

THE

SOUTHERN PLANTER.

Devoted to Agriculture, Horticulture, and the Household Arts.

Agriculture is the nursing mother of the Arts.—
Xenophon.

Tillage and Pasturage are the two breasts of the
State.—*Sully.*

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CULTIVATION OF INDIAN CORN.

BY R. W. H. NOLAND.

In submitting the following paper, upon the cultivation of Indian Corn, the writer hopes he will not be suspected of the folly of recommending a system suited to all lands and every variety of season. His only hope is to suggest some hints which may prove useful to his fellow farmers, and to impress upon them the importance of cultivating this, and all other crops, not in accordance with fixed rules, but according to the wants of the plant, the condition of the soil, and the character of the season. For, after all, the successful management of any crop, must depend upon these accurate powers of discrimination and that soundness of judgment, which enable the farmer to adapt his system to the circumstances which surround him; and any attempt to bend circumstances to system, in farming, must result in failure.

The two grand ends which the farmer should keep constantly in view, are the *production of crop* and the *economy of labor*. The production of heavy crops, brought about by a wasteful expenditure of labor, is *bad farming*, and the too great sacrifice of crop to the economy of labor, is equally a mistaken policy. He is the best farmer, who, while he increases, or even preserves, the productive capacity of his land, makes the largest crops with the least labor.

The first study of the farmer should be the *idiosyncracies* of the plant cultivated. Has the plant any peculiar wants or habits? Let the one be supplied and the other attended to. Is it liable to injury from accidents likely to befall it? Let these be considered, and, as far as possible, guarded against. Let the farmer find out what condition of soil is most conducive to its growth, and "govern himself accordingly."

So peculiarly adapted does our country seem to be to the growth of Indian corn, and with such *recuperative energies* is the plant gifted, that the impression has grown common amongst us that no skill is necessary to be used in its cultivation. It is generally planted without care, and cultivated without reflection; and we might safely assert that enough is annually lost, from carelessness and bad management, to feed our people. The same breadth of land now cultivated in corn in Virginia, would, under a proper system of tillage, yield double its present product, and this too, with no increase of labor. Many of our farmers expend more labor than is necessary upon their corn crops, but few are found who use too little. The great error is this: the work is ill-timed and injudiciously applied.

The first recommendation I make is to observe *due care in the selection of seed*. The many and widely differing varieties of corn, no doubt originated in the wild corn of America. The differences now found to exist, are due to climate, soil and cultivation. The male and female organs being upon different parts of the plants, and the pollen of one being capable of fecundating the silk of another, these varieties may be indefinitely increased by contiguity of planting. By judicious *crossing*, for a succession of years, valuable qualities may be fixed upon a new variety. I am satisfied that the corn plant will acquire *habits* or peculiar qualities under one system of cultivation, continued for a succession of years, which it will not lose in *one* year, under a change of system. In other words, corn planted with full distance, will in time become more prolific, bearing two or three ears to the stalk. When this character is fixed upon it the plants may be crowded for one year, without parting with this double-bearing habit. Seed corn, therefore, should be grown to itself, having full distance, and only the largest of the double ears saved for seed.

The land intended for corn should be thoroughly broken during winter, where the land is suited to winter plowing, as is the case with the red lands of Piedmont Virginia. Some lands "run together" when plowed in winter, and these, of course, should be broken immediately before planting; but, in any case, too much pains cannot be taken in thoroughly breaking the sod. Subsoiling may pay upon some lands, but no experiment I have ever made or witnessed, showed any improvement in crop from this process. I am inclined to think more depends upon having the surface soil in thorough tilth, than on deep plowing. On my own and similar lands, *seven inches* of mellow and thoroughly pulverized soil, is all the corn crop wants, and my aim in cultivation is to *get and keep* this. Where, however, the farmer finds his land underlaid with a subsoil impervious to water, he must resort to some process of draining. Such a condition is destructive to the crop, not so much by checking the corn roots in their penetration to their natural depth, as in preventing the circulation of air and moisture through the soil. Few of us have formed any idea of the force exerted in growth of vegetation.

Corn roots could easily penetrate such a subsoil as I have mentioned, but *instinct* teaches them that it would be a "fool's errand" they were going on. The free circulation of moisture and air, seem to be necessary to prepare the elements of soil, as food for plants. The chief object of cultivation is to keep the soil in the condition in which this circulation most readily goes on. Every farmer has observed the effect of "baking" upon the growth of vegetation. Let a crust be formed over the surface, which will exclude the air, and vegetable growth is at once checked. This circulation seems to be the *vital principle* of soil. The *galls*, which so disfigure the face of our country, are but spots in which this vital principle is destroyed. No amount of fertilizing matter applied to them, is sufficient to make them productive, until some change is wrought in their mechanical condition, which restores this principle. To keep the surface soil in that healthy condition which admits of a free circulation of air and moisture, and to throw into the cultivated plant all the strength of the soil (by keeping down all other vegetable growth) is man's only agency in making a crop. He who sends the "early and the latter rains" must do the rest.

The proper distance at which to plant corn, has given rise to much difference of opinion amongst farmers. No fixed rules can be laid down, but the matter must be settled by the

test of experiment. In nine cases in ten, according to my observation, corn is planted too thin. The nearest approach to a rule I can give is this: Let the farmer form his opinion of the productive capacity of his land, and by calculation or reference to his tables, ascertain how many stalks he must leave per acre to give him, at one ear to the stalk, the product fixed upon. When the season is favorable, the double-bearing stalks give him his increase of crop. Upon good low grounds, four feet or four and a half feet by one foot, will give, according to this rule, from fifteen to eighteen barrels per acre, which is about the productive capacity of such land. On high land, four-feet to four and a half feet by two feet is as great distance as should be given. If land will not, with this distance, bring one good ear to the stalk, it is unfit for corn without manure. An application of guano, ashes and plaster in the hill, or even rolling the seed in guano and plaster, I have found very beneficial to my crop in forcing the young plants out of the way of insect pests, and insuring a good stand of corn, and this I would do without regard to the fertility of the land.

The furrow for planting should be opened with a two horse plow, and, if the land be not thoroughly broken or has become hard after being so broken, a coultter should be run in the furrow. Care should be taken to lay off the rows as nearly horizontal upon hilly land as possible. The corn is then dropped, or rather drilled along the furrow, putting four or five times as many grains as you wish stalks, and covered with a corn coverer. This implement is of easy construction, consisting of two pieces about three feet long, not parallel, but rather wider behind than before, each piece having three teeth, two harrow teeth and one cultivator tooth, the latter being behind. The harrow teeth run just within the edges of the furrow, pulverizing the soil and throwing out any clods or stones that may be therein, while the cultivator tooth, being turned slightly inward, follow on and completely cover the corn and so ridge the row as to prevent baking. When the corn is high enough to thin, run a one-horse mould-board plow, one furrow on each side, throwing the dirt from the corn, then thin to the distance desired and chop out with hoes. This constitutes the first working, unless the land has previously become hard, in which case a thorough coulttering should precede this working. The ridging up of the middle of the baulk by the mould-board plow, will keep that part mellow and free from grass, until the second working is necessary. This I would give with the same plow, throwing

the dirt to the corn, and splitting out the middle with the cultivator, unless the land be very grassy, when I would plow out the whole balk with the mould-board or shovel plow. Of a favorable season, this is sufficient to make the crop, but if the land thereafter receive a dashing rain, or becomes baked, I would stir it as it dries out with cultivators. Some very judicious farmers use the cultivator more freely in the cultivation of the corn crop, but in my opinion it is a most indifferent implement for any but very clean and light land. For all foul lands, and particularly low-grounds, which throw up weeds rapidly, the mould-board plow is decidedly the best implement I ever used. The objection sometimes urged against it—that the land is liable to wash under its use—is in my opinion founded in error. If the corn rows be properly laid off, the ridging has rather a tendency to prevent washing. Under this system the flow of water is checked by these ridges, and much of it is absorbed, while a dashing rain beats down the level surface, prevents this absorption, and consequently the land is washed into gullies. Corn cultivated with the mould-board plow, is also less liable to be blown down by high winds. Every farmer should have a supply of coulter, cultivators and mould-board plows, as each is useful in its place. The coulter for hard land, the cultivator for light and clean land, and the mouldboard plow for grass and foul growth. It is seldom we have a season or a field which does not require the use of all three.

When the grain is so far matured as to be in the dough state, the stalks may be cut off the ground and shocked up. This operation may be commenced much sooner than is generally supposed, without injury to the crop. A recent experiment shows, that the grain is heavier, when allowed thus to feed from the stalk cut off, than when allowed to hang until fully dried. When the weather is warm, it is well to make the shocks half the usual size, by cutting eight rows and leaving eight alternately through the field. This permits that the shocks be cut, to cure partially before the rest is added to it, and the shock made full size. The fodder thus cured is very nearly equal to top-fodder, while the labor of ridding the land of crop under this system, is not much over half that expended under the old system of top cutting and blade pulling. If the farmer have force enough to do so, the whole crop may be hauled off the land on wagons, and stacked where it is to be used; but where this cannot be done, by stacking the corn in rows and doubling the shocks when

cured, the strips thus occupied may be put in oats, and the whole field brought into grass at the same time.

I am aware that the general system of cultivation recommended in this paper, is "nothing new," but on the contrary I know that the free use of the mould-board plow has gone somewhat out of date. I can only say that having tried every modern implement now in use, I am forced to the conclusion that if this be the *old system*, no very great improvement has taken place of late years, in the cultivation of corn in Virginia. I profess to be wedded to no system.

What I wish especially to impress upon my brother farmers, is this: Whatever work you give your crop, let it be given at the right time. Never let the crop show that it wants work, and remember that one lick struck in time is worth ten applied a *little too late*.

Respectfully submitted.

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MANAGEMENT OF GARDENS.

It is a general remark that farmers neglect their gardens more than any other class of people who live in the country; but we believe that they are losers by so doing, inasmuch as half the living of a family may be derived from a well cultivated garden. How repugnant to every sense of *good living* it is to see farmers in summer confined to their salt pork, corned beef and potatoes, and devoid of every luxury that a good garden may afford, almost without cost. How few farmers' tables show a succession of early peas, beans, radishes, salads, green corn, &c. &c. The article of sweet corn alone may be had in every garden—green, and suitable for the table for *three* months in the year, by successive plantings; yet not one farmer in ten has it at all. We annex an article from the *Horticulturist* that contains some good suggestions in regard to gardens, walks, &c.—Ed.

One of the finest features in the country towns of America is, that almost every dwelling has its garden—small in many cases it may be, but still a garden, and capable of yielding many of the comforts and pleasures of gardening. The most active improvers of our day, the men who are really doing most for a diffusion of a taste for gardening, are the residents of country towns and villages, with their acre, half acre, and even quarter acre lots. Taking this view of the subject, we naturally regard the management of small gardens with much interest; and therefore propose, now and hereafter, to offer a few hints, in order if

possible to establish more correct views in regard to the principles which should regulate their formation and treatment.

From pretty extensive observation, we have come to the conclusion that one of the most serious and prevalent errors in the management of small gardens, is attempting too much. This grows very naturally out of the desire that almost every man feels to gather round his residence the greatest possible variety of interesting scenes and objects; in other words, to make the most of his limited space. In laying out a garden, the design may be good, and it may, in the first place, be properly executed; but no sooner is this done than new trees or plants are fancied, and probably a neighbor's garden suggests some new walk or divisions, and thus one alteration after another is introduced, and the original plan is effaced, and the whole becomes a piece of patchwork. We have seen many charming little front gardens utterly ruined in this way. Now, the beauty of a small garden, and the pleasure it may afford, lies not in a great variety of embellishments, but in simplicity and high keeping—few walks and few trees.

Numerous walks destroy the unity and extent of a small piece of ground, and add very materially to the cost of keeping; and as a regular gardener is seldom employed in such places, the walks become neglected, and grown over with grass and weeds, resembling more a cattle path than anything else. The principle, therefore, should be rigidly adhered to, of having only such walks as are absolutely indispensable, and these to be kept in the best order. A good, well-kept walk, is not only a great beauty, but a great comfort, whereas nothing is so useless and ill-looking as a bad or neglected one. In most cases a single walk, and that a foot walk, six or eight feet wide, in proportion to the extent of the ground, will be quite enough.

The position of the entrance gate, and the course of the walk, must be determined by the shape of the grounds, and the situation of the front door of the dwelling. If the space between the house and street be narrow—say 20 or 30 feet—and the front door be in the centre of the building, the most convenient, and probably the best, arrangement is the common one—having the gate opposite the door, and the walk straight. It would be much better if houses of this kind were so constructed as to have the main entrance at one side, so that the ground in front of the principal rooms might be kept in a lawn, embellished with a few appropriate trees. This would be a more agreeable sight from the windows than a gravel

walk, and persons approaching the house would not be directly in front of the windows. When the house stands back a sufficient distance, even if the front door be in the centre facing the street, the walk should approach it by as easy curves as possible from one side, leaving the ground in front unbroken. A curved walk, however, is not only inconvenient, but obviously inconsistent, in a very limited space.

Box, and all other kinds of edgings, to walks that run through grass plots, are not only out of place, but add greatly to the expense of planting and keeping. Such things are only appropriate to flower gardens, to make the outlines of walks and beds. Hedges of privet, red cedar, or arbor vitæ, are occasionally planted along the edges of walks, but are entirely superfluous, and have a bad effect, unless to screen a wagon road to out-buildings, or to separate a front garden or lawn from the kitchen garden, or such object as it may be desirable to conceal. Such hedges have also a very good effect when placed immediately behind a low, open, front lawn, when viewed from the dwelling.

Planting, in most of our small gardens, is carried to such an excess as to convert them into miniature forests. There must be the universal row, of Horse Chesnuts, or something else withing the fence; and then the interior is dotted over closely with all manner of shrubs and plants. A corner is probably cut up into something like a child's flower garden; small beds, filled with tall, straggling plants, lying over the box edgings, covering the walks, and giving to the whole a neglected and confused appearance. Such management displays no taste, and gives no satisfaction.

We would discard these straight rows of trees, and convert the whole surface into as perfect a piece of lawn as could be made. This we would embellish with a few, very few, appropriate trees, mostly evergreens, having as great variety among them as possible, both in regard to habit of growth and that of foliage. The smallest plot, managed on this principle, may be made beautiful. A single tree, such as a Norway Spruce, a Doedar Cedar, a Hemlock Spruce, or any other fine evergreen, or even a deciduous tree, such as a Magnolia, a Tulip tree, a Linden, Horse Chestnut or Mountain Ash, standing on a lawn, having ample space on all sides to develop its fair, natural habits and proportions, is always a beautiful object, and cannot fail, though a common tree, to attract attention and admiration; but plant three or four, or half dozen such trees where one should be, or crowd up the one with under shrubs and other objects, and you at once

destroy the character and expression of the tree, and produce a confused mass, that cannot fail to be disagreeable to every one whose taste has been even slightly cultivated.

Few people seem to appreciate fully the beauty of a piece of lawn—a beauty which is at once cheap and permanent. Most of us desire to be economical; but what economy is there in cutting up small gardens into walks, flower borders and beds, and in planting them all over with trees and plants? These walks and borders need constant care, or they soon become unsightly; they need a constant succession of flowering plants to keep up a display. The culture of flowers along borders and among trees is never successful or satisfactory. They must have a place allotted to themselves, where they can be tastefully grouped and receive proper attention. A very important point is the selection of suitable trees for small gardens. We very often see trees of the largest class planted where there is no room for them, simply because such trees are planted in every garden. The little front gardens of street houses in some of the English towns delight every one who sees them, by the appropriateness of their arrangement and ornaments. A spot of bright green lawn, garnished with two or three Laurels or Rhododendrons, and some climbing Roses and Honeysuckles around the windows, and these all glittering with high polish, like a new coin from the mint—no cutting up into all manner of misshaped beds and borders, no entangled masses of trees and plants.

THE ONION FAMILY.

From the peculiar flavor of this family of esculents, both as a condiment and as a substantial article of food, the good housewife should insist on introducing the whole family into the garden. The London Horticultural Society cultivates fourteen varieties of the onion. With us, three are enough—the red, white and yellow. The soil for the greatest perfection of the bulbs is a rich sandy loam. Cow manure is preferable to stable; hog manure is better than either; and hen manure is the very best of all. There is no country where the onion comes to greater perfection from the black seed, than in these Southern States. And as it takes two years for the onion to produce seed, the first year's bulb will be altogether the finest for the table. The black seed may be planted in January, February, or even as late as March. First test the seed by soaking; if they are sound, they will sprout in forty-eight hours; then sow in drills just as you expect large bulbs to stand;

the drills should be twelve inches apart; as the onions begin to grow, thin them out in the row to six inches, and if the soil and culture is right the bulbs will be crowding each other in June. Another method of propagating the onion is from sets; these may be procured by sowing the seeds broadcast in the fall. Burn a piece of land over in September, to kill the grass seed; then manure it highly; spade it deeply in, and sow on it black seed at the rate of six pounds to the acre; harrow or rake it over, and run the horse or hand roller over it. These will make fine bulbs to transplant into drills in the spring. Another method of obtaining the onion is from the top or button. This is a cluster of small onions produced on the top, instead of the black seed; these should be planted like the set, in the fall and winter, but may be planted in February or March. The next best variety of the onion family for Southern culture, is French shallots. These produce a button on the top, like the tree onion, and may be propagated either by the button or dividing the roots; this variety never decays in the ground, but continues winter and spring to throw out offsets from the buttons, and are at all times seasonable for soups, stews and washes. The small shallot, or Welsh onion, grows much like the large kind, except that it is only propagated by dividing the roots. This is mostly used as a spring salad, being very mild. The leek is a very important member of the family, not half appreciated at the South. Like the shallot it never decays, but continues to perpetuate itself by its offsets as long as the ground is kept clear of weeds and grass around it. It produces a black seed, like the onion, from which a start may be got. They are a great delicacy for the table, being milder than the onion, and may taken from the ground every month in the year. And last comes that quintessence of all the onion tribe, garlic; this is propagated by offsets; it may be left in the ground the year round. It is used medicinally and as a flavorer of condiments. No good gardener should be without the whole family.

THE VINEYARD.

Two grape vines will make a vineyard, if the proprietor chooses to convert their produce into wine. And everybody may have two grape vines that will. Our native grapes are the only vines for open culture, and are superior for wine to any of the imported. There has been so much mystery thrown around wine making, that our good housewives have let grapes decay upon the vines, and purchased

imported whiskey and logwood, when they could have made a pure wine, wholesome and nourishing, as easily as they could yeast. The scuppernong makes a pleasant light wine. The Catawba and Warrenton make a wine equal to the best sherry. The scuppernong must be planted from its roots, as it does not strike freely from cuttings; the others may be started from cuttings, and in three years will yield wine. Old vines should now be looked to, the lateral branches cut back to three or four buds, all the dead wood taken out, and the vines trained to posts or trellises. Guano worked in, around grape vines, will increase their productiveness. Where this cannot be got, lime and hen manure will answer a good purpose. There is no grape vine so well adapted to arbors as the scuppernong. It is a rapid grower, branches thick, holds its foliage longer than any other vine, and bears heavy crops without pruning. With this vine the owner of a half acre lot may have a vineyard.

The above on onions and grapes, are from Mr. Peabody, of the Soil of the South, probably the best gardener in the Southern States. The following on peas, we have no doubt, from having tried the plan with Irish potatoes, is capital:

The English pea, one of the most delicious of all the garden luxuries, has also been supposed by many not well adapted to the Southern climate, from the fact that its home seems to be in England, where the atmosphere is always moist. But, if the early kinds are planted this month, in a soil abounding in humus, where moisture can be retained, without being wet, they perfect here before the extreme hot weather comes on, and are equal to any raised in colder latitudes. There are several extra early kinds. We prefer the early "*cedo mihi*." After the young plants have been once worked, and sticks placed for them to run upon, the whole ground between the rows should be covered several inches deep with leaves or straw. This will cause them to bear much longer, and to yield larger and better filled pods. Try it, you who have failed to raise English peas because the climate was too hot, and you will confess that when you adapt all your culture to the climate, you can raise all the garden vegetables here as well as in Old or New England.

Cucumbers and squashes, says the same good authority, may be brought forward early by taking a barrel, sawing it in two, and sinking it nearly to the top in the ground, then filling it half full of well rotted stable man-

ure, over which place some soil, in which sow the seed. In cold nights, the top of the barrel can be covered to protect the plants from frost; as the plants begin to run they will be safe from cold, and will venture over the top of the barrel, running and bearing astonishingly. Four barrels appropriated this way, will supply a good sized family with squashes and cucumbers.

Spring turnips may now be sowed; put them in drills, and be very careful to sow thin.

The above directions are all for February, in the latitude of Columbus, Georgia. Our climate is from four to six weeks later; so that they will answer here for March, (from 1st to 15th.)

We are indebted to Mr. Peabody for a small package of the dwarf okra, which being well cultivated, says Mr. Peabody, will prove so good that we will never cultivate any other. They are not for distribution.

Okra may be brought forward some weeks earlier by first starting it in the hot-bed, and transplanting with care. For okra, like cotton, may be transplanted safely.

For the Southern Planter.

INDIAN CORN.

SEED.—The proper kind of corn for planting in particular latitudes, localities, and qualities of land, is a matter of much importance. I have no partiality for colour, but much for long grain and large cob. I am aware that many persons advocate a small cob, but until I am shown a small cob with such long grain as to make a large ear, I will hold on to my big cob, yes as big as my leg, if I can get it. A small ox does not yield a large hide; neither have I ever seen a small cob yield a large ear.

The proper enquiry, however, is not so much about the cob, but what kind of seed will yield the greatest quantity of grain on a given quantity of land?

There may be some advantage in the culture of the double eared corn, but of this I have doubts. Is it not true that by an increased distance, any kind of corn will produce two or more ears to the stalk; and is it not true, that by a diminished distance, the double eared corn will only produce one ear to the stalk? And is it not true that an acre of land can only produce a quantity of corn correspondent to its quality, locality, and culture? If these be facts, why grow two small ears to the stalk, which yield no more grain than one large ear?

For my present purpose it will suffice to divide corn into three different kinds or species, to wit: gourd seed, flint, and a species between these two, which we will call improved gourd seed.

It has been at least fifty-five years since I last saw the gourd seed in Virginia. It belongs to a more southern climate, and there let it remain. Although the people of Virginia have abandoned the gourd seed, yet they have adopted a

more inferior kind from the North; I mean the little flint. The only plea for the culture of this corn in Virginia, is its superior weight, and early maturity. But I prefer a house full and a big blade stack, to a crib full, and a little blade stack. It is true, nevertheless, that in many places West of the Blue Ridge, and on some elevated places on the East side, the Northern flint corn should be planted; because here the altitude or locality creates a similitude to the more Northern latitudes. The flint corn properly belongs to a more Northern climate (with the exceptions above alluded to) and there it should remain.

The proper seed corn for old Virginia, is the improved gourd seed; and if the reader does not understand what I mean by improved gourd seed, just let him look into his own corn house, as well as the houses of all his neighbors, and thence pick out the longest grain and the largest ear he can find; which being planted separate from any other, and from the offspring of which pick and plant again and again, and I warrant him a first rate improved gourd seed. About 40 years ago I put this plan into execution, and I have ever been proud of the result. No matter whether the grain be white or yellow, but I beseech you beware of ring-streaked, speckled and spotted; for as soon would I have my flock of sheep mixed up black and white, long legs and short legs, fine wool and coarse wool.

Planting—Reason and experience both teach us that corn can be planted so thick, that although the yield of plant is most abundant, yet the grain will be wanting. And that if, on the contrary, only one or two hundred plants be cultivated to the acre, the ears will be large but the grain will be deficient in quantity. It is therefore evident that experience can only teach us what number of plants should be allotted to the acre.

Long experience has taught me that the improved gourd seed corn will grow from 8 to 16 feet high, according to the quality of the land; averaging say 11 feet high. The rows should be as wide as half the height of the corn, say 5½ feet; and the plants on the row 15 to 16 inches; which would give about 6000 plants to the acre.

Corn should be planted thick enough to ensure a full possession of the ground by the roots; or in other words, the roots should be so numerous as to penetrate every inch of ground, passing, crossing and lapping in every direction. And as it is known that the roots of corn will extend in proportion to the height of the plant, so let it be remembered that if it is expected that the planted corn will only grow six feet high, the rows should only be half this, say three feet apart; but in all cases I would make the distance between the plants the same, say 15 or 16 inches; thus increasing the number of plants in proportion to their diminished height.

Corn needs all the sun it can get to the ground from the time of its planting till it is in the tassel; but after this the sun only on the plant will suffice. After corn has arrived to tasseling it

needs all the water it can get, and the profuse shade from thick planting will prevent evaporation.

On rich land planted as above recommended, and properly cultivated till the corn is in the tassel, I defy a weed, or a pumpkin or pea to grow. Indeed how can they grow when the corn has full possession?

If one requires to be informed how ground should be prepared for the heaviest possible crop of corn, I would advise the spreading of a heavy coat of manure, and turning it under about knee deep; then another coat of manure and plough again; then pulverize, manure in the hill, and plant. Cultivate the crop in the best manner, and if you do not make 200 bushels to the acre, it is because the crop suffered for rain, or other water, after getting in the tassel. Corn is a gross feeder, and therefore no danger of a gorge of food, provided a proportionate quantity of water is also given.

OLD MAN.

AMHERST, Feb., 1856.

PROFITABLE FARMING IN THE NORTHERN NECK.

A farmer in the Northern Neck of Va., from an estate which, only several years since, cost \$13,000, has, during the present year, thrown into this market its products, yielding him the very handsome nett sum of \$10,500.

Aside from the unusually remunerating prices of our staple productions, during the past twelve months, there is perhaps no section of the State in which the Agriculturist secures a more satisfactory return for the investment for capital and labor, than is realized in that peninsula range of country between the Potomac river on one side and the navigable Rappahannock on the other. Its rare facilities for intercourse with all the prominent markets; the abundance and cheapness of the means of *good living*, added to the intelligence, refinement, and the thoroughly old Virginian hospitality of its people, are inviting to it, particularly in the lower counties, a description of immigration which, we understand, is of a very desirable character.—*Alex. Sentinel*.

THE PHYSICAL AND INTELLECTUAL PLEASURES OF FARMING.

In what does the secret consist of finding any real substantial pleasure in the operations of farming? Among other things you name "the monotonous business of holding the plow from early in the morning to late in the evening." As too commonly conducted, I grant that plowing is not a particularly agreeable business, and that you have described it quite tersely. Too many plowmen, having little or no thought about the true philosophical principles of their business, are more anxious to get

over the greatest possible breadth of land in a day, than to do proper and the best work. They cut their furrows too shallow, and as wide as, or wider than the plow can possibly turn them, and what portion cannot be got over with the plow and aided by the foot of the ploughman, rolls back into its bed again, and the next time round its "grass side up" is put out of sight by the "cut and cover" operation, making a high ridge of earth with a deep hole beside it. The ploughman twists and turns himself in all manner of shapes, is vexed with his plow, scolds at and whips his team furiously, labors and tugs and sweats away, "from early in the morning till late in the evening," and can show you as big and as mean a day's work as you could wish to see, with hardly a rod square of passably good work in the whole piece. I would not allow such a workman to plow a day for me if he would do the work for nothing, and pay ten dollars for the privilege. But if properly conducted say for ten hours in a day, which is all a merciful man will require of his animals of draught, however he may be disposed as to himself, plowing is one of the finest and most exhilarating employments in the world.

"Did you ever investigate the accurate philosophy of the plow and of plowing? Take a highly improved modern plow, and study it. Look at it as a whole implement, and at its several parts, and reflect what a world of profound study it has cost to produce that same implement. What high mechanical principles it involves, and how beautifully do they combine together to produce an exact and most valuable result. There is the mould-board alone, although an exact mathematical combination, yet it is a problem for you, (I speak advisedly,) which, if you have not solved it, its solution will give you a pretty sharp brush, with all your mathematics. Then, too, a combination of mathematics, a little varied to suit each case, will give you the best form of mould-board for sandy and gravelly soils, for clay, and heavy moist soils generally, and for best working stubble land. The plow best adapted to sandy, and generally light, dry soils, will lay flat furrows, accurately shot in beside each other, thus preventing a too great natural tendency to evaporation, incident to such soils. Your mathematics will show you that a coulter set beveling to the land, an inclined landside to the plow, and a concave lined mouldboard, all contribute to facilitate the laying of flat furrows, and that it would be difficult to drop the edges down accurately beside each other without these several provisions. The plow best adapted to clay and other heavy or moist soils, cuts rectangular furrows and lays them at an inclination of 45 deg. to the horizon. Your mathematics will show you that this is the best position for the furrows of such soils to be placed in. It can be undeniably demonstrated that none but rectangular furrows, whose depth is to their width as two is to three, can be laid at an inclination of 45 deg. present in their projecting angles a greater surface of soil to the ameliorating in-

fluences of the atmosphere, and greater cubical contents of soil for the harrow to operate on in raising a deep fine tilth, or seed-bed, and permit underneath them a freer circulation of air, and passage from the surface of superfluous moisture, than furrows of any other form or proportions that are practicable to be turned. The plough in the very best manner adapted to the working of stubble lands, will be higher in the beam to enable it to pass obstructions, and shorter in the turn of its mould-board, than either of the preceding, will have a greater depth of iron in the back parts of the mould-board, which will tend to throw its loose stubble furrow all over to an inverted position, and leave a perfectly clean channel behind it for the reception of the next furrow. Thus you see there is quite a philosophy in plows and in plowing, which the intellectual farmer is bound to understand.

However dull and monotonous the business of ploughing may be to you, it is not at all so to me. Starting my team a-field of a bright spring morning, with my plough all bright and clean from its winter quarters, I feel as honest a pride and pleasure at the thought of my occupation as I ever do when engaging in any employment. I strike out my lands with a furrow as straight as an air line. After this is accomplished, I gauge my plough to cut deep furrows, and as narrow as is possibly compatible with the depth, and then take them off the land of uniformly exact depth and width, never allowing a crooked furrow to be seen in my plowing. To me it is very exhilarating to see the furrows roll off my polished mould-board, and lay beside each other with as accurate a finish as though they had been joined by a carpenter's tools and to think, as my eye surveys the smoking soil thus prepared, how mother earth always delights in bountifully rewarding the careful husbandman,—that she invites a liberal, intelligent and accurate cultivation, by returning as compensation a greatly increased crop. [FRED. HOLBROOK, in *N. Eng. Farmer.*]

LEXINGTON AND LECOMTE.

The following description of these celebrated race horses is taken from an article in a recent number of the *New York Spirit of the Times*, written by a friend of the latter horse, and not a friend to the former. All must read with some allowance for particulars:

LEXINGTON was bred by Dr. Warfield, near Lexington, Kentucky; he was got by Boston out of Alice Carneal by imported Safedon. He stands about 15 hands 3 inches in height, and is of good length. He is a rich bay, much marked with white on all his legs, in the face, and in one eye. He is the first wall-eyed horse we ever saw that had weak eyes. Without any very excellent point, he has no bad one, but is a remarkably even made horse, with that justness of proportion and admirable adaptation of one part to another that gives assurance of an easy work-

ing machine. His body, like that of most of Boston's sons, is very fine. His bones are small, and his muscle very light indeed; his arms and second thighs are thin almost to a defect. His action is round and remarkably elastic, in fact it is the perfection of that style, and is particularly adapted to deep ground and mud. As a race horse, at all distances, he has few equals—There is but little difference between Lexington and Lecomte, but that little is in favor of the latter.

LECOMTE was bred by Gen. T. J. Wells, of the Parish of Rapides, in the State of Louisiana, and was got by Boston, out of Reel; she by imported Glencoe, out of imported Galopade by Catton. He is a rich chestnut, with white on one hind leg, which reaches a little above the pastern joint. He stands 15 hands 3 inches in height. Is in fine racing form, and well spread throughout his whole frame, with such an abundance of bone, tendon and muscle, that he would be a useful horse for any purpose. His temper is excellent; he is easily placed in a race, and yet responds promptly to the extent of his ability. He never tears him-self and jockey to pieces by attempting to run away. His action is low, smooth, and easy. His stride is about twenty-three feet, he gets away from the score like a quarter horse, and is equal to any weight. He has a constitution of iron, the appetite of a lion, would eat sixteen quarts of feed in twenty four hours, if it was given to him, and can stand as much work as a team of mules. In a word, he has all the good points and qualities of both sire and dam, without their defects; consequently, he is about as fine a specimen of a thoroughbred as can be found in this or any other country.

MR. EPES' CHESTER HOGS.

We have been furnished by Thos. W. Epes, Esq., of Powell's Hotel, with a memorandum of sales of brood sows and pigs of this celebrated variety, made within a short time past, namely:

1 brood sow, 2 years, 4 months old at	\$50
1 brood sow, 1 year, 4 months old at	50
1 brood sow, 6 months old at	30
2 pigs, 4 months old at	40

We have spoken of Mr. Epes' Chester swine before, and have only to repeat that they are as perfect and symmetrical animals as we have ever seen. They have been bred with the greatest care, and from the best of their kind that could be selected, of either sex—the great object being the improvement of the stock. Unfortunately, for Mr. E. and the community, the municipal law relating to swine in the city, imposed such restrictions upon him that he has had to reduce his number—but for which he would not have taken a hundred dollars apiece for his sows.

The above prices indicate the high estimation in which the Chester hogs are held, as well as Mr. E.'s skill as a breeder. If any of our other friends can supply us with statistics, either of prices or weights we should be obliged to them.—*Southern Farmer.*

Communicated to the Virginia State Agricultural Society.

GUANO AS A FERTILIZER, AND AS CONNECTED WITH SOIL, IMPROVEMENT, &c.

BY DR. P. B. PENLETON, OF LOUISA.

[A Premium of Twenty Dollars.]

The use of Guano by the undersigned through a series of years, and to no small extent,—on a variety of soils, and under various circumstances—at different depths, and on all sorts of crops; together with an observation of its effects under applications by others, induces him to speak of its proximate and ultimate action, on much of the soil and vegetation of middle Virginia, with some degree of confidence.

It is not the design of the writer, however, to entertain the curious with any plausible theory of its action, but simply to present for the consideration of the practical farmer and planter, a practical and concise *expose* of the subject. Nor is it intended to insist that all the facts and conclusions he may present will be found true and legitimate as to the soils of all sections of the State. This communication is especially addressed to the farmers of *middle Virginia*, to many at least of those who farm it in that section of the State lying between the *blue ridge* and the falls of our eastern rivers, which, except occasional strata of stone lime, is, as far as has been ascertained, wanting in any of the ordinary calcareous deposits.

Hitherto a standing and stereotyped prescription, with agricultural writers, for renovating poor land, has been a heavy application either of shell or stone lime, or of the impure carbonate of lime in the form of marl. It is proposed by the undersigned in the outset briefly to show that the signs by which these writers have *theoretically* determined the precise condition of such soils, and from which they have inferred and urged the necessity of such lime applications, in reality are no reliable indications of either the one or the other. And, indeed, it is insisted that to prescribe *lime* as a *sine qua non* to improvement, would be practically, as to a large section of middle Virginia, quite as absurd as to prescribe marsh mud for a farm in the mountains, or plastic clay for one in tide water, simply for the reason that the high cost of lime in the section in question makes its use to any extent impracticable, and therefore, on such soils, some other agent, or agencies,—must be employed.

The external signs by which the farmer recognises a poor soil, seldom deceive him; but as was intimated, it is contended that neither these nor any other mere outward indications can reliably determine what is the precise chemical constitution and condition of such a soil, nor what are its real deficiencies and requirements; and that these questions cannot be determined definitely by any other means, than by a minute chemical analysis of the soil itself; and, farther, that it is only by a series of experiments, carefully conducted, that even a rational inference on the subject can be deduced.

To illustrate this idea, let it be said that the farmer of tide water knows that the presence on a soil in his section, of certain plants, such as *broom grass*, *sheep sorrel*, etc. unerringly indicates poverty, and that by actual experiment it has been found that *lime* or *marl*, in certain quantities, is sure and economic means of producing a speedy and permanent improvement of said soil, and that less quantities of these calcareous manures is altogether inefficient. Now while this and other similar experiments might authorize him rationally to infer a deficiency of lime in his soil, as well as the necessity of applying it as above, it would be by no means satisfactory proof of either; for, after all, there may have been present an abundance of some salt of lime, *unavailable*, because *insoluble*—in connection with some poisonous salt of iron;—both of which, thorough drainage and plowing might have remedied to a considerable extent. Still less would such an experiment prove a deficiency of lime in a soil of a distant locality—and indeed there is abundant proof that *sheep sorrel* is not incompatible with fertility, and elsewhere than in tide water, often grows well on soils, *presumably*, rich in lime—because long proverbially fertile and especially productive in those crops known to require a good deal of that mineral; and farther, that broom grass soils even have been made very productive without the use of lime. So that even admitting it to have been demonstrated, that the presence of certain plants on a tide water soil, indicates a deficiency of lime, and the necessity of applying it in order to any permanent improvement, two important questions* would yet arise.

1st. *Will similar applications of lime to the above, on all those poor soils in middle Virginia, which present similar signs of poverty, &c., prove alike beneficial? And, 2d. are such applications of lime equally necessary in order to their permanent improvement?*

In answer to the first question, it may be stated that the writer's *experience* with fresh slacked stone lime, mainly in compost with farm pen manures, applied at different times to the extent in the aggregate of a hundred bushels or more, and in one instance at the cost of some 10 or 12 dollars per acre, mainly on pine and broom straw soils, together with the observation of its effects under various applications by others in different localities—the details of which cannot be here given*—justifies the conclusion that *lime does not on many, at least, of the soils of middle Virginia, produce the same beneficial effects it does in tide water.*

* Mr. W. H. Harris, a neighbor of the undersigned, some six or eight years ago used about 500 bushels of shell lime on a granite soil—in quantities generally of twenty-five bushels to the acre, broad cast for corn—and did not see that the corn was any better than on similar land adjoining and unlined—nor did he see any benefit in the wheat that followed, nor in the clover. These lands have since been several times in corn, and the corn in no instance was any better than what he had a right to expect from an improved mode of tillage and the use of guano. Other similar results in great numbers could be given as the experience of many of our best farmers in the use of lime.

In respect to the 2nd question, it would only be necessary to appeal to the almost universal experience of the farmers of middle Virginia, to be told that, in order to the improvement of a generality of *their* poor soils, it has not been found necessary to use lime at all. Indeed there are thousands of farmers, all over the above section, who never used a bushel of lime in their lives, who could testify to the improvement, within the last few years, of pine, broom, grass and sorrel soils without the use of lime, and with clover and plaster alone, so as to enhance their money value from 100 to 200 per cent.

But there are other soils, chiefly located in the tobacco district of the State, presenting similar external signs of poverty, and of the necessity of lime, with those which have been relied on in tide water, as proof of both on which hitherto neither lime nor plaster seems to have had any very marked effect, and these soils, because they have been unjustly regarded as the most destitute and difficult to improve of all others, and because their agricultural advantages and capabilities have been generally underrated by agricultural writers, shall now receive especial consideration.

It would be agreeable to the writer of this essay, had he the means of testing a variety of the soils of tide water, to compare, from approximate results, the average proportions of lime in the two sections. It might be profitable also to compare the histories of the two sections—to notice the fact, that while the one, through a long period of time has been generally appropriated to a mixed husbandry, in which tobacco, the most troublesome and lime-absorbing of all crops, pressing in, between corn and wheat, has not only almost entirely consumed all the otherwise spare labor of the farm, which could have been given to a general improvement, but has actually nearly consumed all the manure made—the other has long been devoted almost exclusively to grain growing, and thus received all the benefits resulting from a system of extensive fallowing, and all the advantages of much spare time and means for making and applying manures—that while in the one, much of the crops has been returned to the land as manure or otherwise. in the other *nearly* the whole has been sold off—and farther, it might be well to make some allowance for the impulse given to farming in *tide water*, under the immediate influence of such distinguished farmers and writers as the authors of "*Arator*," and of "*Calcareous Manures*," advantages but little enjoyed in middle Virginia; and lastly, to make some estimate in dollars and cents of the present comparative profit of farming in the two sections; but all these matters, even could they be fairly stated, would lengthen too much this communication.

The writer, therefore, as the result of a personal examination of a variety of the soils of middle Virginia as to their lime constituents, and from what he has gathered from the written and verbal testimony of others as to the general composition of the soils of tide water, as well as from much that may be fairly inferred from

the histories of the two sections—will proceed to assume as probably true, that the average proportions of lime naturally present in the soils of middle Virginia, is greater than what is naturally present in the soils of tide water—and that to improve the former so as to render them remunerative for farming purposes, artificial applications of lime are not indispensable.

We are now brought to notice, in the next place, some of the most available means of improvement for many of the soils of middle Virginia, and the first agent in importance, unquestionably, is Peruvian Guano.

The immediate action of this fertilizer in promoting the growth of every species of vegetation, is so well known and appreciated generally, it needs hardly to be alluded to; nor would it perhaps be less a work of supererogation to attempt a demonstration of the immediate profit, in dollars and cents, from its use, even at its present high price, on such crops as wheat and tobacco. But these benefits have been thought by many experienced farmers to be after all more apparent than real, and in the opinion of some, guano at least is but a mere stimulant, and acts on the soil just as alcohol does on the human organism, producing temporarily a considerable effect, but leaving the soil in the end poorer than it was in the beginning. This is certainly a very simple and convenient explanation of the matter. But unfortunately the very comparison is absurd. Every body knows something of the peculiar effects of alcohol on the living nerves and blood vessels of a human being; but no one ever supposed that the soil had either nerves or blood vessels, or any thing analagous to either of them. All agree, that guano possesses in a high degree nearly every element of vegetable life and nutrition—but no one ever attributed to alcohol any nutritive properties whatever; and hence to call guano a stimulant and compare it with alcohol—to liken the soil to the human organism, and suppose it can be stimulated with Guano, just as a man is stimulated with brandy, is ridiculous and absurd.

But others, who style Guano a stimulant, being more profound in the therapeutics of agriculture, explain their meaning in this way: that a chief constituent of guano being ammonia, and the invariable effects of this agent being, to cause a rapid growth of the stalks and a corresponding extension of the roots of plants, the abstraction from the soil of mineral matter by guanoed plants is greatly increased, and may be so extensive as entirely to deprive it of certain mineral constituents already scarce, and thus leave it hopelessly barren. This objection being somewhat plausible, deserves consideration; but as a passing remark it may be said that even if this were so, and one or two crops of guanoed wheat should be able to abstract all of certain minerals, such as lime and potash, from the soil, it would only prove, as we shall presently see, that these minerals were present in such very infinitesimal proportions that they could never have been of any great importance,

agriculturally, any way, and therefore as to the policy of applying Guano under the circumstances, the only question the farmer would have to determine would be, whether, in the form of twenty-five bushels of wheat and a certain quantity of straw, he would obtain a satisfactory equivalent for his thirty pounds of potash and eight or ten pounds of lime consumed by said crop of wheat—the cost of which minerals, if returned to the soil, would not much exceed one dollar.

But let us now examine more closely the assumption that guano, acting as a stimulant on the soil, tends to produce barrenness by exhausting its store of mineral matter. As preliminary to the investigation of this question, the first point to be settled is, how much of this mineral matter is added to the soil in an ordinary application of guano, and how much is abstracted from the soil in an ordinary crop, say of wheat. This and other kindred matters will require sundry tabular statements, to which the close and patient attention of the reader is earnestly requested. The average composition of good guano, according to Dr. Ure and Prof. Way, is in 100 parts, about as follows:

Organic matter and salts of ammonia.....	32
Earthy phosphates.....	25
Sand.....	1
Alkaline salts.....	6
Water.....	10
	100

Now, suppose the farmer should apply of this guano 400 pounds to an acre of very poor land for wheat, then it appears from the above analysis that there is actually added to this acre of land, of mineral or inorganic saline matter, about as follows:

Earthy phosphates.....	100 pounds
Alkaline salts.....	25 "
Total.....	125 pounds.

Suppose now the yield from the acre should be as much as 25 bushels of wheat and 3,000 pounds of straw, (a very liberal count.) then, according to analyses made by Mr. Prideaux and Prof. Johnston, of the entire wheat plant, this amount of crop would abstract from the soil (silica excepted, of which there is always a superabundance in the soil,) in round numbers about as follows:

Potash.....	29 pounds
Soda.....	3 "
Magnesia.....	10 "
Phosphoric acid.....	21 "
Sulphuric acid.....	10 "
Chlorine.....	2 "
Lime.....	8 "
Total.....	83 pounds.

So that in applying 400 pounds of good Peruvian guano to an acre of land, there is added to the soil of mineral matter about 125 pounds, and in taking off a crop of 25 bushels of wheat and 3,000 pounds of straw, there is abstracted from the soil only about 83 pounds of mineral

matter. In other words, 43 pounds more is added in the guano than is abstracted in the crop.

But surely no one believes that any soil, however poor, is to be found entirely destitute of the foregoing minerals. Is it not a fact known and acknowledged by many observing farmers, that pines spring up thickly and quickly on the poorest soils when allowed rest, and often in no more than a quarter century, yield as much as 50 cords of wood to the acre? Well, then, this wood, when burnt, will leave of ash about 50 bushels, which, at 50 pounds to the bushel, would weigh 2,500 pounds. This amount of ash, according to analysis by Dr. Dana, would contain about as follows:

Carbolic acid.....	430	pounds
Sulphuric acid.....	85	"
Silica.....	180	"
Potash and Soda.....	875	"
Water.....	100	"
Phosphoric acid.....	125	"
Magnesia.....	108	"
Oxide Iron.....	275	"
Oxide Manganese.....	70	"
Lime.....	340	"

That is to say, this ash alone contains of potash, soda, lime, magnesia, phosphoric and sulphuric acids, in the aggregate, about *fifteen times as much as a crop of 25 bushels of wheat and 3,000 pounds of straw would consume!* But this is not all: the pine shatters annually returned to the soil during the growth of pines is known to be rich in saline matter, and the experienced farmer knows that pine land, even after all the wood has been taken off, always produces a good crop of any kind.

The foregoing facts, which cannot be gained, ought to be sufficient to quiet the fears of all those nervous farmers who dread the stimulating action of guano. But while they prove beyond all question the presence in the very poorest soils of a considerable quantity of mineral matter, they do not at all exhibit the actual quantity present. This is done by Dr. Dana, whose estimates are for a soil formed from *drift granite*—being a minute analysis of *true granite*, which is universally regarded as nearly the poorest rock in saline matter of any. The composition of this rock in 100 parts is as follows:

Silex.....	74.84
Allumina.....	12.80
Potash.....	7.48
Magnesia.....	.99
Lime.....	.37
Oxides Iron and Manganese.....	2.05

Showing that, in every 100 parts of *true granite*, there is present about *seven and a half pounds of potash and three-eighths of a pound of lime*, both in the form of *insoluble silicates*, however, which, nevertheless, are slowly decomposable and rendered soluble under atmospheric and other agencies. On which Dr. Dana remarks: "It is evident unexhausted and exhaustless stores of these substances are *already in barren pine plains*, for let it be supposed

that these are formed of the drift of granite as stated, (many of our fine tobacco, as well as other worn out soils, are formed from a species of granite more decomposable and richer in lime than *true granite*), and the amount per acre of lime and alkali, taking the soil at only six inches deep, would be as follows: The cubic foot of such soils weighs 90 pounds, or at six inches deep, 45 pounds. The acre at this depth contains 21,280 cubic feet, which will afford 3,626 pounds of lime, and 73,311 pounds of potash."

That is to say, supposing the soil to undergo no physical change, and the roots of plants to penetrate in the soil no deeper than the six inches, *there is lime enough in such a soil as the above to grow every year crops of 25 bushels of wheat for nearly a thousand years, and of potash enough for about 2600 years!* But the soil is constantly changing under the leveling action of water, and the roots of the wheat plant do extend much deeper than the six inches, so that it may be very safely affirmed that *the supply in a generality of soils, of these and all other necessary mineral matters, is quite inexhaustible.*

But let us not be misunderstood on this point. It is not asserted, nor believed, that the supply of *soluble* saline or mineral matter in these soils is ample, or even as much as would be necessary to render them first rate grass or corn lands. They are adapted by nature to tobacco, and could not, perhaps, by any course of treatment, be made very suitable for many other crops. But it is asserted as probably true, that the supply of *insoluble* saline matter, as it exists in most of these soils, is inexhaustible. And this arrangement of chemical combinations, which endows the soil with a power of resistance and self-preservation, and enables it to withstand, in a great measure, the wasting influences of nature and art, is but another manifestation of the wisdom and goodness of Him who doeth all things well. Without it, a speedy and hopeless exhaustion of all soils would necessarily ensue. But by it, and under judicious farming, a gradual but constant and sufficient conversion of saline matter from an *insoluble* to a *soluble* state is effected to satisfy, in the main, the wants of most crops.

Having now disposed of the very erroneous notion that guano is a stimulant, and as such injurious to the soil, it would be in order next to notice one other objection to its use: that of its hurtful action on the soil as a *caustic*. But as this will be considered presently in connection with *green manures*, it is now proposed to pass on to notice very briefly, and in a desultory way, some of the beneficial effects of guano.

This fertilizer has been used by the undersigned through a period of some eight years, and has been in use by others, near neighbors, and to a large extent, for about the same length of time—many of these farmers using more than 50 tons a year. It has been applied to all sorts of crops, from wheat and tobacco down to peas and potatoes, and succeeded well in the

main on them all—each application invariably leaving the land in a better condition than it was before. Late in the fall of 1851, 100 pounds were applied to the acre on about seven acres of very poor, sandy corn land, for wheat. The product was very poor, and in the fall following 75 pounds more per acre were used on the same land. This yield was pretty good. The land then lay out a year in clover, and in 1854 was in corn. This crop was not measured, but was supposed to be 4 or 5 barrels to the acre, and was at least double that of the one previous. A crop of corn grown the present year on poor land guanoed three years since for wheat, shows a marked improvement in the soil. A crop of corn grown the present year on common piney old field, after two successive crops of good tobacco, each one only receiving 200 pounds of guano, the measured yield was nine barrels of shelled corn to the acre. And a crop after three successive crops of good tobacco, guanoed as above, will yield about the same. A rather thin tobacco lot of nine acres, manured lightly in 1854, and then guanoed with 250 pounds, with 10 bushels of partially leached ashes to the acre—(tobacco land, unless very rich, is generally benefited by ashes)—produced a very good crop of tobacco of remarkably fine body; and the same land, with 75 pounds of guano to the acre, though too late, (sown 20th October,)—it was smartly injured by “joint-worm”—yielded 23 bushels of wheat to the acre. On this lot, about the 20th of last July, one bushel of cow peas was sown to the acre, and some of these peas, in six weeks afterwards, measured more than six feet. Guano and cow peas, put in drills both together the present year, 100 pounds of the former being used to the acre, on poor land, produced a heavy crop of both peas and vines, some of the latter measuring more than 11 feet. Guano applied to corn at the last working, 100 pounds to the acre, between the rows, has often increased the yield two or three barrels. Applied to tobacco late in the season that refused to grain and was disposed to turn yellow, 100 pounds to the acre, in the same way as above, the season being favorable, it acted well. Applied in the same way, but earlier in the season, by a neighbor, to tobacco, about 200 pounds to the acre, the increase was at least double that of the adjoining crop on similar land. Applied to three or four acres of common corn land, about the first of April of the present year, 150 pounds to the acre, with a bushel each of oats and cow peas to the acre, and the whole raked in together with three-horse cultivators, a fair crop of both was grown. The action of guano in favorable seasons on clover, is equally marked. In the spring of 1854, six and three-quarter tons were used on eighty-one and a quarter acres, of a poor fallow, for oats. The season was rather unfavorable for oats, and a fallow is always objectionable for that crop. The yield was the rise of 1600 bushels by measure, or about 20 bushels to the acre. Clover seed were raked and rolled in with the oats, and in the spring of

the present year the clover was top-dressed with a mixture of half a bushel of plaster and 2 bushels of ashes to the acre. The clover was good over the whole field, and generally would have paid well to cut for hay.

It is not to be denied, however, that guano does not succeed so well, generally, on spring crops as on winter wheat. It will always pay well on tobacco, if used with plaster and leached ashes; but on high and dry corn lands, except in small quantities at a time, its use is of doubtful propriety. On such soils, if the season should be dry, a large application is almost sure to burn the corn, and often does decided injury. But on moist branch or flat lands, particularly on all well drained and prepared pipe-clay soils, it may be used with profit, more freely.

The depth to which guano should be put into the soil, is a mooted question. The writer's experience is confirmatory of Mr. Newton's opinion, advanced some years ago, that *the shallower it is put the better, provided it is thoroughly incorporated with the soil*; and to accomplish this latter end, at least two close rakings with heavy harrows, or better still with 3-horse cultivators, should be given the land immediately after the guano is applied—one, say, after the guano, and one after the grain.

The spreading of guano, when done by hand, even on the land, is a difficult operation. The guano requires to be dampened a good deal. This is best done with a large watering-pot, several hands stirring the guano all the while. The best way to manage the lumps, perhaps, is to sprinkle them well in layers, and let them lay in a heap a week or more before mashing them, which latter may be done in a trough with pestles. If it is attempted to crush the lumps immediately after sprinkling, the water will be found a disadvantage. Machines have been invented for sowing guano, but none of them seem to succeed very well with damp guano, owing to its deliquescent nature. “*Seymour's Broadcaster*” has been used by the writer, and sows dry guano tolerably well; but it sows any kind better if mixed with dry charcoal, half and half. To sow guano well with this machine, it must be entirely clear of lumps.

From the tenor of some of the foregoing remarks, it might be inferred that guano is thought to be a sovereign balm for all the ills of mother earth. But this idea is by no means entertained. Guano is regarded as a potent means of improvement, rather than a direct improver. With it, judiciously used, the farmer is enabled to grow, with more certainty than with any other known fertilizer, large and remunerative crops of every kind; and these in turn supply him with a vast quantity of *offal*, which may be made available for improvement in very many ways; and above all, it enables him to carry on an extensive system of *green manuring*, which it is thought promises more for the renovation of many of the poor soils of middle Virginia than any other system of farming practicable. Every practical farmer knows

the necessity of green manures, not only as a covering and shade for the soil, to protect it against the scorching rays of a midsummer's sun, but as an absorbent of much gaseous matter constantly floating in the air, and brought down by every rain, as well as of these and of soluble saline matters, constantly more or less present in the soil. Every farmer who cultivates high and dry sandy lands, (and here it may be stated, as a fact of some practical importance, that few even of those sub-soils which are reddish and appear to have a good deal of clay, contain less than from 70 to 90 per cent. silica, and many of them no more than 2 or 3 per cent. of alumina—the red color being due to the iron they contain, which latter metal, in many of the south-west mountain soils, is in almost sufficient proportion to constitute them workable iron ores.) Every farmer, we say, knows how difficult it is often to get a good stand of clover on such soils; and even should he by dint of heavy rolling (the best plan) succeed in keeping it alive through the first year, in the next, unless the season should be warm and wet, it makes but little progress, and for all practical purposes is a failure. So uncertain, indeed, is clover on soils of this kind, that to expect to improve them by it alone, in any reasonable length of time, would be perfect folly. Some green manure must be resorted to that will grow and flourish on light lands in dry seasons, and this undoubtedly is the pea crop. What the cultivator of these soils particularly wants is, a tap-rooted leguminous plant, which is constantly extending its roots deep into the sub-soil and bringing up its supplies of saline matters to the surface—one which affords in all seasons a great deal of vegetable matter—to answer the purpose of supplying the soil with ample absorbent materials and soluble humus, and also as a covering; and to those farmers who follow corn with oats, and oats with wheat, peas sown about the 1st of April, along with oats and guano, would probably prove invaluable. The oat crop is a fine preparation for wheat and guano, but the former crop in dry seasons is apt to fail, unless the land is well manured, and guano so often fails to pay on oats, that the farmer is deterred from using it. But by sowing oats and peas together, (if future experiments should be as successful as those already made,) the land will be completely occupied with two sets of plants very dissimilar in their habitudes, and guano may be used with the assurance that there will be sustained ultimately no loss—the pea vines while the oats are growing and maturing, feeding almost exclusively from the atmosphere—and only requiring much food from the time of harvesting the oats.

One fact that should be constantly borne in mind by those who make frequent applications of guano to the same land, is, that acting by its ammonia as a caustic, its invariable tendency is to lessen the amount of vegetable matter in the soil, and it is absolutely necessary that a liberal system of green manuring should be practiced in connection with guanoing; and as the pea crop will furnish on an av-

erage of years more organic matter than any other it is considered the very best, on light dry lands for the purpose above named. Perhaps the most profitable and judicious use that could be made of that crop, would be to introduce it between two successive crops of wheat—the first guanoed more freely than the last, which will have the benefit of a pea fallow. Then let the land lie two years in clover. This gives the land almost constant covering, and the advantage of a green crop three years out of four.

One material defect in guano as a permanent fertilizer is the small proportion of alkaline salt it contains. For whilst, as has been seen, there is probably present in most soils a plenty of these salines, yet inasmuch as they exist naturally in the soil in an insoluble form, their decomposition and consequent recombination, so as to fit them for assimilation by plants, proceeds too slowly to render them readily and sufficiently available and therefore, in addition to those means already suggested for concentrating and increasing the amount of soluble saline matter in the soil within reach of the roots of plants, it is insisted that the careful saving and applying of all the waste materials about the kitchens and outhouses, and especially of all the ashes made on the farm during the year, is of the highest importance. Every negro quarter on the farm ought to have a close pen at hand, to receive all these rich compost materials, and in order to encourage their occupant to carefully save all the ashes, a small sum should be paid for each barrel full saved, and addition suitable rewards for proper diligence in collecting and preserving other waste materials.

Let it be borne in mind by the farmer, that a cord of oak wood when burnt, will yield about three barrels of ashes, and that these contain considerable available salts of lime, potash, and other valuable minerals, from 125 to 150 pounds—that a cord of pine wood affords about one bushel of ashes, and these contain of mineral matter from 30 to 50 pounds, one half of the whole of which is soluble in rain water—that these ashes contain all the minerals necessary for the perfect development of every plant he cultivates, and that their addition to all cultivated soils, is indispensable to repair the inevitable waste which results from tillage and cropping, and if he will still permit the whole to be swept away by washing rains in rills of wealth to fertilize on their exit to the ocean his neighbors' bottoms, surely he could not be so ungrateful as to complain, if, in spite of all the blessings of a warm and genial climate, "the early and the latter rain," and even after much toil of body and mind, the exhausted soil should at last fail to yield him her fruit in due season.

But after all that may be said of the importance of mineral manures, (and all agree that to a certain extent they are indispensable to the perfect structure and development of plants,) they yet occupy but a subordinate position in vegetable life and nutrition. The great vitalizing and energizing principle in all soils is Nitrogen. It is this subtle gas, so abundant in Peruvian guano and in all rich putrescent manures in the form of ammonia and otherwise, that imparts to the barren soil a true "life force," and clothes its nakedness with verdure and beauty. It is this gas that is at once the fountain and origin of all animal existence. Without it the rich and luxuriant pasture and the golden harvest would fail.

to gladden the heart of man and beast, and both alike would breathe in vain the pure oxygen of heaven. It is the sole *muscle forming* principle in all nature. It is inseparably connected with the *vis vitæ* itself of all animal creation, and is indeed the essential essence of the very "blood of man which is the life of him." And hence, to decry the use of guano because of its ammonia, as many have done, is but a wild and ridiculous excess of folly.

Louisa co., Va. P. B. PENDLETON, M. D.
Sept. 28, 1855.

THE NEW ENEMY TO WHEAT.

MILLWOOD, Clark Co., Jan. 21st, 1856.

To the Editor of the *Southern Planter*.

DEAR SIR: In my Planter of January, received to-night, I noticed a letter from Mr. E. P. Goodwin, of Louisa C. H., to the "Examiner," in which he complains bitterly of "the new enemy to wheat." He says the fields attacked can't possibly make "half a crop." I would say to him, cheer up; he'll find, if I am not very much mistaken, that by Spring this destroyer will have disappeared entirely, carrying with him all his destroying propensities; in other words, that his wheat will grow off finely, not a whit injured by this bug. In the fall of 1852, I sowed a twenty five acre field in Mediterranean Wheat. Early in the month of September, it came up and grew off finely, and from appearances I thought would make a heavy crop. I fell in with a neighbor of mine some time in December, who insisted upon my going to look at one of his fields, (sowed when mine was) which he said was being destroyed by a bug very much resembling the rose bug. I found myriads of these bugs all over the wheat, as well as numbers of "plant-lice." There was also a bug which my friend N. B. called an "Armadillo," a little striped fellow, which seemed to be bent on the destruction of the others. Well, sir, I went home in fear and trembling to look after my pet field. *It was more than well stocked*; and in the course of a short time looked as if boiling water had been poured upon it. I gave it up, and would have gone father than Mr. Goodwin, and told you that it could not make the fourth of a crop. As the weather became colder, the *lice* went deeper, until the stalk about the root was literally covered. When I found them there, I "gave it up Mr. Brown." I never looked at the wheat again until late in the Spring—it was then growing finely, and turned out at threshing 30 bushels per acre. Pretty good for Mediterranean wheat! No description could be better of my bug than Mr. G's. N. B. made a fine crop spite of the bug. I would mention that his field was an old sod, and that I thought at the time that the bugs came from ten acres of sod,

which I had in wheat adjoining the twenty five acres. Can there be any thing in this? My ten acres made three hundred and fifty bushels Mediterranean Wheat. If you think this will prove a consolation to Louisa and Buckingham, you can publish it.

Very respectfully,
BEVERLEY RANDOLPH.

THE USE OF SALIVA.

We gather the following from the recent lectures of Dr. H. Bence Jones, of London:

"The action of the saliva upon the starch we take as food, is similar to that of a ferment, and causes it to undergo a change into sugar. If you take a portion of pure starch and hold it in the mouth for only two minutes, you can obtain distinct and decided traces of sugar. We have here a solution of starch not treated with saliva, and if we employ our test for sugar, which you well know (sulphate of copper and liquor potassæ,) we have no reduction of the oxide of copper; but in this other mixture of starch and water, which has been held in the mouth for two minutes only, you may see distinctly a beautiful red line of reduced copper, the evidence of the presence of sugar. If the starch is left in the mouth for three minutes, a still more manifest action is apparent; and if it remains there five minutes, there is a distinct mass of reduced copper, which is proportioned to the quantity of sugar formed out of the starch."

There are many sources of the sugar found in the body. It is found for the most part in vegetable food already formed, and it arises from the action of saliva on starch. It is present in considerable quantity in milk, and minute traces of it are contained in muscle; but, still further, it is always produced by the action of the liver. We have a large quantity of fat going into the liver by the *portal vein*, and a large quantity of sugar coming out by the *hepatic vein*. This sugar is always found in the liver, not only when vegetable food but even when animal food is taken.

SPRING TOOTH HORSE RAKE—PRICE \$10.

Every man who wishes to seed five acres of clover on wheat land should get a gleaner or spring tooth horse rake for gleaming wheat fields. If passed over the land either before or after the seeding it will freshen it and form the very best seed bed for the clover seed. Our friend, Charles Marx, Esq., of the Falls Plantation, has tried one, and it works to a charm. Get it and hold us responsible for the advice, and give us the credit if you succeed. They are for sale by H.M. Smith of Richmond, and perhaps in other places. He warrants the machine; i. e. if it does not give satisfaction he will take it back. That is honest.



THE SOUTHERN PLANTER.

RICHMOND, MARCH, 1856.

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THE INSPECTION LAWS.

In consequence of their course on the Inspection Laws of the Commonwealth, the Executive Committee of the Virginia State Agricultural Society has been arraigned before the Democratic Party for an abuse of its powers. As a member of the Executive Committee, and still more as one of its sub-committee to whom this matter was entrusted, we take issue on the charge; but we plead to the jurisdiction. Always a member of the Democratic Party, dedicated to it from the cradle, and never for a moment tinctured with any other faith, we bow to it with as much submission as a freeman may. But it has no cognizance of offences committed against the Virginia State Agricultural Society, and it never shall have, if we can help it. We appeal to the society: and in order to bring up the case, we shall offer the following essay for one of the society's premiums. If we take a premium, it can only be on the ground of meritorious opposition to the Inspection Laws. If we succeed, we shall assert the acquiescence of the society, and claim for their sanction the consideration which is indirectly, but distinctly, awarded them by those who deny their assent to the present movement; and we give notice of our intention, and publish the argument we shall rely on, that in case we do succeed, those members of the society who think the present laws ought to be retained, may oppose the award and know the arguments which have won it. This is just to the Committee, to their prosecutors, and to the Society.

In treating the question we shall avoid personal and political allusions. They are immaterial to the issue; they are an obstacle to argument, and a hindrance to reason. Truth to say, we have no disposition to retaliate in this kind, but feel rather obliged to the gentleman, who pursuing an opposite course, has served up the Executive Committee with *sauce piquante*, and has thereby lent a popular flavor to a dry question of statistics and economical policy; and, more than that, has proven that acknowledged ability cannot resist the assaults of principle with a stronger weapon than ridicule, or find more fitting answer to grave remonstrance and petition for reform than the merry jest of "a very ancient and fish like smell, a kind of net of the newest poor John."

Nor shall we aim to show mal-administration in the system we oppose, except when it is necessary to illustrate its operation thereby. That it exists, and to a very serious extent, we fully believe; it is incident to the system, as abuses always will be to impolitic laws. But to notice it in detail would argue only reform, when we go for abrogation.

The Inspection Laws of Virginia present a four-fold aspect and may be considered I., as a question of police; II., as a question of the duty of the gov-

ernment to the citizen; III., as a question of fair and just taxation; IV., as a question of commercial policy. Of these in their order.

I. An inspection is intended to guarantee the quality of certain articles by a police regulation; to wit: by the examination of each article by a sworn officer, able and willing to detect a variance from an assumed, but not defined, graded standard of quality, who is to certify this quality by some prominent mark which shall guide the purchaser and warrant conformity to the standard.

Granting that frauds will be perpetrated, it is presumed that none but enthusiasts in regard to particular matters of great supposed utility, will dispute the correctness of the general propositions that Government should lay down rules to detect and prove frauds and enact penalties for their commission, but that it cannot institute examinations into the quality of articles to prevent frauds by the vendors of them without an amount of inquisition which would be tyranny. If this be true, as it is believed to be, it will rest with the advocates of our Inspection Laws to show why the very few articles they embrace should make exceptions to the general rule. But as it is presumed that none will offer to do, what all, though often challenged, have heretofore refused to undertake, we will attempt to show, that these laws are in the general nugatory, and cannot in the nature of things be made more effective, and that the articles they embrace are precisely those in which the principles they embody are of most difficult application.

For illustration we shall select the inspections of guano and gypsum, tobacco, and flour, omitting to notice the two or three other inspected articles, because the absurdity of inspecting them is more obvious, or their consumption is, with the exception of Kanawha salt, comparatively too trivial to need attention.

GUANO.—Frauds have been perpetrated in Richmond in this article, which so far from detecting, the inspector's mark actually aided. Within the past twelve or fifteen months a quantity of an article marked Chilian guano, worth about \$15 a \$20 per ton, manufactured by a noted manure maker at the North, was sent to this port, and marked either by the Inspector or his deputy as No. 1, after a professed analysis. As such, it was sold by merchants of high character, who relied in their sales on the inspector's brand. A subsequent confession, extorted from the manufacturer himself, developed the fraud (see Southern Planter for 1855;) so that the only published case in which our detective policeman could have done any good is just the case in which he has most signally failed. Other cases need not be cited now.

If other frauds are not frequently perpetrated it certainly is not for lack of opportunity and temptation. How can it be otherwise when a Govern-

ment inspection supersedes the warranty which merchants could and would give, and is itself a fraud on the purchaser or the Inspector in its requirements.

The price for inspecting guano is 20 cents per ton. The main fertilizing ingredients are ammonia and the phosphates, particularly the phosphate of lime. The other elements are (taking as an average a sample from Lima, analysed by Bartels—see Rural Cyclopedia, Art. "Guano,") muriatic acid, oxalic acid, uric acid, each in combination with a base; a waxy substance, sulphate of potash, sulphate of soda, phosphate of magnesia, common salt, alumina, five-eighths per cent. of insoluble and therefore useless matter, and 22.718 water and organic matters. The impurities are often considerable, and artificially added.

Assuming accuracy as indispensable, and pronouncing any rude approximations, if the inspectors pretend to such, as wholly unreliable and deceptive, let us estimate the cost of analysis. Berthier, whose method is commended to us by an eminent chemist of this State, thus determines the phosphoric acid: Add to the solution containing the acid a known quantity of per-nitrate of iron; precipitate by means of ammonia, and from the weight of the precipitate after ignition determine the phosphoric acid. To determine the ammonia, expel it from combination by heating with potash, condense in a receiver by means of hydrochloric acid, and add chloride of platinum so as to precipitate the double chloride of platinum and ammonia. By determining the weight of platinum in this precipitate after ignition, the weight of the ammonia may be estimated.

In this language, which is to the inspector a stumbling block, and to the farmers foolishness, a few will see the difficulties of analysis, and will believe that these processes require an amount of time and professional skill which it were an insult to a man of science to estimate at less than \$5.00, and which, as a practical chemist of Richmond assures us, cannot be commanded for such a purpose in New York for less than \$15 a \$20. We omit the formulæ for obtaining the other ingredients, and do not require to know of the analyst the percentage of foreign or adulterating material, though the farmer ought to know all that. Now to save himself from loss at the above rate of expenditure of time and talent, and the legal rate of fee, the Inspector must analyze one sample in twenty five tons or one teaspoonful in fifty thousand pounds. Is this enough? In one of two small portions taken at random from a box of about 20 lbs weight, Prof. Johnson found the following differences:

	No. 1.		No. 2.
Sulphate of soda,	1.8	-	-
Common salt,	30.3	-	-
Phosphate of lime,	44.4	-	-
Water, salts of amm., and organic matters expelled by heat,	23.5	Water, carb. acid, oxalic acid, and other organic matters,	31.5
Phos. magnesia,	trace	-	-
Carbonate of lime,	trace	-	-
			trace
			11.4
			20.3
			trace
			trace
			trace

If such variations occur in quantities of 20 lbs. we can estimate the value of analyzing one spoonful out of fifty thousand pounds, and the worth of ordinary approximations, if they are ever attempted.

GYPSUM may be adulterated either by substances in chemical combination or in artificial mixture. Nothing but expensive chemical tests, which are never applied, and which the Inspectors, we presume, do not know how to apply, can develop this class of frauds. It is also, when ground, adulterated by water, of which it absorbs considerable quantities. How far vigilance is excited to detect this, sometimes hard to discover, we do not know; but a case can be proven in which it has come to the merchant dripping wet, and other cases in which it has been sold by inspection as No. 1., when it contained so much water as to set like cement in six months. Well may such inspections be termed a burlesque on science.

TOBACCO.—It is enough to say of this class of Inspections that they are a nullity. One may export anything in the shape of tobacco, and the actor's brand has no more effect on the price than the timber of which the hogshead is made. The name and evidence of the maker is of far more importance.

FLOUR.—Frauds in this article may be committed in two ways: 1st. In adulterations, such as corn meal, potatoes, beans, peas, alum, gypsum, bones. This kind of fraud is not known or believed to be attempted here, and if so it is by bakers, and of course after the flour, whether for export or home consumption, is beyond the power of the Inspection Laws. 2nd. In sending it to market unbolted or of quality unfit to rank with the lowest degree which the law has established. The nature of this last offence will be treated of hereafter, when it will be shown to be really no offence at all, except in the eye of an absurd and unjust law. So far, then, it appears that the only case in which those laws operate at all, is in the second class of frauds in flour:—an instance in which it creates the crime it would prevent, and converts into misdemeanor an act in itself indifferent if not meritorious.

II. So far as the principles of good government apply to this class of cases, it may be safely asserted that they are all violated. Thus, it is the duty of government to punish the guilty and shield the innocent; but in this case all are brought under the penalty of inspection that the guilty may not escape.

It is its duty to presume its citizens innocent until they are proved guilty; but the planter and the miller are presumed guilty until they are proved innocent by the certificate of an Inspector.

It is its duty to accredit its citizens abroad. But the Inspection Laws discredit a large portion of them by refusing to let them ship commodities until they are examined.

its duty to protect its own citizens against the rest of the world. But this rule is so far reversed that every article of import, except guano, gypsum and building lime, is admitted free of any sort of examination, whilst the citizens of foreign countries are by our laws assured of scrupulous protection against the presumed frauds of our own citizens in our main exports.

It is its duty to protect all classes, and especially those most exposed to fraud. But so far from this, there is no inspection of articles where fraud is, or may be most easily perpetrated, but only of those in which, as in tobacco, it is impossible; or, as in flour, never attempted; or, as in guano and gypsum, undetectable by the inspector; or, as in lime, not worth detecting; or as in fish, where the inspector's assurance of good quality is in a short time the best evidence of bad quality. Whereas in linens, cottons, woollens, silks, liquors, coffee, tea, molasses, sugar, manufactured tobacco, agricultural lime, hardware, castings—all liable to misrepresentations of quality; most of them subject to adulteration; many of them habitually adulterated, manufactured tobacco so much so that its adulterations give the peculiar character and value to each brand; and some of them, as certain liquors, known to every body not to possess one atom of what they pretend to be made of, known in fact to be made of whiskey here in Richmond; in all these there is no inspection. As little in imported flour. There is no protection against the miller even, who though stigmatized to the rest of the world as a suspicious character, is at liberty to cheat the domestic consumer as much as he pleases; and whose weights and measures, as if to provide him with means for plunder at home, are just what it may suit himself to make them. In mules and horses, where the honest dealer is a black swan; in the flesh market, where the honest butcher is found by Diogenes' candle; in wheat and corn, which, to the farmer's shame be it spoken, rarely come up to sample, and not unfrequently sprout in the hold; in law, where the attorney sometimes plays monkey to the cats; in these, in the mechanic arts, trades, professions, in all things, one can name, nobody ever thinks or ever ought to think of government protection. And every one knows that tobacco and flour do not afford any unusual facilities for fraudulent practices, and do not, if they possess any obscure points of quality, require peculiar inspectional skill to point them out to the ignorant and unwary merchant.

It is the duty of government, too, to afford a remedy against fraud. Whereas the present laws, especially in the matter of guano, plaster and fish, are a bar to recovery at law in so far as the inspector's mark substitutes the principle of warranty or of caveat emptor, as the case may be, and provokes fraud by tempting the dealer to

hide a known inferiority under the inspector's brand.*

The principles of good government, then, which apply to the case, are all violated by these laws.

III. So far as inspections tax any portion of the community they should follow the general principles of taxation, unless there be good reason to deviate from them. But taxation should be, 1, uniform both as to proportion and district; 2, it should bear least heavily on things least able to pay; 3, it should not be excessive; 4, it should enure to the

* A case has recently been decided in which Dr. R. C. Mason of Alexandria, (who will excuse us for using his name to illustrate a principle,) got a verdict from a jury against the vender of Chappell's Fertilizer, a Baltimore nostrum. The case is now before the judge on a demurrer to evidence; but the principle of recovery under warranty is not disputed. That he could have had no such recourse if he had bought under an inspector's brand, is evident from the following, which we take from the Journal of Commerce, and in which it will be seen that the point of substitution of guarantee, as far as inspection goes, is a conceded point:

"LIGHT WEIGHT IN FLOUR.—The Cincinnati and Pittsburgh Chambers of Commerce have had correspondence with reference to a case where a merchant in the latter city ordered flour from his agent in Cincinnati, which duly passed inspection, being pronounced "all right," but which on arriving at its destination, was found to be deficient in weight from three to ten pounds per barrel. The seller declining to pay for the short weight, the matter was referred to the Cincinnati Chamber of Commerce, and their decision being adverse to the plaintiff, on the ground that the defendants only guaranteed the inspection in Cincinnati, the case was carried to the Committee of Appeals, who confirmed the decision of the arbitrators. On being afterwards referred to a committee of the Pittsburgh Chamber of Commerce for consideration, a lengthy report was made, in which a very different view of the matter is taken. The committee sum up the case as follows:

'The committee respectfully dissent from the opinion of arbitrators for the reasons before named, to wit: That in the absence of any law in Ohio requiring an inspector to weigh or determine the quantity of flour in a barrel, and one hundred and ninety-six pounds the legal established amount necessary to constitute a barrel, and with unquestioned evidence as to the deficiency in weight, the committee were bound to consider the points in relation thereto, and that their decision upon such technical points against the plaintiff's recovery is unjust, and subversive of principles that govern buyer and seller.

"They also remark, that as the law in Ohio in regard to the inspection of flour now stands, false tares and false weights may be practised upon the purchaser with impunity and without redress. This is a still greater evil, in view of the fact that since the large advance in bread-stuffs false tares and false or deficient weights in flour have been and are proverbially common. They think that claims for such deficiencies should be made a case for legal decision.'

"Much of the flour that arrives at this port is short in weight, and a false tare for the package is by no means of an uncommon occurrence, but it is difficult to determine what is the best remedy. Sometimes the barrel is badly made, and the flour sifts out in transportation; this is especially true in winter, when flour is brought in for a long distance over the railroads, a loss of from 3 to 5 lbs. being almost certain. There are many millers, however, who do not give full standard weight, and something should be done to prevent this fraud. In dry goods the statutes of New York and Pennsylvania exact a penalty for short measure; if the same rule were adopted in regard to flour, and the seller were obliged to restore three-fold the deficiency, there would be fewer complaints of light weight."

benefit of the State, and not go into the pocket of the collector.

In applying the test of the above principles, let it be remembered, that our present tax is 20 cts. on the hundred dollars of value, or one fifth of one per cent. In 1842, when the taxes were first raised to preserve the honor of the State, and the whole system of taxation was reformed, the then amount of 12 cents, or half of 1 per cent.—but little more than half the present sum—was considered so heavy that a hue and cry was raised by one party, which defeated the other, and fixed from that time forth the political character of Albemarle county, the residence of the resolute and patriotic member who moved and carried the tax in the face of opposition even from his own friends. The present rate is deemed so high, that rather than increase it materially, every Internal Improvement which the State has patronized is to be suspended, and only so much added to the present burdens as will pay obligations now due, and prevent the shame of repudiation. As no one disputes the necessity of these improvements, some idea of the popular sense of the present amount of taxation, may be inferred from the course decided on.

1. The following figures, from the Richmond Daily Dispatch, will show the amount and value of Guano and Plaster imported into Richmond within the year.

	Tons.	Value.
Peruvian guano,	18,665	\$1,026,576
Mexican "	962	33,670
Plaster,	4,187	20,906
Total,	23,814	\$1,081,152

Allowing Petersburg, the only other point of State Inspection for Guano and Plaster, to sell one third as much, which is certainly within the mark, we have 31,752 tons at a value of \$1,441,573. Upon this amount the Inspector's fees, at 20 cents per ton, are \$6,548 40 (or 5,562 80 for the Richmond, and \$1,587 60 for the Petersburg Inspector.) This is 45 cents on the hundred dollars of value on all, or more than double the present rate of State tax. But the tax is the same on all, though they are worth respectively \$60, \$30 and \$5 per ton, and of course they pay inversely to their values, the tax being twice as high on Mexican guano, and twelve times as high on gypsum as it is on Peruvian guano, while superphosphates and other artificial manures, which afford facilities for fraud, are never seen by the inspector at all.

There are about 50,000 hogsheads of tobacco annually inspected in the State; their average weight may be assumed at 1,300 lbs.; the average value \$7 the cwt.; total 65,000,000 lbs., worth \$4,550,000 or \$91 per hhd. To get at the tax upon this we have only to compare the charges as they are in Richmond—assumed to be a fair sample of charges elsewhere—with what would be fair rates

upon the basis of transactions at Shockoe Warehouse, where about 16,000 hhd. are annually sold.

PRESENT RATE OF CHARGES AT RICHMOND.

Fee on delivery of tobacco, (to inspector),	-	50 cts.
Auctioneering, average, "	-	12½
Fee when it leaves warehouse, "	-	25
Storage, -	-	60
Insurance, cooperage, &c., lumped, -	-	30
		<u>\$1 77½</u>

PROPOSED RATE OF CHARGES,

Upon the basis above indicated, and believed to be fair charges by gentlemen familiar with the trade, and not interested in inspections.

Salaries of two active inspectors, at \$1500 each,	\$3,000
Do. do. clerks at \$1000 each,	2,000
18 active hands for coopering, sampling, &c., at \$250 each, hire and maintenance,	3,750
Storage 50 cts., insurance 10 cts. per hhd.	9,000
Total,	<u>\$17,750</u>

This shows an average of \$1 18 per hhd, or a clear loss of 59 cts; making a total tax \$29,500, or 65 cts on the hundred dollars of value, being more than three times the State tax.*

It is difficult to estimate the quantity of flour annually made and inspected in Virginia, and still more so, to state the coastwise and foreign export. A laborious calculation, which it is not necessary to set forth here, leads us to estimate this latter at 700,000 barrels, and the following statement of the tax upon it will be based on that assumed amount. As some of the items may excite surprise, it is proper to say that they have been obtained in conference with millers of high standing, and fully aware of the recoil of unfair or improper statement.

The amount of flour taken out in boring—and without any warrant of law that we know of for the second boring, and none for keeping either—is stated on the authority of a measurement recently made at the mills of Messrs. Crenshaw & Fisher, in the presence of the Inspector. The damage is measured by the declaration of the above mentioned gentlemen that they would gladly give an Inspector the

* We have not introduced into the above calculation the charges which are tolerated on loose tobacco, of which we learn there are about 15,000 hhd. annually sold. The following specimen, taken from a merchant's books, will show the nature of this tax:

Lbs.	Value.	Weighing.	Storage (less than a day).
1734	\$7 25	\$1 75	\$1 15
2514	6 87½	2 75	1 15
1900	8 00	1 75	1 15
1988	6 25	1 75	1 15
1180	5 50	1 25	1 15

An average proportion of \$2 45 on the hundred dollars of value. These charges may be thrown in to support the allegations of excessive charge in the text, if they are disputed.

amount of his borings not to injure their flour by inspection. All the other items are actual charges incurred by them, or an estimate in money of labour actually performed by them. The filling and account for storing sacks is taken from the experience of one of them. The charge of 1½ cents for inspection is an average on the supposition that all other places which inspect flour—at a charge of two cents per bbl. the fee everywhere but in Richmond, where 1 cent only is allowed—inspect as much as Richmond does. With this explanation we proceed to give the items of inspection tax on flour, dividing it between the Inspector and the law.

To the inspector :

Inspector's fees, - - - - -	1½ cents.
Borings, 0.55 lb. per barrel. - - - - -	2½
Damage done thereby, - - - - -	2½—6½

Tax by legal requirement of barrel :

Barrel 50 c.; 2 sacks, each 10 c.; difference,	30
Cooperage at leaving port, - - - - -	5
Lining of barrel heads, - - - - -	½
Packing in barrels, - - - - -	2½
Storage and labor of arranging for inspector,	1
Storage of empty barrels, - - - - -	1
Mill sweepings from good flour, - - - - -	½
Freight of barrel to N. York, (less than average distance of ports,) 35 cts; of sacks to same place, 20 cts; difference - - - - -	15
Cooperage on entering port, - - - - -	1½
Total, - - - - -	<u>63½</u>
By storage and filling of sacks, - - - - -	2½
Difference, say, - - - - -	<u>61 cents.</u>

This is a charge on wheat of 12½ cents per bushel, of which 1½ cents is due to the inspection; or rating flour at 12 barrels to the \$100 value, it is a charge for inspection alone of four times the State tax, or 78 cents on the \$100 of value, or \$45,500 on 700,000 barrels.

The sum of the above items of charge on the three selected articles is \$81,550: a tax, therefore, on an imaginary assessment of \$40,775,000. Those who are subject to it are taxed as if they were worth that much more. As has been recently observed in reference to another feature of taxation in Virginia, "they are taxed on what they are worth and they are taxed on what they make."

The tax then lacks uniformity of proportion. So it does uniformity as to place or persons. There is no State inspection of guano or gypsum at any other points in Virginia than Petersburg and Richmond City; Fredericksburg, Norfolk, and Alexandria, all escape this tax.

There is no inspection of flour west of the Blue Ridge.

2. As inspection taxes bear no proportion to value so they bear none to ability to pay. Thus rich lands need no guano; poor lands do; and the

poorer the land the greater the need; but the greater the need the heavier the tax.

So the tobacco region, with less aggregate wealth than any other settled section of Virginia, is saddled with a special tax on its main staple.*

So of flour. The 11,212,616 bushels of wheat made in Virginia, according to the census, is thus distributed:

	Trans-Alleghany.	Valley.	Piedmont.	Tidewater.
Wheat,	1,280,245	3,771,355	4,315,753	1,835,163
Population,	358,504	207,294	459,903	399,126
Am't per head, 3 bush.	18 bush.	9 bush.	4½ bush.	

But, as we have said, the State does not inspect Valley flour, if it goes, as most of it does, to Baltimore; though that section can best bear the tax as being the largest grower of wheat; and as the largest exporter, it demands most the prestige of that auger which, it is said, "gives Virginia flour the command of the markets of the world." Why this inequality of the law? Why this exemption from tax, or this neglect of protection? Why, in either case, the inconsistency in legislation, and this violation of principle?

But see further the inequality of operation. 200 lbs of guano, the usual supply for an acre, makes seven bushels of wheat. This is 70 bushels per ton or 14 bbls of flour. At 6 per cent. tax this is \$0 91
 Add tax on guano, - - - - - 0 20
 And we have - - - - - \$1 11

Or, according to the ratio of State tax, 550 per cent discrimination against improvement of land and an increase of product.

The fees for inspection, and nearly all the charges, are uniform. The prices of the inspected articles fluctuate, and as they fall the rate of tax increases. There could not have been a more unfavorable time for estimating the ratio of burden than the present period of high prices.

3. It is hardly necessary to say that this is excessive taxation.

4. The State gets none of it, except a small amount of the tobacco tax, which she restores in the \$12,000 to \$15,000 she pays to the inspectors in salaries. If it went into the public treasury there would be some consolation in the thought. It all goes to waste, or, what is worse, to office holders. It swells the amount of patronage; it increases the stakes for which politicians play the game of party. Of present parties nothing will be here said. This paper is neutral. But few of any party will deny, as an

abstract proposition, that patronage is in itself an evil only to be tolerated of necessity.

IV. But it is said that this patronage is necessary; that inspection laws are part of a sound commercial policy, and must therefore be established. If they are, then we give up the question, and say let the Governor, of what ever party he may happen to be, make the appointments. He is perhaps the least unfit depository of the power, and certainly better than the courts which may have to revise the action of their own appointee. But let us examine the ground of the presumed necessity, by the rules of political economy, which are the principles of sound commercial policy.

An inspection, as we have stated, is intended to guarantee the uniformity of quality within the limits of each brand. We have shown that it does not and cannot do so in the cases of Guano and Plaster, Tobacco, and Flour, so far as adulterations of this latter are concerned; and we promised to show that it could not do so, without injury to trade, in reference to what is commonly called the quality of flour. What is the "quality" of flour? Its capacity to make certain sorts of bread. But is this uniform? Every housekeeper will answer "no," from his own experience. A barrel comes from the miller, who honestly recommends it. It fails, and the miller is blamed. He would escape censure many a time if he could explain the fact; he cannot; and yet it is of easy solution. The capacity of flour to make bread depends on the kind of wheat and the character of the seasons. To get such flour as is wanted, then, there must be a right to prescribe the kind of wheat to be sowed, and a power to control the seasons; and not granting these two impossibilities, there must be the command of an impossible accomplishment in an Inspector. Wheat is of two kinds, distinguished by the relative excess of starch and gluten. Red, or flinty, wheat, abounds in gluten; white, or opaque wheat, in starch; the quality of the bread depends on this distinctive quality of the wheat. But no man can tell by inspection whether flour is made of white, red or mixed wheat; and therefore cannot tell, to the pretended degree of nicety, what is the quality of the flour he examines. So well known is this fact to the Scotch, the finest domestic economists in the world, that the bakers, who there and elsewhere in Europe, make nearly all the bread, (hardly any being made in private families,) finding it impossible to tell by looking at it what will suit their purpose, buy their own wheat and have their flour ground; so that scarcely a mill in Scotland grinds except on toll. So it is in other places. "So difficult," says Babbage, whom we quote at second hand, "so difficult has it been found to detect the adulteration of flour, and to measure its good qualities, that, contrary to the maxim that government can generally purchase any article at a cheaper rate than that at which they can manufacture it, it

* We are aware that a portion of this tax is paid on the product of North Carolina, but it will be shown elsewhere that transit duties, in the nature of which is this tax, act unfavorably on the commerce of a State, and so what the farmer gains in this point of view the merchant loses, and it will not therefore affect the calculation of loss to the State, or the charge of impolicy against the law.

has been considered more economical to build extensive flour mills, and grind their own corn, than to verify each sack purchased, and to employ persons in continually devising methods of detecting the new modes of adulteration which might be resorted to." Whether flour has been properly ground or pulverized, and whether it has been properly bolted or "dressed," and also whether or no it is made of good wheat, any miller or flour merchant can tell as well as an inspector. No one can do more. Uniformity in quality, then, as contemplated by law, is impossible, because the capacity of flour to make uniform bread cannot be told, except by inspection of the wheat; which is never inspected.

Uniformity is also unattainable as to time, place and duration. The guides to judgment are the eye and the touch; the flour is seen and felt. It is on the fleeting memory of these evanescent sensations that an imaginary standard of quality is to be formed in the mind, and retained from year to year, to be transmitted unimpaired to each succeeding inspector. Can this be done? Let us take a horse which we have owned and known for years, so as to be perfectly familiar with his whole configuration; and let us try to match him without having him present. Every man knows that his first word is, "put them together that we may examine them side by side." If in a matter so obvious to sense, we cannot trust the daguerreotype in the memory, how can it be relied on in the far more delicate and subtle matter of flour inspections?

Facts bear us out in this reasoning. We have heard Mr. Delaplaine, Flour Inspector of Richmond, twice, and with great emphasis, declare before a Committee of the House of Delegates, that he should consider himself "a perjured villain" if he could brand flour otherwise than strictly according to its quality. Now it is notorious to the flour merchants of the city of Richmond that country extra superfine rules from \$1 to \$2 below certain descriptions of city mills superfine, and that there is also that difference between superfine flour of the Richmond mills. It follows then, flour being at say \$9, that as a very sensitive Inspector, under a peculiar sense of responsibility, often falls more than 20 per cent. below his own standard! Such daily occurrences prove that, from whatever cause, practical accuracy is unattainable.

True, Mr. Delaplaine is backed by four out of the six millers of Richmond and Manchester, who signify their acquiescence in the law and his administration of it, which means only this: that the advantage of the law, or its administration, is so great to them, that they will stand a variance of 20 per cent. in the official assessment of their flour, because their customers are not deceived by it, being guided by the miller's private marks, and their well known honorable dealing.

Still more unattainable is uniformity as to place, for the Inspectors are in different and distant places,

without opportunities for conference and comparison of standards.

No better is it as to duration. The first law of time is change; and flour is not exempt from its operation. The statute of 1781, which has been quoted as the parent of the inspector, and relied on to justify it, made inspected flour receivable in payment of debt, execution and taxes, but then the Inspector's certificate expired by limitation in three months. If three months' time in a dry warehouse and dry climate deteriorates flour below the inspection, what must be the case when air, which cannot be "plugged" out, when the whole is "plugged up," is admitted for weeks if not months of ocean navigation and tropical exposure? The inspector's brand then is a guarantee of deterioration, beginning at its date.

We will not pursue this point, so ably elaborated by Mr. Mordecai and Mr. Edward Ruffin in their reports on the operation and general policy of Inspection Laws made to the Executive Committee of the Virginia State Agricultural Society.

Passing to the next point, we argue that if the operation of inspection were uniform, it would be injurious to all parties. There are only five grades of flour in Virginia: there are many more in larger markets; and each of these possesses some peculiar quality in the eyes of the buyer which amounts to another classification. In this way there are some twenty, perhaps more grades of flour in New York, whither most of our export goes. Now it is evident, since a miller can make more bad than good flour from a given quantity of wheat, that if he cannot reach a higher he will aim merely to pass the lower grade of inspection; and so, from the few grades established, he will descend abruptly several degrees of inferiority. If then inspection rules the market it is a discouragement to competition, and a premium on inferiority; if it do not, it is useless and should be abolished. The limits of this essay, and the knowledge that it has been well done by the gentlemen above spoken of prevents additional proof of this point drawn from the nomenclature of the article and a history of the law.

The only thing, then, that an Inspector can do is to see that the flour is bolted, and not mixed with corn meal, and that it is packed in barrels of suitable size. These things are not offences of themselves, and it is an injury to trade and morals to make them so by law. Not considering them here as *mala prohibita*, we take their practical operation.

Unbolted flour, making a sort of bran bread, is very commonly used in Europe by the class of people who consume most wheaten bread; and a mixture of corn meal and flour is recommended and used by those who wish to introduce maize as an article of diet; flour below the grade of fine, coarse, but sweet and healthy, would be gladly used by many of them in preference to, or in substitute of, rye and oatmeal and potatoes. But these articles for which there is

demand there and none here, are precisely those which we forbid, or "condemn," punishing the one offence with fines, the other with a mark of depreciation. It is done, we hear, to keep up the reputation of the market for Virginia flour. But the argument proves too much, since all American flour is inspected. But suppose it did, how would it affect us? Suppose Kentucky, to keep up a reputation for horses, should forbid the export of mules, which are a mixture of the horse with an inferior article. How much would she make by her reputation in the horse market with those who want only mules? Suppose, in order to keep up her reputation for mules, she should dock and crop all under thirteen hands high. She must either use them herself when she does not want them, or sell them at less than their value, in consequence of the brand of condemnation. Yet where is the difference in principle? Why should we seek to raise the standard of good bread for the rest of the world? What is it to us if people like "flies in their soup?" Why shall we insist on selling butter to people who prefer soap grease?

Equally absurd and pernicious is the *barrel* feature of the law. Its intent is to preserve flour; but it forbids the use of the best description of barrel; and it will not tolerate any other form of package. The truth is, if flour is intended to be disposed of in any short time, barrels are useless, for bags will answer every purpose. They are cheaper in the proportion of 2½ to 51, as we have shown. They are more readily adapted to the habits of the consumer, (who if European never wants a barrel,) they take no room, are always in demand, and can be returned to the miller—a common practice where they are used. Whereas the barrel is either thrown away or sold at one third cost, and is a dead loss to somebody. If the flour is intended for keeping, or for warm latitudes and exposures, a barrel, especially one with a hole in it, is not sufficient. Louis Napoleon in 1853 "conceived the idea that it would be practicable to compress flour so as to diminish the bulk, and in that way facilitate its transportation, and yet not injure its quality." In July of that year, an experiment was made by his command to test his views. Flour, subjected to a hydraulic pressure of 300 tons, was reduced in volume more than twenty four per cent. On a close examination, it was found to possess all the qualities it had previous to its violent treatment. It was then put into zinc boxes and sealed up. At the same time, other flour manufactured from the same wheat, but not compressed, was sealed up.

* In October thereafter, several boxes containing both kinds of flour, were opened and examined.—The pressed was pronounced to be the best.—Twelve months after this, in October, 1854, another examination took place, and with the same result. The two kinds were then kneaded into loaves and

baked. The pressed flour made the best bread. In March, '55, more of the zinc boxes were opened, and on examination the loose flour showed mouldiness, while the pressed was sweet and retained all its qualities. Made into bread, the same differences were observable."—[*Albany Journal*.]

From this we perceive that the foreign flour trade of the United States is not yet up to the mark. Such precautions as are necessary, such as an enlightened shipper would take but for the law, will warrant an excellence in the flour that will repay them by its higher price. The envelope will then form a part of the value, and not as now, merely a part of the price.

The provisions of these laws then, in making it penal to modify trade either to suit the habits of the consumer, or to ensure a better article, not only defeat their own object but violate sound commercial policy.

In attempting to guarantee the quality of any article it is assumed by the government that there is a difference of interest between the seller and the purchaser. "By accident," says Burke, treating a cognate subject, "it may be so undoubtedly at the outset; but then the contract is of the nature of a compromise; and compromise is founded on circumstances that suppose it the interest of the parties to be reconciled in some medium. The principles of compromise adopted, of consequence the interest ceases to be different." In fact all sales are compromises, and when government steps in, except to enforce agreements, or punish frauds in them, it injures both parties. So generally is this acknowledged among us, so intertwined with our notions of individual action, that it is not too much

assert that, apart from the question of protection to manufactures, every citizen of the United States is an absolute free trader. How in certain commodities the anomaly of inspections has grown up among us, it is not necessary now to show, though it may be stated that originally the ascertainment of quality was merely incidental to their main purpose. But it is easy to show that it violates all the analogies of trade, and works a positive injury to it. These principles lie at the bottom of commerce; competition which is axiomatically called the life of trade, warranty, and *caveat emptor*—(Anglice judge for yourself.) These are of universal application; the first absolutely; the two last alternatively. Whatever tends to supplant them is hurtful, because it destroys the tools, so to speak, with which the merchant works. The influence of inspections on competition has been illustrated above in the case of flour. It has also been shown, in note, page 83, how the warranty of a responsible merchant is destroyed by the mark of an irresponsible Inspector. It is obvious how it operates to destroy the third by substituting the opinion of an Inspector not necessarily a judge, and sometimes

unskilled in the duties of his office, for the judgment of a man whose profits depend directly on his skill, and whose interest, which is a part of the public interest, leads him to learn the business he pursues.

Commercial policy is also opposed to a tax on commodities. Such a tax is the compulsory tobacco and flour inspection. The man who is compelled to ship inspected flour in barrels pays, according to calculations submitted above, 61 cents per barrel; or 12½ cents per bushel on wheat. It has been stated that \$50,000 will build and equip a mill capable of turning out 300 barrels of flour per day; and that by drawing bills on the flour as each cargo goes forward, \$30,000 is capital sufficient to carry on the business. At this rate it will require about \$1,000,000 to make 700,000 barrels of flour at 61 cents per barrel. The addition to the capital necessary to conduct the business varies from 6 to 10 per cent., according to the variation in the price of wheat, and makes just that much discrimination against a rising and important branch of manufactures, tending to drive capital into other pursuits, and to compel the grower of wheat to seek his market outside the Commonwealth. Upon this outlay the miller charges, as upon any other portion of his investment, though in fact it is so much withdrawn from actual production or diverted to unprofitable channels. It reduces competition, and in so far gives him a monopoly, while it injures him by making it necessary to raise the price of his flour, and so checks the demand. It thus seems that a tax on commodities, which is an indirect tax on profits, takes more out of the pockets of the payer than it puts into the hands of the receiver. This shows a dead loss to somebody. It is not to the miller, who only advances the tax, but it is to the consumer or producer. If to the producer, then it is a charge on his crop, and an additional tax on his production, just as if he had had to expend that much more in making the crop. If to the consumer, then it either drives him to other markets, or deprives us of just so much advantage as might be derived from the removal of the tax. Thus, if flour were worth \$10 per barrel, a tax of 61 cents remitted to our producer would enable our millers to take \$9 39 per barrel, and thus get the control of the market by underselling competitors. On the same principle it would enable a miller to extend his business by the per centage of the tax, thus creating a greater demand for wheat.

But perhaps a still more important view of the commercial impolicy of these laws is derived from a consideration of their influence on our commercial relations with other States—their action as transit duties. Conceding, argumentatively, the right to impose such a tax on their products as a condition of shipment from our ports, let us at-

tempt to estimate its effect on our commerce. Virginia has entered on the race of competition for the trade of the great West. A canal and two rail roads with lateral branches, are stretched out towards that quarter. The future increase of that trade baffles calculation; its present immensity cannot be realized from the unusual array of figures that exhibit its amount; detailed illustration can alone impress its magnitude on the apprehension; and we shall argue from a single example of that nature. The wheat of Tennessee has been found upon trial in Richmond to be as good as our own. Eight of her fertile counties, tributary to the Virginia and Tennessee road, with no other outlet, and as yet devoid of that, produce 300,000 bushels of wheat. If twelve of the less fertile counties of the valley of Virginia produce 4,000,000 bushels; if the county of Amelia, under the recent stimulus of rail roads and guano, has increased her crop from 25,000 to 360,000,000 bushels; if one farm that we know of has risen in 13 years from 600 to 75,000 bushels, or 1250 per cent increase; it will be safe to calculate the future increase of those counties at 3,600,000 bushels, or 720,000 barrels flour, an excess nearly doubling the present export of Richmond. Supposing a barrel to be an incumbrance—the tax under our present laws on this fraction of our expected tribute is \$432,000, of which neither State nor the rail road gets one cent. Now if the transportation be 60 cents per barrel, as on the basis of the charges on the road from Wheeling to Baltimore—75 cents per barrel—it may be assumed to be, the repeal of our law, operating a remission of the tax, would be equivalent in its effects on the trade to free transportation of the flour. Here is the greatest damage of these laws; prospective it may be, but actual it will be, if they are not repealed.

Let us remember that the simple requirement to brand Kentucky, Missouri and Ohio tobacco as "Western," has driven that description of produce to Baltimore and curtailed our market by nearly one half, and we may see how sensitive is trade, and how incommensurate to the cause is the effect of absurd legislation or improper tribute. Already have our laws compelled North Carolina flour, which cannot get barrels, and uses sacks per force, to go to sea through Charleston harbour. We may rely on it that a release from these duties is one of the directions that competition will take. New York, ever sagacious and enlightened in commerce, has begun to feel her way thither, and sooner or later we must follow her example. Why not anticipate it? The principle already prevails as the settled policy of the Federal government, which, by Mr. Hunter's warehousing system, remits all transit duties, and is content, as we should be, to find its profit in the carriage and the commissions. It is mortifying to find Virginia claim-

ing her "plateful of biscuit" from every barrel of transit flour, when the commercial world applauds President Pierce's stand on the Danish Sound dues.

We have said that inspections violate all the analogies of trade; and it might be sufficient to state in proof that neither England nor France, which, with ourselves, form the great commercial trio of the world, have any inspection of the quality of merchandize within their dominions.

But our own commerce is exempt from them, except in a very few articles. Cotton, which is worth some \$80,000,000 per annum, has never had a legal inspection. The purchases are all made by brokers, who buy according to samples on the counter of the commission merchant, and rarely see a bale of the article they contract for. Yet there is scarcely ever cause of complaint. It is a point of honor, as it is a matter of highest interest, with the planter, that there should be none. And so accurate is the mode of doing business that if there be cause of complaint it is at once fastened on the proper persons. The knowledge of this keeps all things straight.

Sugar, again, which has increased in production nearly four hundred per cent. in twenty years, and now gives an income of eighteen millions to the planters, never has been inspected. Neither is molasses, which is peculiarly subject as all know, to change of quality. In these last the tare of the hogshead is agreed at a certain weight. If it is supposed to exceed that amount, a less price per hhd. will easily adjust the difference, just as a butcher in buying cattle at a tare of one half, always pays more in proportion for those that will "gain upon the scales," as it is termed, i. e. overgo the nett weight allowed. So of corn and wheat, which, though more exposed to injury than flour or meal, are yet never inspected by law.

So of our imports. Dry goods of all descriptions are either made to order or sold ready made; in both cases by sample; and so assured are all parties of a correspondence to the sample, that the goods are never examined from the time they leave the warehouse of the manufacturer, until after passing through several hands they reach the counter of the retail merchant. A simple card pasted on some familiar spot, tells all that the parties wish to know.

Coffee, which is taken so largely in payment of flour, is never subjected to legal inspection. The broker examines the samples of the bags or packages, buys by them, and ships them to his principal along with the article bought, properly marked and numbered. We recently saw in the office of one of our city millers a letter enclosing an account of purchases of this kind, with eighty-five samples of quality, all of which were satisfactory.

The same thing can be done and will be done in the progress of the flour trade. The miller will sample his own flour before it is packed; he can then do it intelligently and reliably, because he knows what kind of wheat he is grinding; and the merchant will purchase by the sample, as in other kinds of business; he judging for himself as to quality of sample, the miller warranting conformity to it. Public opinion and private interest will attend to the morals of the transaction; and the wants of the consumer, aided by the vigilance of him who supplies them, will fix the quality of the merchandize far better than a government Inspector can ever do. So at least we infer from the analogies of common life not less than from the experience of trade.

"As a general rule," says J. S. Mill, "the business of life is better performed when those who have an immediate interest in it, are left to take their own course, uncontrolled either by the mandate of the law, or by the meddling of any public functionary. The persons, or some of the persons, who do the work, are likely to be better judges than the government, of the means of attaining the particular end at which they aim. Were we to suppose, what is not very probable, that the government has possessed itself of the means of attaining the best knowledge, which had been acquired up to a given time, by the person most skilled in the occupation; even then the individual agent has so much stronger and more direct an interest in the result, that the means are far more likely to be improved and perfected, if left to his uncontrolled choice."

It was inspections which taxed so heavily the productive energies of France up to the Revolution, that has left not a vestige of them; and it was entire freedom from them, which, according to Adam Smith, did more than any thing else to give to England its vigorous commercial development. They are, in fact, but applications of the principle of "paternal government," "which would not now be attempted in even the least enlightened country of the European commonwealth of nations."

Introduced into our code, at an early period of colonial history, when the true principles of trade were so little understood that what was deemed surplus tobacco was burnt to keep up the price of the balance, and inconsiderately adopted by other States under the force of our example, many people not only submit to these laws as proper, but demand them as a right; just as the Hindoo devotee comes in time to prefer that bed of spikes which he first elected in ignorance and delusion. But the harshness of their original features has been already greatly mitigated, and we may hope that in no long time they will yield to the influence of more enlightened principles.

It remains to answer objections that have been urged against the repeal of inspection laws. Of these, very few that we have heard are worth noting. The inspection laws of Maryland have been appealed to as an argument in favor of retaining our own. But as her laws are just the same as those we oppose, it is not perceived how her practice is an argument against us, or any thing more than a repetition of a contested principle. If her experience is meant to be invoked, then, as her flour is, by assertion of our opponents, lower in grade than our own, her experience is that much in our favour, and all the way against our adversaries, who contend that inspections "have given Virginia flour the command of the markets of the world."

The letters of "eminent New York merchants," are confidently appealed to to show the favorable working of our system, and some six of them are enumerated against "the few firms" in Richmond who favor repeal. Passing by the remarkable difference between six and "a few," and making no objection to the imperfect mode of deciding a case by the one-sided and very limited testimony introduced, we shall prefer in this case to credit our own well known and highly reputed merchants, and claim on our side the testimony of Lewis Webb & Son, Shields & Somerville, and Bacon & Baskerville. Their letters to Mr. Crenshaw, stating that they have paid more for his superfine flour than for country extra superfine, prove that the Inspection Laws under an unexceptionable Inspector, are not worth a groat, and that the New York merchants have made a mistake.

If the question to the millers had been differently worded their testimony might have been worth something one way or the other. But it cannot fail to strike the most careless reader that a gentleman may from many motives acquiesce in a law which is of not the least benefit to him. If the question, with liberty to cross-examine, had been, "How does the inspection law operate on your flour?" a very different answer might have been obtained.

The last point we shall notice is the presumed value of the law in detecting light weight and false tare. For five years the fines amount, it is said, to the sum of \$1267 45. As the fine for such cases is heavy, and increases in a much more rapid proportion than the lightness of weight, being eight cents each for the first three pounds, and seventeen cents for each pound thereafter, it is presumable that the deficiency was small in each case to lessen the risk of detection and the weight of the fine. Taking the one third as covering the real value of the deficiency—at $3\frac{1}{2}$ cents per pound, we have the sum of \$442 45 saved the consumers in five years. The inspector's fees at the same time amount, on the basis of Mr Crenshaw's experiment,

to 1,148,374 lbs., or, at the same price with the above, to \$40,228 09. This is at the rate of 286 lbs. to Mr. Delaplaine for every four lbs. of light weight detected, or ten dollars to him for every ten cents saved the consumer. This looks like baiting with a fish to catch a worm; and is a very pretty illustration of Mr. M'Culloch's doctrine in the matter of smuggling, that it costs a good deal more to prevent such roguery under high duties, than the roguery itself amounts to.

Of argument in favor of retaining the Inspections of Guano and Plaster and Tobacco, we have seen none that are not answered in the body of this essay.

In conclusion, it may be allowed us to say on behalf of the Executive Committee, that they have never assumed in this matter to speak for the Society at large farther than to recite its action respecting a repeal of the law constituting an inspection of Guano and Plaster. Their preamble directly excludes implication to any farther extent, and takes on themselves the sole responsibility. That responsibility results from the reasonable discretion with which general instructions invest every agent, and which makes it a duty to consider all propositions for reform, and adopt such as they think expedient. That responsibility they are ready to meet before an authorized tribunal. But they will not stand at the bar of the democratic or any other party. Their most anxious study has been to steer clear of politics; and they will not now even seem to depart from that rule so far as to argue whether the reforms they advocate do not come within the range of things indifferent; and whether those who would give them a party character do not infringe that right of private judgment, which is the corner stone of freedom.

IRISH POTATOES AND TOMATOES.

We are indebted to Gen. Wm. H. Richardson for several letters on the cultivation of Irish Potatoes and Tomatoes, from some of the most successful growers about Norfolk, where, as is well known, these two important esculents are very largely cultivated for the Northern markets, and we regret to say, to some extent for the supply of Richmond also.

Potatoes.—The ground having been deeply broken and thoroughly drained, harrow to put it in good order. Then run furrows at least six inches deep and four feet apart, and strew guano along the bottom at the rate of one peck to two hundred yards; then fill about two thirds full with unfermented farm yard manure made from horses, hogs, and cattle that have been well treated. Then drop the potatoes, cut into pieces containing two or more eyes, in the manure, about nine inches apart, with the skin up, and cover with the plough not more than from three to four inches deep. Two light furrows

of a one horse plough are best. As soon as the potatoes are beginning to come up, run four times between each row with a one horse plough, throwing the dirt to the potatoes, and follow immediately with a light harrow, running on the top of each bed, taking care that the harrow teeth do not run deep enough to displace the manure. When the potatoes are about six or eight inches high, reverse this operation by throwing the soil from them; and in three or four days give the last plowing by running four times in each row, giving the dirt to them as in the first instance. If there be any oats or weeds growing amongst the potatoes which the plough has not destroyed, make small boys follow and pick them out, at the same time uncovering and straightening the weak plants that are sometimes buried by the plough. They should never be worked after the blossom has expanded. No hoe is ever used in the crop. They are harvested more expeditiously by the plough. The twentieth of February is considered early enough for planting in that climate; and no difference in size, or quality, or early maturity, has been perceived between plantings of the last of February and the last of March.

This is the plan recommended by Col. Edward H. Herbert, the President of the Seaboard Agricultural Society.

The practice of Mr. Henry Irwin is slightly different. Guanoing at the rate of 15 lbs. to the hundred yards, he drops the cuttings on the guanoed furrow, and then follows with a slight dressing of horse manure, or a heavy dressing of half stable manure and half woods litter, which has been mixed some months before. In covering he throws up "a good ridge" to protect them from the cold weather in March; and as soon as that month, or as he thinks the severe weather is over, he harrows down the ridges to let the sun have its full force on the potatoes, in which condition they remain till they are high enough to work.

This seems to be also essentially the practice of Col. Thos. A. Hardy, who uses his oldest manure first, "putting the newest manure on the last planting to help the potatoes forward as fast as possible by means of the heat generated by the fermentation and decomposition."

"If the land is heavy the quantity of guano may be increased, provided the land is well drained, otherwise the crop will not mature so soon," says Mr. Irwin. But "guano alone will not answer for potatoes," says Col. Hardy, "unless the land be very rich in organic matter and of a loose texture."

Seed potatoes raised in our climate in the fall will be two weeks later than good Northern Marcers; but they will keep better through the winter.

Tomatoes.—Sow the seed about the 20th of January, in a hot bed, prepared as follows: Take the litter from the stable, composed of manure, stalks,

leaves, &c., and put it at the bottom of the bed to the depth of five inches; on this put three inches of soil made of old horse manure and rich earth, thoroughly mixed and as fine as possible. Keep this bed warm; but after the plants have come up, take *great care* not to let the hot sun shine on them unless you give them plenty of fresh air at the same time by raising the sash. If you find the plants growing up very thin, they have too much heat, and must be aired. When the plants are from three to five inches high, which is early in March, they are transplanted into another bed, called "the transplanting bed," prepared as the first, only with less heating matter below and deeper soil on top. In this set the plants in rows six inches apart, and water them and stir the ground around them as you wish them to grow fast or not. The transplanting bed should be well warmed before setting the plants, and for several days must be kept warm, and the sun not allowed to shine on the plants. To keep it warm cover the sash and ends with straw or thick cotton. In very cold weather too much care cannot be taken to keep out the frost. If the mice trouble the plants, trap them. When all danger of frost is over—say 20th of April in Norfolk county—take up the plants, earth and all, and set them in the field, having the ground checked four feet each way, with a spade full of well rotted horse manure under each plant. In the market gardens they are cultivated chiefly with the plough, the hoe being used to hill up. In case of drought they use the plough freely. They never support the vines with sticks. If the season is dry, guano alone will bring them; but for a certain crop horse manure is the thing.

It will be seen that tomatoes thus raised are a difficult and expensive crop. It requires several seasons experience to grow them successfully, and this is the reason they pay so well. Very few attend to them properly. The above mode may do where they are raised on a large scale for market, but it will hardly do to pursue this plan in an ordinary kitchen garden, where most probably none but amateurs will take the time and trouble which are involved. Certainly no one should do it who is sure of an opportunity of buying the early plants, which for a family of moderate size, will not cost more than from fifty cents to a dollar.

Tomatoes are very difficult to force, and it is not possible to bring them in more than three weeks before the regular time of ripening in the same quality of soil with ordinary garden culture; and the small volunteer is generally of better flavor than the monsters we so often see which are nearly all pulp and no seed. Indeed, market gardeners have discarded these later, and we rarely ever see them, except with those who like to make a dish. They are acid, hard to ripen

properly and uniformly, apt to rot, and very troublesome to prepare for the table.

It is said that all sorts will bear better if shortened in the branches. It is possible they may, but very likely the vine will be exhausted more speedily.

AILMENT IN COWS.

A correspondent wishes to know what will cure cattle of the ailment, especially those brought from Western Virginia to the counties around Richmond. If he will look in the numbers of the Planter for last year he will find two articles on the subject, one by a gentleman near Richmond, and another by Dr. Crump of Powhatan. They treat of different diseases—one of bilious fever, the other of distemper. What they say, and what Dr. Morton said on the same subject in his essay a year or so ago, is all we know on the subject, except that we lost three very fine Albemarle cows this fall out of a herd of ten by some such rascally disease.

THE NOTTOWAY AGRICULTURAL CLUB.

We are again indebted to the Nottoway Agricultural Club for a large contribution to the Planter. One of the rules of that Club is that each member shall write an essay or report an experiment once a year. The papers thus reported have been sent to us for publication. We shall insert them from time to time as their subject matter makes them appropriate to the season. One peculiar value they possess: the facts they present are accompanied by the name in every case.

How greatly would it benefit Agriculture if the other Clubs in Virginia could be induced to send us their papers, or selections and extracts from them. We have frequently invited them to do so

REPUBLICATION OF THE LEADING ENGLISH REVIEWS.

See the advertisement of the publishers thereof in another place. We have received the January number of Blackwood, with the following entertaining list of contents:

The Gold Screw and its consequences; The new Peace Party; Military Adventure in the Pyrenees, part I; Lancashire Strikes; The Inns of Court and the Bar of England; Wet Days at Bryn Cefn; Drinking and Smoking; On the state of the British Army.

A RECEIPT TO COOK A SIRLOIN OF BEEF.

Take the sirloin, or half of it, and cut the meat from the bone; prepare a stuffing of bread, one or two eggs, an onion, pepper, salt, and a little mace, or nutmeg, with a piece of butter as large as an egg. Lay the sirloin on the table, with the side that was next to the bone uppermost; spread over the meat one half or two thirds of the stuffing, roll it up tightly, and secure it with strings. Roast it as

you would any other piece. Take the bones and any little shreds of meat that have been left in boning it, put them in a stew pan, cover them with water, and simmer slowly for the gravy; put in as a seasoning the same ingredients that were used for the stuffing;—if herbs, thyme, parsley or marjoram are to be had, add them to both. When the meat is done, make into cakes or balls the stuffing that was reserved, fry them in the drippings that the meat was basted with, after which strain the drippings, stir into it a spoonful of flour, and then gradually pour on the gravy made from the bones, &c., and give it a boil up. Serve the meat with the pied stuffing placed round it, and the gravy in a boat. The meat *must* be kept until it is tender.—*Dr. Kitchener.*

A SWEET POTATOE PUDDING.

Take a pound of sweet potatoes, boiled and mashed, 5 eggs, and a pound of white sugar; beat the eggs light and stir them in the potatoes and sugar, reserving two spoonfuls of the sugar. Season with a lemon, or two if small, put it in to a buttered dish, or two buttered plates, and bake. Turn it out when done, and sift the remaining sugar over while hot. Eat either hot or cold—it is better cold. It will be found scarcely inferior to lemon pudding.

TONIC FOR HORSES.

The best remedies for restoring the digestive functions of the horse are:

Powdered Gentian, 1 oz. Powdered Ginger, $\frac{1}{2}$ oz.

Do Sal 2 oz. do Charcoal 1 oz.

Mix, divide into eight parts and give one with food, night and morning.—*Am. Vet. Journal.*

SOWING LIME ON WHEAT TO PREVENT INJURY FROM FLY.

We are very much indebted to Col. Fountain, President of the Central Rail Road, for the following letter, which he handed us a day or so ago.

We know Mr. Cochran well. He is a practical Farmer, and a practical man every way; therefore his opinion is at least entitled to consideration, and his recommendations to a fair trial on ever so small a scale. He has tried this plan for several years, and always, as he has stated to us, with unvarying success. We published a letter from him to the same purport some two or three years ago. Will some of our friends try it? we know all will not—and report the result to us. Those who have sowed guano on their wheat need not have the slightest fear of any injury to that from the use of the lime.

LOCH WILLOW, Augusta Co., Jan. 5th, 1856.

My Dear Sir:—Yours of the 27th ultimo, reached me a few days ago.

Agreeably to your request, I hereunto send you with much pleasure my views, and

rience which I have had in regard to the application of lime upon wheat: as I verily believe air-slacked or quick lime will effectually destroy the fly when properly applied in suitable quantities. I have tried it during the last two years; have a growing confidence in its application since I am thoroughly satisfied of its efficacy.

My experience thus far is to apply (by sowing broad cast,) two bushels and a half to the acre, say about the 1st of November, and the same quantity sometime from the 1st to the 25th of April, giving two chances to get the lime dust on the blades of the wheat; and also that the boot which forms around the stalk in the month of April, may become filled (on the day after sowing) with the ley made from the lime that falls. After sowing the lime, if you examine on the following morning, you will find large drops of ley on each blade, made by the dew, ready to be tilted upon the elevation of these blades into the boot around the wheat stalk. This ley, forward by the dew and lime, is sufficiently strong to burn off the tender parts of the fly and thus disable them from doing farther harm. This I know since I have seen it.

It is not my impression now that even 10 bushels of lime applied in the month of April will injure the wheat, yet heretofore I had feared without a test that it might possibly prove injurious.

On last April, I put a bushel of unslacked lime in a barrel, to which I applied 12 or 15 gallons of water. After stirring the water and lime well together I staked off a piece of ground, four rods square, and with a common watering pot literally whitewashed the entire square. Upon this space the wheat was perfect, whilst that which surrounded it was seriously injured by the fly. Therefore I have more confidence in an application made in the month of April, than in November, and if we can have this made in a *thorough* manner, I do not apprehend from the fly the slightest injury.

I would say more upon this subject, but have been confined to my room for six weeks and feel unable to do so at present.

Yours truly,

JAS. A. COCHRAN.

P. S.—Apart from any tendency which lime may have in destroying the fly, I consider it of great value as a fertilizer, and will amply repay for its cost.

J. A. C.

For the Southern Planter.

HOW TO DESTROY HAWKS.

MR. EDITOR:—The information which I design presenting to the public, is too *vitally* important to poultry and partridges to be underserving of attention. The method which I shall suggest for catching hawks, is one which my own successful experience induces me to recommend to every farmer. Let any one who wishes to try it, buy a steel-trap—(a size or two larger than the ordinary steel-trap for catching rats,) say, with a bait of *one* inch across the jaws

with a partridge, dove, lark, or any bird that can be conveniently shot, and let it be placed where the hawks make their appearance. I will warrant that every one coming in sight of it will be caught. The bird should be tied on the trap, in as natural and life-like a position as possible, and where there is stock in the field, the trap should be placed on a fence, or stake, out of their reach. The hawk, seeing the bird, thinks it alive, makes a swoop at it without farther investigation, and is caught. I have 3 or 4 of these traps setting, and last winter I caught 16 hawks, two minks, an owl and a cat; which last, as she was caught at least a mile from any human habitation, I was constrained to consider a legitimate prize. During the present winter, I have taken 12 hawks and 2 owls, and the good work is still progressing "by day and by night." It is to be hoped that this communication will induce others to take the field and co-operate with

OLLIN.

KING WILLIAM, Jan. 25th, 1856.

[Translated from the *Courier des Etats Unis*.]

For the Southern Planter.

GAME IN NEW YORK.

The hunters of Europe do not consider without reason the United States as a promised land, a terrestrial paradise, where partridges light of their own accord in the game bag and where pheasants fall already roasted upon the table. Marvellous stories are related of loads of the *debris* of game consumed daily on the prairies. Occasionally, also, we hear of horses having to be hired by the hunters to transport the booty to their dwellings. Nor is it in books that these wonderful descriptions are to be found, but in the recitals of witnesses worthy of faith; witnesses who can say: *quorum pars magna fui*.

We hope we will not augment their regrets and jealousies if we give here some details on game, not on all that abounds in America, but on what arrives in the markets of New York, where are to be found, as in Paris, more gourmands than hunters.

New York is justly regarded as one of the best provisioned cities in the world in regard to game. The East, West and Canadas are tributary, and even Europe contributes with her English pheasants and her cocks of the Scotch heath to the *recherchness* of our tables.

Venison, properly called, is found in all the markets in considerable quantities. Bucks are the most abundant and most esteemed of the species; stags are never rare in the season. In winter they are brought from the West, completely dressed, and preserved by the frost, and are sold at a very moderate rate.

Partridges abound from the month of September to the 5th of January, at which time the sale of them is forbidden by law. They are hunted in all the surrounding country, besides all through the Eastern and the most part of the Southern States. The number received per day is estimated at 300 a day, or 36,000 during the

season of four months. They sell on an average at 75 cents per pair.

The season for woodcocks is from the 1st of July to the 1st of December. New York receives during that time about 40,000. They bring on an average 75 cents a pair.

Quails vary from \$1.50 to \$2.50 in autumn; but during the winter the price of them falls to \$1 a dozen. At this time they track them in the snow in immense quantities on the western plains, and whole cargoes of them arrive here. Grouse and prairie hens come exclusively from the West, where they are taken by bands of hunters, and then they bring but from 50 cents to \$1 a pair. The number of them which the city of New York uses is enormous.

There are but few hares in the United States those few are found in New York and Rhode Island. The Canadas alone possess a sufficiently great quantity of them. The species is much smaller and the flesh less esteemed than the European species. In winter the skin becomes all white. Notwithstanding the scarcity of them, they are sold at 50 cents a pair. About 30,000 of them are brought annually from the British possessions.

The grey rabbit of the warren abounds everywhere. A pair is sold for 57 cents in the market.

The wild ducks of America are justly renowned. Some varieties of the species are superior to any found elsewhere. Such, for example is the celebrated *canvass back*, which exists only on this side of the Atlantic. The peculiarly exquisite taste of this game is attributed to the wild celery on which it subsists almost exclusively on the Chesapeake Bay and the Susquehanna and Potomac rivers. The end of November and the month of December are most favorable for obtaining them well fatted and of a savory taste, though they remain until the middle of Spring. It is probable that New York consumed not less than 30,000 of them besides the very considerable quantity sent to Europe in the steamers. The price varies from \$1 to \$3 per pair.

Next to the *canvass back*, the *redhead* is most esteemed. Many of them are killed upon the Sound. Of an excellent taste and very fine savor, the mean price is seldom above 75 cents to \$1 a pair. Then comes:

The *Brant*, considered the best salt water duck and the most delicate of all in the month of May;—the *Mallard*, which never leaves the lakes and rivers;—the black duck, the teal, the broadbill, which is found also on the sea shore;—the Virginia grey duck;—the duck with a blue or green tail;—all excellent species, the abundance of which in winter is such in our markets that the total number of them sold here can be estimated at not less than 70,000 or 80,000.

Wild geese sell on an average at \$1 a piece. New York consumes from 3,000 to 5,000 of them in a winter.

Plovers and snipes are divided into numerous varieties, of which some, particularly among the snipes, are unknown in Europe. Many of them have the form of the woodcock. So great is

the abundance of them that at least 10,000 dozens of these birds must pass annually to the tables of New York.

To convey an approximate idea of the number of wild pigeons passing through the country, we may state that there arrived in the New York markets 2000 dozens, in a single day. One merchant alone received at one time 60 barrels containing 1500 dozens. They bring from 50 cents to \$1.50 a dozen.

These details exhibit the principal resources of New York in respect to game. Others may supply what we have left untold. M.

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		J W Taylor, " "	1 00	W C Jeffres, March 1856,	1 25
		Jas Trice, " "	1 00	John Saunders, Jan " "	2 00
		J A Harman, " "	2 00	J H Vaughn, " 1857,	1 00
Wm B Taylor, Jan '58,	\$2 00	Wm S Ryland, " '57,	1 06	D W H Goodwin, " " "	1 00
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CONTENTS OF NO. III.

Cultivation of Indian Corn.....	65
Management of Gardens.....	67
Indian Corn.....	70
Lexington and Lecompte.....	72
Guano as a Fertilizer, &c.....	73
The new Enemy to Wheat.....	79
The use of Saliva.....	79
The Inspection Laws.....	80
Irish Potatoes and Tomatoes.....	90
Ailment in Cows.....	92
The Nottoway Agricultural Club.....	92
Rec:ipt to cook a Sirloin of Beef.....	92
Sweet Potato Pudding.....	92
How to destroy Hawks.....	93
Game in New York.....	93

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