&., are seldom guilty of unon operations of tillage is seen to have a bene-huse holds the particular, and will hay much parts of the soil which it undergoes in the con-licial information of the means of the second the particular, and will hay much parts of the soil which it undergoes in the con-ticial information of the means of the second the particular, and will hay much parts of the soil which it undergoes of the second the particular of the means of the second the particular of the second the second the second the second terms of the second the second terms of terms of terms of the second terms of the second terms of terms of the second terms of terms

It is, indeed, conformable to analogy, as well, kots, being much larger than the common hen.--as to experience, that soils should be improved Maine Culturator.

Hay-Rack, for Sheep. Fig. 7.



Will be found a very cheap rack for feeding sheep, and one which any farmer at all conver-sant with mechanism could easily construct.

Operation of Spaying. Our correspondent ' Floridian,' at Tallahassee, as sent us some queries, the first of which is as follows :--- "We wish you, Messrs. Editors, or some of your attentive correspondents, to inform a young reader of the most scientific mode of performing the operation of 'spaying,' the reasons for the operation, and the proper age for doing it."

The reasons for spaying are simply to prevent the mimal's breeding, destroy all inclination for intercourse with the male, and, by rendering her quict, increase the aptitude to fatten. Castration in the male produces similar results.

The object in spaying is to remove the ova-rics, which create the impulse to venereal intercourse, and are small round masses, varying with the age of the animal from the size of a large pea to that of a nutmeg, a little flattened, and attached to the uterus, or "pig bag," as the called. In young pigs, the evalues are whitish, but when older, or during the estrus, they are reddish in appearance, and are more fully developed. Young sows are frequently spered # ...