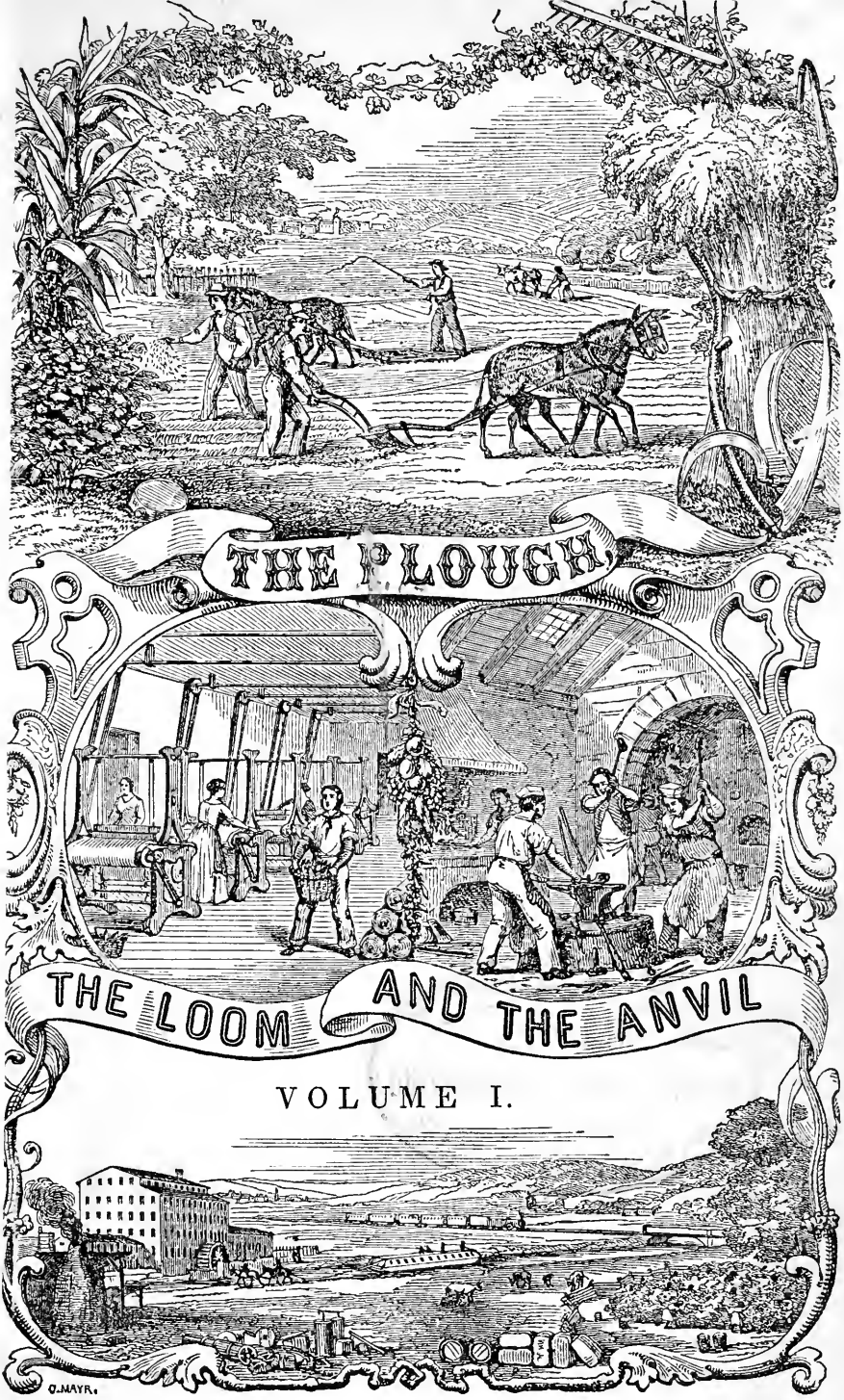

VOLUME I.

J. S. SKINNER & SON, EDITORS AND PUBLISHERS,
81 Dock Street, Philadelphia.

POSTSCRIPT PREFATORY

TO

VOL. I. OF THE PLOUGH, THE LOOM, AND THE ANVIL.

How rapid is the flight of Time, even when measured in periods of years, as it passes swiftly away, like natural objects in the retrospect of the steamborne traveller! It seems but as yesterday, that the first number of the volume before us was thrown upon the public at a venture, and behold we are already summoned to write a preface—not to recall or amend the irreclaimable year that has past, but, in a review of it, to foreshadow the next. In doing this, the first questions are, under what influence, and with what views was the work undertaken? To the first, the ready answer is—under immediate necessity to do something for an honest livelihood; and for the rest, the enterprise took its form from an old and habitual desire to make our labours subsidiary to the amusement and welfare of society.

But, says the reader, had we not already agricultural journals sufficient to keep us advised of all that is new in the practice of our art? Yes, truly, and the low price at which they must be put—even below the very dregs of the party press, in order to gain a living support, showing that journals expressly designed to enlighten their proper vocation, are, with agriculturists themselves, the last to be demanded and the worst supported—is any thing but creditable or auspicious for that community. What then, says the reader, did you contemplate? It was, then, first, to prompt the cultivator of the soil to *think for himself*, as to the bearing of all legislation and action of State and Federal governments on the *landed interest of the country:* and, secondly, to aid, in our humble way, in leading him to insist on the *establishment of institutions*, in which the sons of the Planter and the Farmer might *study the principles of their profession*. When we say *to think for themselves*, we speak in reference to their undeniable habit of yielding up, too generally, their own judgments as respects the action and policy of government, to be moulded by professional politicians, generally lawyers or political doctors, who, mostly with a better education, but sometimes in a spirit of assumption, (the usual concomitant of ignorance,) kindly volunteer to tell the Farmer and Planter not only what they must think, but how and for whom they should vote!

Not without much of personal observation do we presume to speak in this matter. Up to early manhood were we reared in the country, seeing and participating in all its labours and amusements. With rural life are all our early associations, those that endure and give tone to men's character and destiny. Resident ever since in large cities, our thoughts and predilections have yet constantly reverted to our friends in the midst of their gardens and orchards—their fields and their meadows—their flocks and their herds—but truth compels the declaration, that it is there that party spirit is most rife and inveterate, and the sway of the demagogue most prevalent and tyrannical. Where most space intervenes between the plough and the loom and the anvil—enhancing the cost of exchanging the products of their industry, there will there ever be least power of combination and least independence of judgment. Who has not observed, that where population is sparse and education imperfect, a few leading men marshal their respective parties and lead them as the bell-wether leads the flock!

Now, although as to the political economy of agriculture we have our own theory, in which we fully believe, our wish is not to dogmatise, but to inquire—not to enforce an opinion, but to learn the truth; and hence to "hear both sides," as the reader has seen, has been not only our motto but our practice. Yet have our arguments been denounced as "absurd," in contending that the American cultivator should enforce the establishment of a policy that will compel the manufacturer to come and take his place, as Mr. Jefferson said, by the side of the agriculturist, instead of importing from abroad those commodities essential to every nation's independence, and the cost of which consists chiefly in the consumption of the food produced by serfs and paupers, whose whole wages for the year are not more than would buy the Sunday finery of a thrifty slave on a southern plantation—food produced by men who live on *pumpernicle*, and twelve pence a day for men, and seven pence for women in the field; but when the employer finds them, get but 3½ pence in addition to his food. "On large farms," says the Scotch traveller to whom we refer, "four pounds is the annual pay of a farm *servant*—(white men.) From this (the Dantzic) and the adjacent districts in Germany, *the greatest number of emigrants proceed annually to America*." Prince Esterhazy, on asking and being told by an English nobleman, the number of his *sheep*, remarked, "Why, I own a greater number of *shepherds* than you do of sheep!"

The doctrine maintained in the following pages is, that the country, whose market is glutted by the produce of such labour, can afford to the American Farmer only an occasional and precarious market in seasons of famine and pestilence, and when its inhabitants can consume so little of our other great staple as to sink it to a ruinous price; and thus it is that we witness the perpetual play of see-saw between the staples of the South and the West—the one uniformly rising as the other falls.

Here then, reader, you have some of the leading objects for establishing the work to which this introduction is prefixed. With the public it is left to say whether it shall go on increasing in circulation. At present it barely pays its own expenses, which is doing well at the end of the first year. For the future we have nothing new to promise—we adhere to all our original purposes, engaging only that each number of the coming volume shall be illustrated by engravings, not in the way of giving *pictures* to amuse children of a smaller or a larger growth, but to render useful subjects more intelligible—and here we close this *postscript* in the form of a *preface*, soliciting support not only from the Farmer and Planter, to whom we owe our first duty, but from every friend of *American Industry*, for although we are the advocates of *specific* protection, our labours in favour of the cultivators of the soil must *incidentally* benefit him at the loom and the anvil, and all others who *consume* the products of the plough.

J. S. SKINNER,
81 Dock street, Philadelphia.

The Plough, the Loom, and the Anvil.

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A DISCOURSE

ON THE RECIPROCAL RELATIONS OF AGRICULTURE AND THE OTHER BRANCHES OF AMERICAN DOMESTIC INDUSTRY.

BY J. S. SKINNER.

[The senior editor of this journal was some time since appointed, in his absence, by the American Institute, and first named on a Committee, to make report upon "the establishment of Colleges and Schools in the States of the Union, for teaching both the science and the practice of rural economy;" and was also called upon to prepare an address to be delivered, at such time and place as might suit his convenience, by the New York Agricultural Association.

At the time, he could not see the way clear to hope for leisure to accept either of these invitations; and as to the first, although for thirty years he has steadily advocated the claims of agriculturists to public provision for instruction adapted to their profession, further reflection has convinced him, that practical knowledge of the most approved systems of agriculture is *not* the *first and greatest want of the landed interest of this country.* The evils, as he feels persuaded, that occasion the decay of their husbandry, and the dispersion of the children of the old States, lie deeper and broader than is their assumed ignorance of the best modes of culture; and are referable to other and very different sources.

These sources he has endeavored to develope and expose in the following discourse. It was prepared in the midst of arrangements to purchase and remove the Farmer's Library, and he has not even had leisure to give the necessary notice, that arrangements might be made for its delivery, as originally designed, under the auspices of the highly respectable association before named.

What remains with him now is, to express his unaffected regret at the want of ability to convey more forcibly his own conviction, that truly the time, to use the words of Mr. Jefferson, in 1816, *has* "now come, when we must place the manufacturer by the side of the agriculturist."

In changing the *title* of the work to which his labors will be henceforth earnestly devoted, it is but fair and just towards all who may be kindly disposed to patronize it, that they should fully and distinctly understand what are the Editor's views, as respects the best and most permanent security for

an improving and prosperous agriculture: and these he has endeavored to explain in the following discourse—to be carefully read, after reading the Prospectus, as the more perfect after-culture follows the first plowing.

Those whose paramount wish is above all things to come at the true foundation for the welfare of the *landed interest*, however different may be the opinions they entertain on the subject, will not, it is hoped, be deterred by its length from giving to this discourse a deliberate and impartial consideration; —while, for those who would pass on to lighter and more entertaining and practical matter, suffice it to declare that our great object is the same that has engrossed our thoughts and anxieties from boyhood to the present time, to wit, to discover, and, according to our poor abilities, to augment the means of improving the character and profits of *American Husbandry*. Finally, we are aware of the apprehension for the future, which may be created by the *length* of this first article; but let the reader take comfort in the view of almost fifty pages remaining for other subjects, to be read and digested, before the appearance of the second number.]

In the state of its Agriculture is to be found the true test of the advancement of a nation in all the useful arts, or, in other words, of the civilization of a community. It is not the one by which it is usually tried, and it is not improbable that many of my hearers may at first be disposed to doubt the correctness of the assertion; yet on further reflection I am inclined to believe they will agree with me in regard to it. If they will for a moment cast their eyes over the world, they will see many reasons for giving to the subject at least careful reflection, before they come to a final decision adverse to the correctness of my assertion. They will see the highest civilization of Asia in connection with the almost perfect agriculture of China, while they will see a state of barbarism in connection with the ruined agriculture of Hindostan. They will see civilization in highly cultivated Tuscany, and barbarism in depopulated Sicily, once the granary of Rome. They will see civilization in highly cultivated Normandy, and barbarism in half-cultivated Auvergne, whose power at one time was such that it gave to the son of France his title of Dauphin. They will see civilization in the highly cultivated counties of the North of England, and barn-burnings and poaching, and other marks of barbarism in the half-cultivated South. They will see civilization in the Lothians and other parts of the south of Scotland, and barbarism and depopulation in the north. In this country they will see the most rapid advances in civilization in New England, where cultivation extracts from a naturally sterile soil vast supplies of food, while the best soils of South Carolina are being abandoned by their owners, who fly to the west, there to perform the same exhaustive process to which the inferior portions of their original lands have already been subjected.

The business of the agriculturist is that of production; that of the manufacturer is to change the form of the products obtained in return for the labors of the farmer; that of the merchant and trader is merely to change their place and their owners. The first would seem to be the most important, for without him the others could have no existence. Arrest and put a stop to the labors of the agriculturist, and the manufacturer and the merchant would expire like mice in the exhausted receiver of an air-pump. The science that the agriculturist cultivates would seem necessarily to be the one that should first attain perfection, yet it is invariably the last; and therefore

it is that if we desire to find the highest civilization we must seek it in those countries, those states or provinces, in which the labors of the farmer are blest with the largest returns.

Why this is the case may, I think, readily be accounted for. The farmer labors in the field. In the early stages of a country's growth, exposed to the dangers of war, civil or foreign, he is compelled to limit his labors to those patches of land that are nearest to the protection of city walls, and is unable to choose his soils. At brief intervals, his little farm is overrun, his crops are carried off, and his implements destroyed by friends or foes, for in time of war the first are frequently as dangerous as the last. In such times the doctrine, that the end sanctifies the means, is universally acted upon, and generals accumulate fortunes out of contributions extorted from fellow-citizen, or fellow-subject, on pretence of promoting "the public good." The farmer is most of all exposed to oppression of this description, because he lives apart from his fellow-men, while others live together, and are enabled, by concert with each other, both to protect themselves and to control the measures of government for their own advantage. Hence agriculture marches in the rear ranks of civilization.

The manufacturer, on the contrary, labors within the city walls. War often interferes with him, but without destroying him. The town may be besieged for weeks or months, and he may suffer from want, but at the close of the siege he still has a portion of his capital unimpaired—his house, and his tools, and his skill—whereas the lands around the city have been ravaged and are left in a state of ruin. Before the farmer can recommence his work he must obtain new spades and plows, new horses and oxen, and he must build a new house, for that which he had occupied has been used for fuel. So too it is with trade. That too is carried on under the protection of city walls, and the trader is frequently enriched by the events of war, while the farmer is ruined. In time of war, merchants travel in company, forming caravans, and arming themselves for self-defence. Ships too are armed, and ship-owners are often enriched by wars that bring to the farmers of the country to which they belong nothing but ruin and desolation. The man who cultivates the land is the only one who is necessarily defenceless, and therefore has it been and ever will be, that in times of barbarism agriculture makes small progress. War, rapine, and glory, are then the chief pursuits of men. By success in these, they win honor and distinction, and obtain power over their fellow-men. Productive agriculture requires peace, and continued peace brings civilization, and of all the evidences of growing civilization the most certain is that which is exhibited in the application of intellect to the promotion of the great science of production; that science which teaches us the mode of compelling our great mother earth to yield in greatest abundance the rich stores with which she is charged for the sustenance and comfort of all animated nature.

In a state of barbarism the first and great pursuit is that of the soldier. The second is that of the merchant. The manufacturer then is little better than a slave, while the tiller of the ground is absolutely a slave, and is often sold, as still is the case in some of the least civilized parts of Europe, with the land, or from the land, at the pleasure of his master. In such countries, and in that state of society it is, that a modern traveller has seen three hundred white women at work in the field without covering of any sort for their heads or feet. With the gradual growth of civilization, the order tends to become inverted. The trade of the soldier falls in estimation as that of the cultivator rises. The mere exchanger of the products of the plough and the loom becomes less important than the manufacturer. With the highest civilization, the producer will stand, as he de-

serves to do, at the top of the list, and the manufacturer will stand second, while the merchant will be the last, as the trade of the soldier will then have ceased to exist. Warlike establishments, for which the republican people of this country have paid eighty per cent. of their whole expenses for government in time of peace, will be abridged or discontinued, and reason, truth, and justice, will take the place of selfishness and force.

To that point it is that we are gradually tending, and that such is the case, I need ask no better evidence than the assemblage now before me. It is, however, but recently that such has been the tendency, for until the present century agriculture has scarcely been deemed a pursuit worthy the attention of the gentleman, or the man of science, and until now its humanizing effects have been little appreciated. Everywhere we see reference to the benefits conferred upon mankind by commerce. That "Commerce is king" has passed into a motto; but if we wish to see any thing in commendation of agriculture we can but rarely find it, except in the works of poets which are read by few, and are appreciated by but a small portion of those who read them. To commerce is assigned, almost universally, the first rank as a civilizer of man; yet, if we compare its effects upon the mind of man with those of agriculture, we cannot but be struck with the difference in favor of the latter. The skilful farmer should be a man of science. He should understand the composition of soils and the action of manures. In the whole range of science there is scarcely any portion that may not, at times, be useful to him. His labors are those of all others which are calculated to produce development of mind, while they are of all others calculated to produce repose of mind, happiness, and peace. He profits equally with his neighbors by favorable seasons, and he loses equally with them in unfavorable ones. He has all to lose by war, and nothing to gain, for he involves himself in neither speculations nor loans. His disposition is, therefore, always for peace. He produces most of the commodities he consumes, and his income is liable to little change, other than that which results from natural causes. He is, therefore, careful and economical. The first wish of his childhood is rural happiness, nor is it ever lost sight of except where some turbulent and resistless passion depraves and hurries away the soul. In every period of life it animates virtuous and ingenuous minds. Such were the words addressed, more than fifty years ago, to the Agricultural Society of New York, by Hon. R. R. Livingston, its President. For ever respected and honored be his name and memory by all the friends of the plough.

The trader, on the contrary, is required to know nothing of the composition of the cotton or the wool, the sugar or the indigo, that he buys or sells. All that he seeks to know has reference to the prices at which they are bought and sold, and the profit or loss resulting therefrom. In this, no mind is necessarily developed, while he is exposed to perpetual agitation of mind. He wants no science, and he has no leisure to study science. He values the telegraph, because it enables him to sell his cargo before the news is generally known, and thus shift upon his neighbor the loss that might have fallen on himself; or his neighbor, better informed than himself, sells him a cargo, and he is ruined. With war saltpetre rises, and his fortune is made. Famine enriches him because he has speculated largely in corn, and he magnifies the deficiency that he may obtain a better price. He bids for a loan, and he is ruined. He passes through his hands vast property, while producing nothing. He is led to fancy himself rich, and hence result habits of lavish expenditure that end in ruin. His life is one of perpetual fever and anxiety. He has no time to study nature and her laws, whereas the whole business of the farmer is improved in proportion to his knowledge

of those laws. And yet, look where we may, we find commerce placed in the first rank as the great civilizer of mankind.

If we look around us, even now, we see commerce carrying war and desolation into China. We see it promoting the slave-trade. We see in the depopulation of India, by French and English armies, the effects of commerce. We may see it in Algeria and in Tahiti, wasted by French armies. We may see it in the perpetual wars between England and France for worthless colonies. We see it now in the unceasing changes and consequent ruin of the British West Indies. That commerce between distant nations is very desirable, is not to be doubted. It is well that the man of Old England and New England should have tea, and sugar, and coffee, and that the man of Cuba and Brazil should have clothing; but that the inordinate love of commerce manifested by Holland, England, and France, has tended to advance civilization, I am unable to perceive. The real civilizer of the world is agriculture, and the highest civilization will invariably be found where the labors of the farmer are most aided by science, and where they are most largely rewarded by our great mother earth.

The earth is a great machine, given to man to be worked and fashioned to his purposes. It is the sole producer. In the words of Mr. Carey, in his recent work, "The Past, the Present, and the Future,"—not only recent in date, but new and redolent of important truths in the politics of agriculture—a work which might better have been entitled The Book of Revelations of the True and Proper Relations of the Producer and Consumer:

"The earth is the sole producer. Man fashions and exchanges. A part of his labor is applied to the fashioning of the great machine, and thus produces changes that are permanent. The drain, once cut, remains a drain; and the limestone, once reduced to lime, never again becomes limestone. It passes into the food of man and animals, and ever after takes its part in the same round with the clay with which it has been incorporated. The iron rusts, and gradually passes into soil, to take its part with the clay and the lime. That portion of his labor gives him wages while preparing the machine for greater future production. That other portion which he expends on fashioning and exchanging *the products* of the machine, produces temporary results, and gives him wages alone. Whatever tends, therefore, to diminish the quantity of labor necessary for the fashioning and exchanging of the products, tends to increase the quantity that may be given to increasing the amount of products, and to preparing the great machine; and thus, while increasing the present return to labor, preparing for a future further increase.

"The first poor cultivator obtains a hundred bushels for his year's wages. To pound this between two stones requires twenty days of labor, and the work is not half done. Had he a mill in the neighborhood he would have better flour, and he would have almost his whole twenty days to bestow upon his land. He pulls up his grain. Had he a scythe, he would have more time for the preparation of the machine of production. He loses his axe, and it requires days of himself and his horse on the road, to obtain another. His machine loses the time and the manure, both of which would have been saved had the axe-maker been at hand. The real advantage derived from the mill and the scythe, and from the proximity of the axe-maker, consists simply in the power which they afford him to devote his labor more and more to the preparation of the great machine of production, and such is the case with all the machinery of preparation and exchange. The plough enables him to do as much in one day as with a spade he could do in five. He saves four days for drainage. The steam-engine drains as much as without it could be drained by thousands of days of labor. He has more leisure to marl and lime his land. The more he can extract from his machine the greater is its value, because every thing he takes is, by the very act of taking it, fashioned to aid further production. The machine, therefore, improves by use; whereas spades, and ploughs, and steam-engines, and all other of the machines used by man, are but the various forms into which he fashions parts of the great original machine, to disappear in the act of being used; as much so as food, though not so rapidly. The earth is the great labor savings' bank; and the value to man of all other machines is in the direct ratio of their tendency to aid him in increasing his deposits in the only bank whose dividends are perpetually increasing, while its capital is perpetually doubling. That it may continue for ever so to do, all that it asks is that it shall receive back the refuse of its produce: the manure: and that it may do so, the con-

sumer and the producer must take their places by each other. That done, every change that is effected becomes permanent, and tends to facilitate other and greater changes. The whole business of the farmer consists in making and improving soils, and the earth rewards him for his kindness by giving him more and more food the more attention he bestows upon her.

"The solitary settler has to occupy the spots that, with his rude machinery, he *can* cultivate. Having neither horse nor cart, he carries home his crop upon his shoulders, as is now done in many parts of India. He carries a hide to the place of exchange, distant, perhaps, fifty miles, to obtain for it leather, or shoes. Population increases, and roads are made. More fertile soils are cultivated. The store and the mill come nearer to him, and he obtains shoes and flour with the use of less machinery of exchange. He has more leisure for the preparation of his great machine, and the return to labor increases. More people now obtain food from the same surface, and new places of exchange appear. The wool is, on the spot, converted into cloth, and he exchanges directly with the clothier. The saw-mill is at hand, and he exchanges with the sawyer. The tanner gives him leather for his hides, and the paper-maker gives him paper for his rags. With each of these changes he has more and more of both time and manure to devote to the preparation of the great food-making machine, and with each year the returns are larger. His *power to command* the use of the machinery of exchange increases, but his *necessity* therefor diminishes; for with each year there is an increasing tendency towards having the consumer placed side by side with the producer; and with each he can devote more and more of his time and mind to the business of fashioning the great instrument; and thus the increase of consuming population is essential to the progress of production."

These are passages full, as it seems to me, of important truths, from a work in which, for the first time, the superior advantages of labor applied to agriculture, as compared with commerce, are fully shown, and to which I gratefully acknowledge myself indebted for some of the views I now offer you. In a state of barbarism men live apart from each other, and the intervention of the trader is needed for the performance of every exchange. The labor of transportation is great, and of the value of the commodity, when it reaches its market, the chief part consists in the freight and the charges of the trader. In a state of advanced civilization, men live near each other, and perform their own exchanges. Transportation is inconsiderable, and the cost of the commodity to the consumer but little exceeds the price that is paid to the producer. In the first case, but a small amount of labor can be given to the earth, the great machine of production, and men remain poor. In the second, nearly the whole is given to the improvement of that great machine, and men become rich, acquire command of time and means, and rapidly improve in all the arts and amenities of civilized life.

We have here the secret of the productiveness of agriculture in China, Belgium, Normandy, the north of England, the south of Scotland, and in New England. The great machine is made to yield largely, because the refuse of its produce goes back upon the land—the consumer and the producer having taken their places by the side of each other. The cost of exchanging has been diminished, and the whole labor is applied to the work of production. If now we look at India, or Ireland, we see the reverse of this state of things. The consumer and the producer are far from each other, and the labor applied to the comparatively fruitless work of exchanging exceeds that given to the production, while the manure is wasted on the way, and therefore it is that they remain poor. Here we may find the cause of the exhaustion of our southern States. Here, too, we may find the reason why Seneca county, unsurpassed in natural fertility, has fallen in the product of wheat, from twenty bushels to fifteen; Albany county down to seven and a half, when, before the Revolution, it was upwards of twenty. Always taking out of the meal tub, and never putting in, will soon come to the bottom. The earth will yield largely if properly fed. She asks only to have the refuse restored to her, and if that be denied, she expels the man who thus ill-uses her. Hence it is, that Virginia remains almost stationary in popula-

tion, while other States increase rapidly, and hence it is, that the population of South Carolina diminishes in amount. In the latter State the proportion of consumers to producers, of traders, mechanics, and other non-producers of agricultural products, compared with the agricultural producers themselves, is as 14 only to 198; whereas, in Massachusetts, where population is constantly increasing, and growing richer, and rising in value, the case is reversed, and the consumers who do not follow agriculture, but consume its fruits, bear to the producers the large proportion of 87 to 125. From Carolina almost every thing that is taken out of the ground is sent abroad, except so far as is needed for the people who produce it, and hence it is that exhaustion has been so universal, and that men are compelled to fly from each other. It is not that planters lack intelligence in their profession. The Union cannot boast a more accomplished body of landholders.

Few men have labored, I may safely say, more unweariedly for the dissemination of information in regard to improved modes of cultivation, and the employment of manures, than myself, yet I have been somewhat mortified to see, that with all my labors, and with all my endeavors, in cooperation with abler minds, to make known the process and the results of the best English and American experiments, production has steadily diminished in many parts of the country: in parts too, in which the character of the soils yet open for occupation and cultivation appeared to offer the strongest inducements to exertion. Thus, in this State, with all the patronage of the State through the State societies, we see the average yield of wheat scarcely thirteen bushels to the acre, where formerly it was twenty; that of Indian corn only twenty-five, and of potatoes but ninety bushels. In Virginia, notwithstanding all the advice bestowed upon her farmers, within my personal knowledge, for thirty years, the process of exhaustion has still gone on, and with it that of depopulation. In the middle and lower sections of that State, the population, which in 1820 was 746,000, was, at the last census, after a lapse of twenty years, but 783,000, and yet that portion of the State abounds in marl, and shell lime, and other rich resources, the abundance and value of which have been developed by Ruffin, scientifically and practically, and in the highest spirit of patriotism.

In South Carolina too, to which the same patriot has rendered the same service—containing millions of acres fitted to produce the finest grasses—population diminishes, notwithstanding the labors and demonstrations, for fifty years, of agricultural societies composed of the most eminent man of the State—distinguished alike for patriotism and science, and feeling a deep interest in the dissemination of agricultural knowledge. In North Carolina agricultural philosophy has abounded, yet there, notwithstanding the zealous and enlightened labors of Jeffries and his associates, why is it that agriculture has made so little progress? It has not been for want of exhibitions, cattle shows, prizes, papers, essays, &c., for they have steadily increased. Nay, as our agricultural journals of New York have increased, abounding as they have with practical instruction, the product of her soil has diminished. Always full of anxiety for this great interest of our country, these things, I confess, have puzzled me. They were a riddle that I could not read.

Quite recently, however, the problem has been solved. In the work to which I have already called your attention it has been shown conclusively, in opposition to the commonly received opinions on the subject, that the work of cultivation is invariably commenced on the poor soils, upland and devoid of timber, that need not the expensive and laborious clearing, and the deep drainage that the richest lands always do; and that this is done because of the necessity of the case, as men commence with small

force and limited means, with axes that one can swing, felling logs that one can roll, and canoes that one can paddle, before they proceed with saws that require the force of two, and ships that demand many to build and navigate them. The early settler almost invariably has small means, and with them he can cultivate only the poorer soils, encumbered with little or with a lighter growth, but with improvement in his means and increase of his machinery he is enabled to clear and cultivate the richer soils on which he would starve if he possessed no other force or machinery than that which he could at first command. That such has been the commencement and progress of agriculture in all nations and at all ages, is abundantly shown by the author; but I have just now met with new confirmation of it in the transactions of the South Carolina Agricultural society, and am induced to refer to it, because it is the State that of all others has most exhausted the poor soils first cultivated, and in which the tendency to fly from the rich soils most exists. One of the presidents of the society, distinguished for his wide research, and for zeal as enlightened as it is untiring, Mr. Seabrook, in an address delivered in 1843, says, "The land which could most readily be prepared, was invariably chosen; the best, *requiring a large expenditure of labor*, neglected." He adds, that "only recently have the swamps of some of the parishes and the immense tracts which lie along the line where the salt and fresh water meet, attracted the notice of the cotton grower." We need not however go to South Carolina for evidence of this fact. A ride along the railroad from Albany to Buffalo will enable us to see the richest soils, in vast abundance, uncleared and undrained, while, in their vicinity, men are seen cultivating originally poor soils, upon which they and those who went before them have wasted their labors, during almost half a century, and from which they are now flying, as from pestilence, to recommence the work of exhaustion still farther west. I have recently, on another occasion, and very deliberately, expressed the opinion, that in the State of New York there is as much land needing to be drained, and which, if drained, would be the best in the State, as would cover half the State of Rhode Island.

The cause of this is, as it seems to me, easily explained: the early settler is dependent upon distant markets, where alone his customers, the consumers, are to be found, and all his modes of communication are imperfect and bad. He therefore naturally applies himself to raising those commodities which will bear transportation, being those of which the earth yields little, and which, therefore, command a higher price in the market to which he is compelled to look for the performance of his exchanges. An acre of land yields two hundred pounds of clean cotton, or six hundred pounds of wheat, and these may bear the expense of transportation, whereas potatoes and turnips and Indian corn will not. He goes on to exhaust his originally poor soil, sending off all its produce to be manufactured or consumed abroad, and wasting on the road the manure yielded by the oats, the corn, the hay, and the fodder raised for his horses and cattle; and when at last it ceases to yield a sufficient return, he transfers his labor to other poor lands, similar to the first, neglecting the rich lands of the swamps and valleys, and he does so for the reason that he can always obtain for $1 25 per acre, poor lands that will yield two hundred pounds of cotton, or ten bushels of wheat, whereas to clear and drain the rich swamp or timbered lands, would cost him $30 an acre, and they are not worth that price for the raising of articles of which the earth yields little, and that *will* therefore bear the expense of carriage to distant lands. In order that they may be worth the cost of clearing, he must be enabled to take out of them those commodities of which the earth yields largely, and *they will not* bear carriage to distant markets.

Acres of rich lands will yield tons of hay and potatoes, but they are valueless unless consumed on the spot. Give him consumers within striking distance, and he may have the manure yielded by those tons, and thereby enrich his originally poor soils, enrich himself, and keep his children around him. Keep him dependent upon distant markets, and he must exhaust his land and fly to new lands that he can get cheap, abandoning the rich, undrained, and uncleared lands in his own neighborhood, and waste his labor on that which yields only pounds of cotton, when he might have tons of potatoes. The policy which thickens population makes the food come from rich soils, while depopulation drives men back to the poor ones.

It is the common impression that the men who fly to the West, do so because they have exhausted the rich soils, and because they can recommence the work upon other rich soils. Directly the reverse is the fact. It is because they have no market at hand for the commodities that would pay for clearing and preparing the rich lands they leave behind. For want of force and capital they commenced their work on the highest and most open lands, which, as a general rule, are always the thinnest lands, and they fly to other lands of the same sort, and therefore is it, that the average yield per acre, in the West, is so small as we see it is. In Ohio the yield of wheat, in 1847, was but ten bushels, and is steadily declining, because men are exhausting the lighter soils, which they found more easy and open to cultivation, and are unable to clear and drain the richest ones. In the extract from the transactions of the South Carolina Agricultural Society, which I have already given you, we have seen that it was upon the poor soils of that State that cultivation was begun. Let us now see what are the soils from which men are flying. Governor Hammond, a practical agriculturist of the first order, in his address to the society, says, "that vast inland swamps, well suited for the culture of rice, yet frown in barren gloom below the ridge, while many of the up-country bottoms, which are destined at some future day to groan beneath its harvests, are now only idle wastes, consigned to flags and rushes." Again, he says, "that in many parts of the State, marl has been found in great abundance, and at convenient points for water transportation," while "in other parts limestone exists to an unknown extent." In others again "salt marsh and oysters abound, while almost everywhere upon the rivers, creeks, and branches, and in the swamps, are rich alluvial deposits, abundantly fitted to recruit the exhausted cotton lands." Possessed of all these resources, he thinks it would not be tedious or expensive to reclaim the worn-out lands, yet each year shows an increase of emigration from these rich and virgin soils to the poorer lands of Texas and Arkansas, for each settler in those States occupies lands precisely similar to those which have already been exhausted in South Carolina, neglecting, and precisely for the same reasons, rich soils similar to those from which the people of that State are now and have for many years been flying. Again, he says, "our climate has not been found too warm for any species of domestic animals. English cattle and sheep, as well as English horses, flourish even on our sea-board; and our mild winters enable us to keep all kinds of stock at comparatively little expense, for either food or shelter. Our swamps are covered with natural and nutritious evergreens, and most artificial grasses have been found to succeed. Carrots, beets, and turnips do well. Pindars and sweet-potatoes, more valuable perhaps for stock than these, are peculiarly our products. With these two articles, the luxuriant cow pea and the common grains, we can, for nine months in the year, furnish, at a cheap rate, the richest and most abundant pasturage; and what country can do more?" I answer, none. There are materials for clothing in abundance, and materials for food in abundance, while in the words of the same sagacious and profound observer, "an all-bountiful Pro-

vidence has blessed this favored region with mineral wealth of incalculable value," and given it water-power, "that may safely challenge comparison with any part of the world." The State has, in fact, every thing to make it rich and prosperous, except one, and that is population. By the last census, with all these natural advantages of soil, climate, mineral resources, and water-power, there were less than 20 to the square mile, and yet men are deserting the State, and flying in all directions, south, and south-west, while cold, stony, and gravelly Massachusetts supports over 100 to the square mile. In the last ten years prior to 1840, the increase, in South Carolina, so highly favored by Providence, has been but 2.3 per cent.; that of Massachusetts has been at the rate of 20.8.

South Carolina has every thing to make her one of the wealthiest States in the Union, except the presence of a consuming population, and until she shall get that, the work of exhaustion and abandonment must go on. She cannot afford to clear rich lands to raise cotton, because the cost of transporting a bale from Mississippi or Texas produced upon land that cost $1.25 per acre, is trivial compared with the cost of clearing one of her rich acres, that would give, when cleared, but 400 or 500 pounds. In order that such lands may be cleared, she must make a market at home for hay and turnips and potatoes, and Indian-corn, and cabbages, and milk, and veal and butter, and until she shall do that, all the philosophy of agriculture will not avail her to bring her richest lands into play, and to increase her population. Dispersion instead of concentration will continue to be the order of the day. Throughout the world, the condition of agriculture is good or bad in the ratio of consumers to producers. In China, Tuscany, Belgium, Normandy, Lancashire, the south of Scotland, and New England, consumers abound, and agriculture and horticulture improve rapidly. Yet the science and principles of agriculture are at least as well understood in Virginia and South Carolina as in Massachussetts and Connecticut. In India, Sicily, Spain, the north of Scotland, Canada, Virginia and South Carolina, consumers are few. Labor and manure and time are wasted on the road, and the land under cultivation is everywhere exhausted. In the first, population increases rapidly, and the supply of food increases more rapidly than population, because of the constant improvement in the powers of the great machine of production; whereas in the latter, population is stationary, even where it does not diminish, because of the constant deterioration of the machine. The great secret of improvement is to be found in the habit of combined action. Two men can carry logs that a thousand men, each acting separately, could not lift from their places. Every man knows and feels this, and therefore it is that with the progress of civilization there is a steady increase in the natural tendency to combination of action, for the making of roads, the building of houses, mills, factories, ships, &c. Nevertheless we see, throughout this country, men running away from each other as from pestilence, and seeking Texas, Iowa, Oregon and California, as if the great object of life was that of placing between themselves and their neighbors as much space as possible. The great pioneer of the West, Daniel Boon, complained that he could not breathe freely when a squatter came within a hundred miles of him, and a somewhat similar feeling seems to exist among our countrymen generally. From north to south, there seems to be a universal disposition to abandon old farms, old homesteads, old churches, old friends, old comforts, and old associations of every kind, to seek in the West new farms, upon which to build new houses, upon poor soils, among woods that they cannot fell, and swamps they have not the means to ditch or drain.

The existence of this tendency to depopulation in the old States has long appeared to me to be most wonderful, but it is now explained. The richest

soils cannot be cultivated until the consumer takes his place by the side of the producer, and when he does not do so, the poorer, lighter, and less encumbered soils, which are first cultivated, are speedily exhausted, and men are forced to fly to other poor ones.

The impression that the emigrant flies to rich soils is seen in every page of the transactions to which I have referred. It is there universally assumed that the decline and probable ultimate abandonment of the cotton cultivation of South Carolina, is to be attributed to the superiority of the soils of the Gulf States: yet if we trace the emigrant to Texas, we find him placing himself on the thin soils towards the heads of the streams, and not on the low rich lands near the mouth,—and they do this, not from choice, but from necessity, as their predecessors did in South Carolina and Virginia. The virgin soils of these States are the rich ones—those which have been exhausted were the poor ones. So is it in New York, which abounds in forests and rich low grounds, covering rich lands that will never be worth clearing until a market for their products can be found upon or very near the land itself.

It is this perpetual exhaustion of the land that prevents improvement in agriculture. It is in vain that we attempt to teach the advantage of manures while all the manure yielded by oats and hay, and fodder, is wasted on the road to distant markets—in carrying away the cotton to be spun and the wheat to be eaten in Lowell or Manchester. It is in vain that we lecture on the qualities and value of artificial manures while men find themselves compelled to fly from the rich soils of swamps and river bottoms, in which manure has for ages accumulated. It is in vain that we talk of drainage of rich alluvial soils, while men find it cheaper to fly from home to seek subsistence from the cultivation of poor soils, because of the want of inducement to clear and drain rich ones, there being no markets at hand to dispose of their heavy products. It is in vain to hope for improvement until the consumer of produce shall enable the farmer to return to the great machine of production the refuse of its products, and thus augment, instead of every year exhausting, its powers of production, as now he does. If we desire prosperous agriculture, we must place ourselves in the same condition with other communities in which agriculture is prosperous; and if we look to Normandy, or Belgium, or Lancashire, or Massachusetts, we shall see that they have all of them provided a market on the land for the products of the land. In the towns of Massachusetts, we are told that thirty-two tons of carrots, and other root crops in proportion, are not uncommon. Compare for a moment the manure yielded by such a crop, with that of fourteen bushels of wheat.

In the natural course of things, the consumer takes his place by the side of the producer, because it is much easier for the shoemaker and his lapstone to come to the hides and the food, than for the hides and the food to go to the shoemaker and the lapstone. The natural instinct of man tends to combination of action, yet here we see men who should be tanners and shoemakers, tailors and hatters, spinners and weavers, consumers of food, flying to the West, to become producers of more food, and leaving behind them thousands of acres of rich soil still in a state of nature—that they may recommence the work of cultivation on the thin dry soils of the hills, where the least clearing is to be done, at a distance from tanners, and shoemakers, tailors, hatters, spinners and weavers, and then wasting on the road the manure yielded by those poor soils, besides expending a great part of the value of the product itself, before they can reach those who are to manufacture and consume them. To produce effects so unnatural, some powerful cause of disturbance must exist. It does exist, and to the book to which I have already called

your attention, and which should be in the hands of every farmer, I for one am indebted for the demonstration of its existence and its mode of operation.

I have already shown that agriculture is the last of all the pursuits of man to attain development, and that in a state of barbarism the order and estimation of his various pursuits is that of war, commerce, manufactures, and, last of all, agriculture. Such has been the course of things in England, but her insular position secured to her internal peace, the consequence of which has been that war has been less than with any other nation in Europe, the occupation of the people. Wealth grew, therefore, with greater rapidity than elsewhere, and mind and wealth were turned to the second of the pursuits of man, commerce. It could not well do otherwise, for land was hedged around by restrictions, in the form of rights of primogeniture, entails, and tithes, that effectually prevented improvement, while the work of cultivation was held in disesteem, being regarded as the proper pursuit of the serf. The thirst for commerce gave rise to navigation laws, and the colonial system. With increase of wealth manufactures grew, and machinery was invented, more and more perfect, and, to promote the interests of commerce, laws were passed forbidding the export of machinery, or the emigration of artisans, while colonists were prohibited from making even horseshoes, or from exchanging even among each other, except through the intervention of English ships, English ports, English merchants, and English machinery. The object of the whole system was to compel the world to do that which they otherwise would not naturally or willingly do, in carrying the hides and the food, year after year, to the shoemaker and his lapstone, instead of at once transferring the lapstone to the food and the hides, and thus for ever terminating the necessity for wasting on the road the manure, the time, and the labor that might otherwise be bestowed on the land. England desired to tax the world for the maintenance of her system. Such was the policy of England. It was injurious to herself, for it tended to divert labor from productive employment to one that was comparatively unproductive—from the work of fashioning and improving the great machine of production, where each step was but preparatory to a new and greater one, to that of fashioning the products of other lands, in competition with the laborer of other lands, when all that could be gained was simply wages. In the work of preparing this great machine, says Mr. Carey:

"Each step is but preparatory to a new one more productive than the last: requiring less labor and yielding larger return. The labor of clearing is great, yet the return is small. The earth is covered with stumps, and filled with roots. With each year the roots decay, and the ground becomes enriched, while the labor of plowing is diminished. At length the stumps disappear, and the return is doubled, while the labor is less by one-half than at first. To forward this process the owner has done nothing but crop the ground: nature having done the rest. The aid he thus obtains from her yields him as much food as in the outset was obtained by the labor of felling and destroying the trees. This, however, is not all. The surplus thus yielded has given him means for improving the poorer lands, by furnishing manure with which to enrich them; and thus he has trebled his original return without further labor: for that which he saves in working the new soils suffices to carry the manure to the old ones. He is obtaining a daily increased power over the various treasures of the earth."

The policy of England produced results for which it was difficult to account, and gave rise to the theories of Malthus and Ricardo, both going to show that the earth is a machine of constantly diminishing powers as regards food, and that population becomes necessarily redundant. Both assumed that man always commenced the work of cultivation on the rich soils, and that, as population increased, he was forced to have recourse to those of diminished power to remunerate labor; whereas Mr. Carey has shown, and shown conclusively, that he always commences on the poorer

soils, and that he cannot cultivate rich ones until the increased population provides a market on or near the land, for the products of the land.

As a natural consequence of the system, we find in all the English books a strong tendency to the elevation of commerce and manufactures, at the expense of agriculture. Thus Mr. McCulloch says:

"There are no limits to the bounty of nature in manufactures; but there are limits, and those not very remote, to her bounty in agriculture. The greatest possible amount of capital might be expended in the construction of steam-engines, or of any other sort of machinery; and after they had been multiplied indefinitely, the last would be as powerful and efficient in producing commodities and saving labor as the first. Such, however, is not the case with the soil. Lands of the first quality are speedily exhausted; and it is impossible to apply capital indefinitely even to the best soils, without obtaining from it a constantly diminishing rate of profit."

There is no limit to the number of grist-mills that may be built, and each successive one will be more perfect than that which preceded it; but of what avail will it be unless the grain be first produced? If no such thing existed, the grain might still be converted into flour: but if no grain be produced, the mill is useless. The only benefit derived from the existence of the mill is, that it diminishes the quantity of time required for conversion, and increases that which may be appropriated to production. So it is with steam-engines, carts, wagons, ships and steamboats, and spinning-jennies and looms. They are all valuable to the precise extent that they, by diminishing the labor necessary for the work of conversion and exchange, leave a greater quantity of labor to be bestowed on the work of producing commodities to be converted or exchanged. The great machine is that which produces the grain and the cotton. The secondary machines are those which convert them. A grist-mill which costs $10,000, will grind all the grain produced upon farms that have cost many hundred thousands to produce them in the form in which they exist. A factory that cost $100,000, will work up all the cotton produced for export in a country that has cost labor to the extent of millions, applied to the work of clearing, ditching, draining, grubbing, enclosing, and that of building dwellings, and barns, and stables, and gin-houses, and to the making of roads and other improvements. The earth is the sole producer. It is the great machine, and all other machines are valuable to the extent that they increase the time that may be applied to bringing into greater activity and augmenting its powers of production, and no further. Nevertheless, throughout the whole system of England, commerce and manufactures are seen to stand in the first rank, and agriculture in the last, and the boast of that country has been the vast proportion of her population that has been employed in the work of conversion and exchange, and the small proportion in that of production. Her motto has been "ships, colonies, and commerce," and hence it has been that agriculture has been, until quite recently, in a state so deplorably backward. But half a century since, England was described by a writer of the highest authority, as containing more waste land, in proportion to its extent, than any country in Europe, Russia not excepted; and yet it was at that very period that Malthus was engaged in preparing his book that was to prove the universal tendency of population to increase beyond the power of the earth to afford food. She has forced capital and labor into the unprofitable work of transporting and converting the produce of other lands, while neglecting to improve the power of producing at home; and hence it has been that while perpetually engaged in war for the acquisition of colonies that were to be compelled to purchase the produce of her looms, so large a portion of her own people went in rags. Her whole effort has been that of compelling the world to use her machinery, when they would have preferred to use machinery of

their own: and to this it is due that the profits of capital have been so small, that wages have been so low, and that the laborer has experienced so much difficulty in obtaining food.

There is no country in the world in which any given amount of labor is rewarded by the production of so much food; and yet, the agricultural laborer works a whole week for nine shillings, and receives in pay wheat at six or seven shillings a bushel. This is commonly attributed to the difficulty of increasing the supplies of food; but such is not the case. The ability of England to improve her powers of production is now greater than at any former period. Her increase in the average product of wheat per acre, in the last quarter of a century, is equal to the whole average product of the United States per acre. In every direction we see the expenditure of five dollars, ten dollars, fifteen dollars, and even twenty dollars per acre, in drainage and manure, attended with doubling, trebling, and even quadrupling the product; until forty and fifty bushels are by no means uncommon, and even eighty bushels have been reaped from an acre. The labor that was expended to clear and clean the land, and to bring it up to twenty bushels, was fifty times greater than is required to increase the product from that to fifty. The labor expended in this country by the emigrant to the West, in the cost and time of emigration, and in clearing and enclosing his land to obtain even a dozen bushels to the acre, the average of Ohio last year, is far greater than in England is demanded to raise the product from twenty to fifty bushels. England has yet to bring into cultivation her richest soils—those which are to be produced by the proper combination of the various elements given to man for the making of soils. It is but recently that she has, to any considerable extent, combined the lime with the clay, the marl with the sand. Other combinations are to be made, and will be made, now that agriculture is deemed a science worthy the attention of gentlemen and of men who cultivate science.

It is to this course of operation that have been due the endless wars in which she was engaged. She wanted colonies for which she could make laws, and that she could compel to purchase her manufactures, giving her in exchange raw products of the earth, most of which she could have produced at home with half the labor that was required to obtain them in the way in which they were obtained. She neglected her own agriculture, and compelled others to cultivate poor soils, and then fly to other poor ones, because of the impossibility of concentrating themselves for the cultivation of rich ones; for until the producer and the consumer come together, to create a market for the bulky and perishable commodities to which the rich lands are best adapted, and which would pay for bringing them into cultivation, they must remain uncultivated. To this policy on the part of England are due the exhaustion and poverty of Ireland; the depopulation and poverty of India; the condition of her West India colonies; the stagnation of Canada; the exhaustion and abandonment of Virginia and South Carolina. It is her policy which forces the producer to rely on far distant, precarious markets, and will not allow the consumer to come to the food.

It is to this course of English policy that the existence of protective tariffs is due. The farmers everywhere wanted markets on their ground, that all his time and labor now expended in the work of exchange might be saved, to give greater capacity and activity to his capital in the land; but he could not have his market near him while this great error in the English system continued to exist. He desired to save the time, and labor, and manure that were being daily wasted; and therefore was it that he desired to shut out the produce of the looms of England. These attempts at protective tariffs have been but so many instinctive efforts at self-protection—instinctive efforts

to obtain the power to do that which would naturally be done all over the world, but for the existence of great disturbing causes, felt to exist but not understood: turning labor from its natural and productive, into unnatural and unproductive channels, and dispersing population and retarding its growth and improvement, instead of allowing it to concentrate and realize the blessed fruits of combination and civilization. These disturbing causes, hitherto concealed, or seen as through a glass but dimly, are now for the first time clearly explained, and Mr. Carey, himself an advocate of free trade, says, that though he has always deemed such interferences erroneous, he must now admit the error to have been with himself.

A southern man myself, never given to tariff doctrines, I confess to have been convinced by his reasoning, and, thank Heaven, have not now to learn the difference between dogged obstinacy and consistency. Ye gods, give us but light, should be the motto of every inquirer after truth, but for far different and better purposes than that which prompted the exclamation. The work of Mr. Carey has enabled me to understand why it is that men are seen flying from their fellow-men and from the swamps and forests of New York, the marl-beds of Virginia, the marl and the lime of South Carolina, to make new homes in the woods, at a distance from towns, and cities, and steamboats, and railroads, and factories, and all those improvements that tend to give value to labor, and by condensation to promote all the arts and enjoyments of the highest civilization. It has enabled me to see, as I now think, why agriculture makes so little progress—why the produce of wheat in New York falls from twenty to less than fourteen—why the average of corn is not more than twenty-five bushels, and of potatoes not over ninety, when they should be four hundred—why even in Ohio the average product of wheat is not twelve bushels to the acre. Thirty years of my life have been passed, I may safely say, in anxious and almost daily contemplation of the condition and prospects of American agriculture, and in studying the means best adapted for its advancement. During all this time, the impression has been, that almost every thing depended on a little knowledge of its processes, and on the possession of the most improved animals and implements. The scales have fallen from my eyes, and I have been led to see, as I believe correctly, that the depressing influence which has been evidently weighing on the agriculture of the old States, narrowing the sphere of cultivation, and driving off their population and diminishing the value of their lands, notwithstanding the excellence of their climate and the abundance and richness of their natural resources, has consisted in the policy of governments, which compels men to scatter instead of concentrating. The former, in the nature of things, must be attended with loss of power over the resources which nature places within our reach, and by deterioration of faculties which need to be sharpened and improved by social attrition and social institutions. Population, and the remunerating markets which population affords, makes the food come from the rich lands, and depopulation drives men back to the poor ones, and arrests the progress of agricultural improvement. In this single sentence we have the truth and the whole truth, and it is one that should be committed to memory, and repeated daily and hourly by every man who has at heart the improvement of agriculture and the promotion of the interests of the country at large. It is the great law of agricultural economy, and for one, while resting under my present convictions of its truth and its importance, I shall dedicate the residue of my life to its propagation and its enforcement, feeble as is my influence in comparison with the magnitude of the duty that prompts to exert it. Until we can arrest the progress of depopulation in the old States, we can do nothing. Until then it will be of little use to discourse about manures

to form societies, and to offer premiums for fat hogs and heavy crops—no fatter nor larger after all than were produced fifty years ago. Correct our legislation, and so modify it as to make it the interest of the manufacturer and the consumer to come with their capital and their machinery as near as possible to the theatre of production, and thus diminish the cost of the work of exchange, and men will bring into activity the vast bodies of manure with which our swamps and river bottoms are filled—and those swamps and lagoons, sources of malaria and pestilence, will become sources of healthful abundance, and each little neighborhood will be an agricultural society of itself, abounding in all the means of self improvement. Accomplish that, and the natural demands for all the products of the field and the garden will hold out to the farmer and the gardener natural and ample rewards for constant exertion and improvement, far exceeding the hot-bed influence, and spasmodic efforts that arise from all the paltry premiums we can offer to the vanity or cupidity of individuals here and there: efforts that more nearly resemble the tricks and stratagems of the gambler, than the well-grounded results of causes of universal prevalence, and that are deeply rooted in a wise national policy. In literature, the true Mæcenas is the reading public, and this is true in all the pursuits of life. Let the farmer have the consumer near him, where the consumer, if let alone, would naturally sit down for his own benefit. Then will the farmer be enabled to clear and drain and cultivate the rich soils, and to enrich, with the manure yielded by them, the poor soils he now cultivates, and he will himself grow rich. He will then have schools at hand and means to educate his children. He will himself have leisure to study agriculture as a science, and then will agriculture improve. Until that time shall come, little of any thing like general and radical improvement can be hoped for.

The question now arises, how are these consumers and producers to be brought together? How is concentration to be made to take the place of dispersion? How are men to be enabled to clear, and ditch, and drain, and bring into cultivation their richest soils, instead of flying to waste their lives and labor on poor and distant ones? The answer is to be found in these brief words, "an efficient tariff of protection:" a tariff adopted by the whole nation for the express purpose of facilitating the transfer of the machines of Europe, and the mechanics of Europe, to our shores—that they may here eat the food on the ground on which it is produced, while converting into clothing the cotton and the wool, and thus enabling the farmer to save the cost of transportation, and to return to the great producer, the earth, the refuse of her products.

But, it will be asked, can we not manufacture as cheaply as other nations? We can. With the machinery now in use, and with the skill and industry of our people, superior as they are to those of Europe, we can obtain *in return for a given quantity of labor* larger quantities of cloth than are obtained in England, and *far* larger than in any country of continental Europe, and in a natural state of things no protection would be necessary. The state of things against which protection is needed is that unnatural one which now exists in England. Peace at home has given her wealth, but that wealth has been *driven* from the land by the laws of primogeniture entails, tithes, settlements, and an infinity of contrivances of the most injurious kind. Large estates are constantly in the hands of trustees, and managed by solicitors. Driven from the superior employment of agriculture, wealth sought the inferior ones of commerce and manufactures, and to find an outlet for ships and cloths, it became necessary to have colonies, and wars were made for colonies, which were valued only as they could be made to subserve the purposes of the owners of British ships, and British looms. For a century past has India been the scene of warfare, the only object of which

was to compel the poor Hindoos to buy cloth, and sell cotton that they would naturally have preferred to convert, and might more profitably have converted, into cloth on the spot where it was produced. Each successive province added to that great empire has been exhausted, and the process of exhaustion still goes on. But recently China has been the scene of murderous war, ostensibly for reparation for opium that had been destroyed, but really to *compel* the Chinese to open their ports to British manufactures, which they would naturally have done, had their interests made it desirable so to do.

That the system is unnatural, we need no better evidence than may be found in the fact that wars, and fleets, and armies are necessary for its maintenance. Were it one that tended most to the advantage of mankind, it would prosper most with peace, and peace would bring cheap government. Were it natural, it would benefit man, and it would take root and spread naturally. It is unnatural and unjust, as is abundantly proved by the presence of fleets and armies and guns and gunpowder, the emblems and instruments of violence and injustice all the world over. The system tends to compel the world to waste in the work of transportation the labor that should be applied to that of production, and therefore does it require to be forced, by aid of a colonial system, under which *subjects* are compelled to make their exchanges in the ports of Great Britain, and to consume, all over the world, the produce of British looms: and therefore does it require the vast machinery of war, supported by enormous taxes, that absorb one-sixth of the whole product of British labor and machinery.

If we desire other evidence that the system is unnatural, it may be found in the fact that it tends to compel the product of the great and permanent machine, for whose preparation centuries of labor are required, to follow the inferior machinery produced with small labor, and capable of being readily transported. It is a simple thing to bring the machinery of the grist-mill to the place where the grain is grown, and once done, it is done for ever. Not less simple is it to bring the shoemaker and the lapstone to the hides and the food—the spinning-jenny and the loom to the cotton—the machinery of the woollen factory to the place where the wool is grown, and once done, the work is finished, and the labor of transportation is ended. One grist-mill, costing $6000, that can be provided in a few months, will grind all the grain produced on many thousands of acres that have cost, perhaps, fifty times the amount of labor, expended during a series of years. So it is with the cotton-mill. It is the inferior machine, and the inexpensive one, when compared with the great cotton producing one. In the natural course of things, the inferior, lighter, and more portable machines go to superior ones; as the threshing-machine goes to the barn, and the prize goes to the tobacco. But England desired, and still desires, to compel the products of the superior one to go to the inferior. As well, comparatively speaking, might we be compelled to carry our wheat there to be threshed, and our tobacco to be prized. The land cannot, at any cost, go to the loom. The loom can, at small cost, come to the land. Being unnatural, the system is subject to perpetual change. At one time, prices are high, and soon again they are low. Thus we have seen, during the last quarter of a century, four terrible revulsions, by the last of which, every part of the British empire is at this moment agitated. Their effects may be seen most fully if examined in her colonies, which have been compelled to abide the changes of British policy, totally unprotected. Ireland has been ruined. Her manufactories have been prostrated, and her people are now perishing of famine and pestilence, because the consumer of food has been driven from the side of the producer of food and wool, by the perpetual variations of the British system. India is in a state of ruin. Even at this moment we see the effects of the

revulsion of 1847, in the downfall of dozens of great houses in Calcutta and Bombay. The West Indies are ruined. Canada is stagnant. Everywhere it is the same. The colonies are the mere playthings of British statesmen, and the attempt to establish manufactures, under such circumstances, would be followed by nothing but ruin. Throughout all the British possessions, land is, therefore, valueless, and agriculture makes no progress. To these variations it is due that tariffs of protection against British interference are universal, wherever the power of self-protection exists. England now desires free trade, but other nations cling more closely to their tariffs, feeling that *union at home is preferable to union with foreign nations and disunion at home.* We have disunion—our people are forced to fly to the west to cultivate poor soils, when, if they could unite with their fellowmen, they could eat the produce of the richer ones. Union cannot take place until the consumer can take his place by the side of the producer, and until he can do that, agriculture cannot flourish as it should do. Is not then the establishment of a system of self-protection, on broad national grounds, as a national, not as a party policy, worthy of the united efforts of agricultural societies, made up of men who ought to be supposed to understand best the interests of agriculture? Yet, what of this do we see or hear emanating from our State societies and from institutes, called American? Could such a system, rooted in the minds and hearts of the people, once have been established, we should have seen agriculture far in advance of the point at which it now stands, instead of retrograding even in such States as New York and Ohio; because the consumer would have been, for years, in the pursuit of his best interest, distributing prizes that would have been for the farmer the best stimulus for exertion in all the branches of his operations, and not like the silver cup, which rewards the fitful exertion of a few individuals nearest at hand, or most able to indulge in wasteful outlay. With such a broad, well-rooted, national policy—rooted in the convictions of the people—the farmer of the old States, whose children are running away, and whose estates are going to ruin, would have grown rich. He would have improved at once *his land and his mind.* If we desire to see the effects of dependence on foreign legislation, we have only to look around us at the moment. Last year iron was in demand in England, because that country was largely engaged in making railroads. It was high here, and various furnaces and rolling-mills were erected, and thrice as many would have been, had there existed any confidence in the permanence of the existing state of things. Now, *without any change whatever among ourselves*, these furnaces and mills have become unprofitable. Various persons connected with them have been ruined, and many of them will be closed. Next year iron may be high again, while in another year it may be low. All the print works of the Union will be ruined, if not ruined already. So thus does England go on, year after year, and revulsion after revulsion, destroying all around, because she is engaged in the effort to establish and maintain a system that is unnatural and unsound, and, therefore, unsteady. If we look at the past times in this country, we shall see the effect of British revulsions in the fact that almost every cotton or woollen mill—almost every furnace or rolling-mill—almost every canal or railroad—more than seven years old, that is to say, established prior to the last revulsion, has ruined those concerned in producing it. I believe it would be safe to say that nine-tenths of all of them have changed owners, under the pressure of changes produced in England. In almost every case where men have manifested enterprise, they have been ruined; and ruined not because of changes here, against which they could guard themselves, but changes abroad, against which they could not guard. It is to guard against these

changes that protection is needed. In a natural state of trade they would never occur. Cotton and woollen cloths, and iron, can be produced as cheaply here as in England, but to prepare the machinery for the production requires time and capital, and few are willing to incur the risk of finding themselves ruined by changes such as those which marked the year gone by. Every man wants something like certainty. Having that, he is content with small profits. Can there be any certainty under the existing system? There can be none.

Hence it is that we have had protective tariffs, notwithstanding the universal tendency throughout the whole country towards perfect freedom of action, and to the existence of those tariffs it is due that to so great an extent we have already seen the consumer take his place by the side of the producer. Had they not existed, hundreds of thousands of acres of rich lands that are now in cultivation, would still remain in a state of nature, and the men who cultivate them, in Massachusetts, and Rhode Island, and New Hampshire, and Vermont, would be now in Iowa, or Alabama, or Oregon, or Texas, working on the light, open, poor soils, upon which the poor settler *must* always commence his labors. That the effect of concentration has not been fully produced, has been due to the fact that the question of protection has, unfortunately, always been a *party* one, and not a *national* one. Had the tariff of 1828 been adopted as the *settled* policy of the whole nation, and continued to the present time, we should even now be the great manufacturers of the world, and tariffs would be no longer wanted. We should be now the most zealous advocates of free trade, and the reason why we should be is, that that tariff, made the fixed and determined policy of the nation, would have caused the transfer to South Carolina, Georgia, Alabama, Tennessee, and other States, in which cotton and food are cheap, of much of the machinery of Manchester to which those States still send their cotton to be twisted, and their food to feed the men who twist it—thus sending the hides and the food to the lapstone and the awl, instead of forcing the shoemaker to come with his lighter machinery to the cotton and the food.

It may be asked, if manufactures have brought with them the poverty of England, why should not such be the case on this side of the Atlantic? The answer is simple. The man who takes his place by the side of the producer of food and wool, aids the production of both by diminishing the quantity of labor and manure that has heretofore been wasted in the process of exchanging, and thus enables the farmer to apply more of both to the improvement of his land, and to that extent the manufacturer is useful, but no further. The less labor given to exchange, the more may be given to production. England has driven labor from the work of production to that of exchange, and her people have been compelled to neglect the improvement of her soils to engage in competing with the poor manufacturers of Germany, and India, and China, for their own markets, with the disadvantage of being at a distance from the place at which was produced the food they were to eat, and the cotton or wool they were to convert. The Englishman must under-work the Hindoo, or he could not pay freight and then supplant the Hindoo in his own market. In the endeavor to accomplish this, little children have been forced to perform labors sufficient to exhaust the strength of persons of double their age. Grown people have been forced to work twelve or fourteen hours instead of ten, and flour has been made to fill the crevices of cloths, in the manufacture of which but little cotton has been used. England was determined, *against nature*, to be the workshop of the world, and hence it has been that labor has been overtasked and under-paid, and hence it is that her people are poor. She was determined to be the workshop of the world, and hence have arisen the frauds that distinguish her

manufactures. The great object is to make her cloths look well, even if they drop to pieces at the first washing; and her guns look well even if they burst to pieces on the first fire. Such are the natural results of an unnatural system. She has been determined to tax the world for the maintenance of that system. Towards this country, that has been her policy from the time of its first discovery to the present hour; and flatter ourselves as we may with the idea of our independence of England, the independence is in name, not in reality. Along with political and nominal independence, we remain in colonial and real vassalage to the policy of England. In the best, most careful, and exact account of the soil, climate, production, and agriculture of the British Colonies before our Revolution, I lately noted the following passage; the policy it recommends has never been lost sight of. The author is here treating of the soil, climate, and productions of the then colony of *Georgia*. "Wool," says he, "we take in large quantities of Spain, *because* it is of a kind we cannot produce in England; our colonies on the continent of North America, south of New York, produce wool entirely similar to the Spanish; no staple they would produce would, therefore, be more advantageous to Great Britain. It is well known that a piece of fine broad-cloth cannot be made without Spanish wool; it is also known that the Spaniards have of late years made great efforts to work up their own wool; if they should succeed, or if they should by any other means prevent the export of it, our woollen fabrics, though they might not be stopped, would at least be burdened with a fresh expense and new trouble, all which would be prevented by encouraging the import of wool from America; and at the same time that this good effect was wrought, another would be brought about in cramping the manufactures of the colonies." In this respect England still treats us as colonies, and still cramps our manufactures. The author makes similar observations as to the policy of encouraging the growth of cotton in Georgia and other states, with views always subservient to the interests of England, who, in ceasing to be the mother country, has not ceased to be the step-mother. Her edict has gone forth that "all the world shall be taxed." How far she has succeeded is shown in the following passages from the work of Mr. Carey, to which I have already referred, and with which cultivators and manufacturers cannot be too familiar.

"The poor Irishman is, by the system, denied the use of machinery, and he obtains one yard of cloth for the same quantity of grain or pork that would give him two, three, or four, if he could place the consumer by the producer. He too cultivates poor lands, and then he travels to England and spends half a dozen weeks in obtaining a fortnight's wages. What is the extent of the indirect taxation here it would be difficult to calculate, but it is quite sufficient to account for all the misery of Ireland.

"The planter in Tennessee sells his cotton for five cents per pound. By the time it reaches Manchester, it costs eight. He buys it back again, obtaining one yard of cloth for two pounds of cotton, whereas, if he had the consumer of food in his neighborhood, he would obtain half the cloth yielded by his cotton, and would have three yards in place of one. He would then clear and cultivate rich soils, and would obtain a bale to the acre instead of half a bale, and would sell his timber instead of wasting it as now he does.

"The farmer of Ohio sells his wheat, grown on land that yields ten bushels to the acre, at seventy cents. By the time it reaches Manchester it is worth a dollar and a half, at which price, with the addition of numerous charges, the farmer buys it back: the result of which is, that he obtains for the produce of an acre of wheat ninety yards of cloth, the produce of about thirty pounds of cotton, for which the producer in Tennessee has received a dollar and fifty cents, and which could be converted into cloth for as much more. He cultivates poor soils, whereas, if he had the consumer by his side, he might clear and cultivate rich ones that would yield forty bushels to the acre, and he too could sell his timber.

"What is the extent of indirect taxation upon the people of the United States by means

of the system may perhaps be estimated if we take into consideration the following facts:—

"I. The labor annually expended in the construction of carts, and wagons, and ships, that would be unnecessary if the consumer and producer could be permitted to take their place by the side of each other, would produce as many mills and furnaces as would convert into cloth half the cotton and wool produced, and smelt the ore for making all the iron used in the Union. To the carts, and wagons, and ships, may be added the labor of horses and mules employed in the same wasteful work.

"II. The time lost by the persons employed in the work of unnecessary transportation and exchange; by those who are idle in whole or in part for want of a regular demand for labor; and by those who are on the road seeking for new places of residence; is more than would be required for the work of converting all the wool into cloth, and all the ore into iron.

"III. The labor that is now given to the work of cultivating poor soils yielding ten bushels to the acre, instead of rich ones that are capable of affording tons of food by aid of which poor soils might be enriched, would yield double the return could the consumer take his place by the side of the producer, and thus save the manure that is now wasted.

"IV. The labor that is now wasted in making and repairing roads through new states and territories, and among scattered settlements in both old and new states, if applied to the improvement of old roads would diminish annually, and largely, the cost of transportation of those portions of the products of the earth requiring to be exchanged.

"It may safely be asserted that the labor of man as now applied is, on an average, but half as productive as it would be were it possible for the consumer and the producer to be near neighbors to each other, and if so, it follows that the indirect taxation by aid of the colonial system is equal to the whole of the present product of the Union, which we have estimated at two thousand millions of dollars. If we wish evidence of the extent to which taxation is pushed by aid of this system, we need only to look to all the colonies of England throughout the world, Ireland, India, the West Indies, Canada, Nova Scotia, and South Africa, and we shall find exhaustion and depopulation universal, as it must continue to be wherever the power of self-protection has no existence."

The first object of man is the procurement of food, and of the raw material of clothing. The second is the conversion of both into clothing. The last requires more combination of action than the first, because it is secondary to the first. In all new countries food is abundant and the demand for labor is irregular, and much of both is wasted. Food and labor build mills and factories, but in such countries, no one person can command enough of either to accomplish such objects, although the combined efforts of a neighborhood might readily do it. In such countries it is that combinations of small capitalists—of the little farmer, who has a cart and horse, that he can contribute to the performance of the work, and a little grain not required for his own purposes—of the wagoner, who has his team at times unemployed—of the shop-keeper, who can supply clothing to the men engaged in the work—of the larger farmer, who has money that he can contribute towards the purchase of machinery, &c.—are most necessary to bringing the consumer by the side of the producer, and yet it is precisely in those countries that exists the greatest hostility to the adoption of measures calculated to produce concentration and union. In Massachusetts and Rhode Island, where wealth abounds, and where there are numerous individuals who could of themselves erect factories and make railroads, men readily obtain charters for enabling them to associate to trade in money, or to make cotton goods; and thus, says Mr. Carey—

"Little mills grow up, the property of one or two, and expand into large ones, in which all the little capitalists of the neighborhood, shoemakers and sempstresses, farmers and lawyers, widows and orphans, are interested: little towns, in which every resident has his own house and lot, and is therefore directly interested in their good management, and in all matters tending to their advancement; and each feels that the first and greatest of those things is perfect security of person and property. The habit of association is seen exercising the most beneficial influence in every action of life, and it is most seen where population and wealth most abound: in the states of New England. There, we see a network of association so far exceeding what is elsewhere to be seen as to defy comparison. The shipwright, and the merchant, and the more advanced and less active capi-

talist, unite with the master in the ownership of the vessel: and all unite with the crew in the division of the oil which is the result of the cruise. The great merchant, the little capitalist, the skilful manufacturer, the foundry-master, the engineer, the workman, and the girl who tends the loom, unite in the ownership of the immense mill: and millions of yards of cloth are furnished to the world by this combined effort on the part of individuals who, if they worked alone, could not have supplied thousands. The property holder of the city, and the little capitalists, are everywhere seen combining their exertions for the construction of roads and the building of steamboats, by the use of which the habit of union is increased. In every relation of life, the same tendency to combination of action is seen to exist. Everywhere, man is seen helping, and governing himself. That he may do this effectually, wealth is necessary: for men cannot live near each other while forced to cultivate the worst soils. Wealth thus produces union, which is seen most to exist where wealth most exists: more in the east than in the west, and more in the north than in the south. Union in turn produces wealth, which grows more rapidly in the north and east than in the west and south: and thus wealth, combined action, and power of self-government, with a constant increase in the respect for laws which they themselves have made: manifested alike by individuals and by States whose population counts by millions: and corresponding increase in the return to labor, are seen constantly advancing; each helping and helped by the other."

In the poorer States, those in which combination is most of all needed, there appears to exist an exceeding hostility to association. In some of the new States, the prohibition of association for trading in money is made part of the constitution. In all the States, west and south, there prevails an extreme jealousy of banks—among the most useful of all the machinery of exchange—while in Rhode Island and Massachusetts banks are made with little more difficulty than is required for opening shoe shops. In those States the currency is sound, because the trade in money is free. In other States the trade in money is unsound, because the trade is trammeled. In no part of the union has there prevailed so much jealousy of association as in South Carolina. Yet there is none in which combination of action is so much needed. If we desire to see the effects of that jealousy, as there exhibited, we may find it in the fact that the population diminishes, and that men fly from rich lands uncleared—from marl and lime—to waste their labor on the poor lands at the head of the streams in Texas and Alabama, that are more easily prepared for the plough, and do not need draining.

A hundred very small capitalists, men scarcely above the class of laborers, may build a small factory, at which labor, and food, and wool may be exchanged; and such a work may be accomplished many years before the same neighborhood will produce an individual possessed of the means for the execution of such a work. Such men, where they are to be found, do not combine, and the reason that they do not is, that they are not free to combine at their pleasure, for want of general laws facilitating such combination. They must seek charters—a work of labor and expense, often fruitless. The day, I trust, is not far distant, when the right of every set of men to unite on their own terms with each other, and to trade on their own terms with those who see fit to trade with them, will be distinctly recognised, and when association of dozens, or hundreds, will be formed as readily as are now partnerships of two or three. I have seen it stated lately, by a Cleveland (Ohio) editor, that the large establishment called the Cleveland Iron Manufacturing Company, had lately been built there, "the first organized under the general manufacturing law of the state;" and the editor exults in the anticipation that "Cleveland will, at some day not distant, take rank as one of the Birminghams of the Union."

If we desire to see agriculture advance, but one course is open to us: we must produce concentration for the cultivation of rich soils, and to that end, the consumer and the producer must take their places by each other. To use the language of Mr. Jefferson, in 1816, to Mr. Austin, of Boston, "We must now place the manufacturer along-side of the agriculturist." For the

accomplishment of that object, two things are needed. First, the adoption throughout the Union of the simple and beneficial principle of association, that has produced such wonderful results in Rhode Island and Massachusetts; and secondly, that of giving to the farmer and planter the protection—*for protection is a planter's and farmer's measure*—that is needed for bringing to the neighborhood of the farm or plantation the machinery requisite for the conversion of his food, his cotton, or his wool, into cloth; or of his food, his labor, his coal, and his ore, into iron. Population makes the food come from the rich soils, and restores that which has been exhausted. The policy that produces depopulation, scatters and drives men back to the poor ones. Concentration brings with it wealth, because it enables men to bestow their labor on productive soils. Deconcentration perpetuates poverty, because it compels men to abandon rich lands, best adapted to the growth of articles that will not bear transportation, such as the rich savannahs of Western New York and of South Carolina, to fly off to poor soils on the frontiers. We must arrest depopulation by giving adequate protection to the farmer, and then will the rich lands of New York give forth their products, by aid of which the soils already exhausted will be restored. Then will large farms be divided into smaller ones, each yielding more than the large one is now made to yield. Then will men come daily nearer to each other. Then will each man profit by the experience of his neighbor, and then will each be enabled, more and more, to devote his time to the study of the laws of nature, because his labors will be lighter and his leisure will be greater. With each step in this progress, the pre-eminence of the agriculturist will be more and more recognised. With each, it will be more and more seen that his pursuit is the one that most requires mind, and that best pays for it—that it is, *par excellence*, the pursuit of the gentleman and the man of science.

We need an effective tariff. By that I do not mean one that would be prohibitory. With an effective one, adopted by the whole nation, and after due deliberation, a revenue abundantly sufficient for all the wants of government, as at present administered, would be obtained. Such a tariff would, by degrees, become prohibitory, because it would cause the transfer of vast capital and labor to this country, and cloths and linens would be produced so cheaply that their importation would cease. The revenue of the government would by degrees diminish, and with each step of diminution, there would be a diminution of the expense of government, which would be compelled to make its election between economy on the one hand, and direct taxation on the other. To the latter no administration would venture to resort, and therefore every step towards the diminution of indirect taxation, by means of which money is filched from the pockets of the people without their knowledge, would be a step towards economy, and with each such step, the wealth of the nation would increase more rapidly, and the demands for the products of the farmer would increase, and with it his power to effect the improvement of his farm.

How far economy is needed, is obvious from the following facts:

The people of this country paid in the eight years which terminated in 1843, for their army and army establishments, $114,283,244; and for the naval establishment, $49,053,473.

To keep up one Seventy-four for a single year, costs $220,000, or half as much as have cost the 1,200,000 volumes now in the school libraries of New York. The building and equipment of the Ohio 74, and her repairs during three years, cost $834,845;* or more than would build almost thirty

* Sumner's "True Grandeur of Nations," which we commend, in the strongest terms, to the perusal of all our readers.

furnaces, or a dozen cotton mills, or pay for 2,000,000 volumes for school libraries.

A dozen such, at that rate, would cost as much as would build three hundred furnaces, or above one hundred GREAT cotton mills, or pay for 20,000,000 of books—one for every person in the Union—and good books, too! The maintenance of that dozen ships, after they were built, would cost as much as would place annually in school libraries eight millions of volumes, or build annually eighty or a hundred great furnaces, or fifty cotton mills, or make a hundred miles of railroad. Concentration, that would result from protection, would enable us to dispense with armies and fleets, and give us peace and wealth.

Compare, I pray you, the advantage to be derived from these two modes of operation, and determine whether your own interests and those of all the farmers and planters of the Union, will not be promoted by a system that has the effect of bringing the consumer to their sides, and thus enabling them to *double their products*, while diminishing their taxes. Diminished they will be, if the power of indirect taxation be diminished. Diminished they should and must be; for $5,000,000 ought to pay all the expenses of government: and $5,000,000 will do so when men shall come to learn that the great pursuit of man is agriculture, and that all other of his pursuits are valuable to him to the precise extent that they enable him to devote himself to the improvement of the great machine, of which it is truly said, that "the more you can take out of it, the more it is worth."

It is the great magazine of materials given to man: and it is the task of the *poor* man to apply himself to that portion of it which yields least abundantly, while requiring most labor. With each step in the way of improvement it becomes less a task and more a pleasure, and with each he has larger returns for less labor, for with each such step he cultivates richer soils. With growing cultivation its labors will become lighter, and with each step in its growth it will tend more and more to take its true position —that of the highest and most honorable pursuit of man—that which, of *all others*, tends most to the maintenance of peace among men, and most to the development of the minds of men.

NEW OXFORD SHEEP IMPORTED INTO DELAWARE.

MR. CLAYTON REYBOLD, in a spirit of enterprise worthy of all emulation, made a visit in 1846 to England, with general agricultural views, but particularly to look at all their *breeds of sheep*, and to bring home such as he should conclude would be most useful in our own country. After careful examination, he chose the *New Oxfords*, and accordingly imported some of extraordinary weight, both of carcass and wool. Some of them were taken to the State Fair at Saratoga last autumn, and although a premium was awarded them, we do not believe that they were generally approved, being considered by some too large. Whether this impression was conveyed to the owner, we do not know, but we believe in its existence and prevalence to a certain extent, and this prompts us to copy what follows, from a late number of the Journal of the Royal Agricultural Society of England. It makes a part of the "PRIZE ESSAY," for which the Society offered one of its liberal premiums, on the "*management of sheep*." The writer was one of that large family, to be found in all parts of the world where

the English language prevails, known by the name of *Smith*—ROBERT SMITH.

"The New Oxfords are termed long wools, but more from the circumstance of their not coming under the denomination of Leicesters, than from their extra wool-bearing properties. They are bred principally in Oxfordshire and the surrounding districts, particularly in the neighborhood of Broadwell, the residence of Mr. Charles Large; Charlebury, the residence of Mr. Smith, and Sevenhampton, the residence of Mr. Handy, the most eminent breeders, and to whom *great credit is due for their exertions in raising this valuable breed to its present high state of perfection.*

"They are of large dimensions, and have a great propensity to fatten, arising chiefly from their wide frame, quietude and open texture of flesh, which is of quick growth, and consequently expands itself more rapidly than flesh of other qualities; but they do not possess that exactness of form peculiar to smaller animals, though they have a better carriage. *For many years the male animals have been eagerly sought after, with a view to increase the size and frame of other long-wooled breeds.*"

Such are the words of the author of an essay that took the prize in England from all competitors. Still, it may doubtless be said that they are not suited to poor land, poor pastures, and poor management; and would it not be lamentable were Providence to provide a breed of animals of any kind, that would make a remunerating return to men of indolent habits, who are content with poor land, and who prefer ignorance and sloth to diligence and activity of mind and body?

In the last number of the Journal of the Royal Agricultural Society of England, we have an instructive comparison of the consumption of food by large and small animals, which may be appropriately laid, in this place, before the readers of "THE PLOUGH, THE LOOM, AND THE ANVIL." We give, accordingly the letter in which the facts are detailed, to Mr. Pusey, with his remarks.

DEAR SIR,—I was from home on the arrival of yours, dated 30th September, or I should have answered it earlier. The lambs which I mentioned to you as having wintered last year were both of the Hampshire breed, 100 in each lot. I will with pleasure repeat what I stated on Wednesday last respecting the feeding and quantity, and also give you an account of the cost of each lot as well as the proceeds of the sale when they were fat. The two lots were fed at the same time, on the same food, and penned on the same ground, but were kept separate from the commencement. I allowed each lot when on turnips (because we did not slice the turnips, only the swedes) the same sized piece per day; and when on swedes, which we began about Christmas, 33 bushels (sliced) per day, and 18 bushels of excellent clover-chaff to each lot; and on the 20th of February, 1847, we gave them 1 lb. of oil-cake a day, on an average, until they were sold out.

	£	s.	d.
Bought in the last week in October, 1846.			
100 very large Hampshire Down lambs cost per head - - - -	2	1	0
100 Hampshire down lambs, weighing about 1½ stone less than above and very much smaller, cost per head - - - - - - - - -	1	15	0
	0	6	0
The latter were in much better condition than the large ones.			
Sold out from 28th March to 10th May, 1847.			
100 lambs which cost 41*s.* sold at Smithfield and Southall markets, realized on average with wool - - - - - - - - - - - -	3	1	3
100 lambs which cost 35*s.*, sold at the same markets, realized on average, with wool - - - - - - - - - - - - - - -	2	9	0
In favor of large lambs - - - - -	0	12	3

I ought to add that the markets were about 2*s.* per head in favor of the large lambs, the trade for mutton being about that difference, or rather more, when the large lambs were sold, which would leave 10*s.* 3*d.* instead of 12*s.* 3*d.* in their favor.

Nothing would be more conclusive and satisfactory than a fair trial, in the same manner, between 100 of Sussex and 100 of Hampshire Downs, both lots of their breed of equal value; that is to say, 100 of best Sussex against 100 of best Hampshire, kept on the same land and fairly tested out of doors, as a farmer would wish to winter them.

Perhaps you will be able to get a fair trial between the large and small breeds, and then publish the result, which would be more satisfactory than mine.

With much respect, I am, dear sir,

Yours truly,

GEO. SHACKEL.

Reading, Oct. 4th, 1847.

NOTE BY MR. PUSEY.

The above trial seemed to me well to deserve a place in the Society's journal, as throwing light upon the question whether large and small animals of the same race do or do not consume food in proportion to their respective bulk. This question is not merely interesting as a point of physiological science, but also in practical farming. A large body of farmers defend the Hampshire or West Down sheep, notwithstanding their plain appearance, by saying that this plain breed comes to a greater weight, and therefore makes a greater money return than the Sussex or true South Down. The breeders of South Downs reply that, if their sheep are smaller, more of them can be kept on the same farm. Here then the abstract question has a practical bearing. In this second instance there was a very decided difference between Mr. Shackel's two lots, yet the larger lambs were satisfied throughout with an equal allowance of each kind of food; and, though of the same breed, made a better return by 4*s.* a-head than the smaller sheep. This plain fact seems to warrant me in calling the attention of practical men to this point of farming.

PH. PUSEY.

There is probably no source of national wealth more underrated, and therefore so little availed of in proportion to its capability, as our resources for the production of mutton and wool. Far otherwise is it in England. In an examination by a committee of parliament in 1833, to inquire into the state of manufactures, commerce, and navigation, Mr. Henry Hughes stated, that the quantity of wool annually produced in Great Britain was about 995,000 packs of 240 lbs. each, or 238,000,000; and Lord Somerville, one of the most eminent agriculturists, did not hesitate to assert in the House of Lords, that in estimating the wealth of Great Britain, its lands, buildings, live-stock, public works and manufactures, the *sheep forms one-third;* in the first place, by the quality and quantities of its dung, which, in American estimates, is never brought into the account, (but which greatly multiplies in England the productions of the plough, and of the whole vegetable kingdom:) by its flesh, which serves for food; and lastly, by its wool, skin, and fat, which form the staple of the most important manufactures.

In twelve counties of Massachusetts there are about 150 woollen manufactories. How many mouths to be fed, of course, by the products of the plough! How many hands at the loom, that would otherwise be at the plough to increase yet more its surplus products!

THE WOOLLEN MANUFACTURES

AS THEY ARE CONNECTED WITH THE AGRICULTURE OF THE UNITED STATES.

The reader's attention is particularly invited to the letter from Mr. Samuel Lawrence of Lowell, (one of the most enlightened and extensive manufacturers of this country,) and to the reflections to which its perusal has given rise.

With so much waste land, particularly in all the States lying south of the Delaware, from which the proprietors draw not one cent of revenue in any form, and so eminently well adapted as these lands are to the growth of sheep and wool, who can learn without surprise, accompanied with a conviction that some serious error or evil exists in our management or legislative policy—that "there is not wool enough raised in the country, by 10,000,000 of pounds, to meet the annual demands of the manufactories," according to the declaration of a gentleman unsurpassed in candor and experience?

"I can point," says Mr. Lawrence, "to articles made of wool, *now imported*, that will require thirty millions of pounds of medium and fine quality to supply the consumption!"

Here the reader will bear in mind, that according to the last census, 1840, the entire clip of wool in the United States was but 35,802,114 pounds, while the addition to our population, by natural increase and immigration, is at the rate which will carry it, according to Tucker's "Progress of the United States," very nearly to 30,000,000, in 1860. It is not known to what particular description of goods Mr. Lawrence refers, as being "now imported," and of which the manufacture will require 30,000,000 of pounds of wool; but let it suffice, for the occasion, to state, that in the year 1844, of which the account is at hand, the whole amount of *woollen goods*, exported from Great Britain to all parts of the world, was of the declared value of £8,204,836, and of these, *more than a fourth*, to wit: £2,462,748, or more than $12,000,000 worth, were exported *to the United States!* Now, to return to the declaration of Mr. Lawrence, and looking at this question in the only light in which it interests us—in its *bearing on the welfare of the American farmer*—may we not ask, whether it be better for him that these goods, requiring for their manufacture 30,000,000 of pounds of wool, should be manufactured here, in our own country, by men, women, and children, placed "along-side of the agriculturist," and demanding his wheat and his corn, his fruit and his vegetables, his beef, pork, cheese, and butter; or that they should be fashioned beyond the broad Atlantic, by steam-power, and by pauper operatives, nearly the whole of whose pay for labor is expended for what they consume of the products of foreign agriculture? Which is better, in the long run, for the American farmer to send across the ocean, or to buy of a neighboring manufacturer, even under the suppo-

sition that he may have, in appearance, for it is only in appearance, to pay a little more for a particular article, while the machinery for its domestic production is in the process of being transferred and transplanted to his own immediate vicinity? For has not the competition, which has always followed encouragement and prosperity, invariably brought down the price of the home-made article below that which had been previously paid for the foreign fabric? On the same, or nearly similar principle, that the lazy and improvident young farmer, first postpones, and finally neglects, *to plant a vineyard or an orchard*, you would be persuaded not to transplant to your neighborhood the loom and the anvil—the tanner and the shoemaker; lest, for a short time, you might have to wait for the resulting advantages, forgetting the infallible axiom—that concentration of population creates demand for all that the soil can be made to produce, and begets improvement of *every sort*, bringing the food out of the rich lands, and putting all your capital into activity; while depopulation begets devastation, impoverishment, and ignorance, and drives your children to the west, there to lead a hard life of exposure and privation.

Three years since, Mr. Grahame, of a well-known and respectable publishing house in New York, put forth "statistics of the woollen manufactures of the United States, by the proprietor of the condensing cards." Though this account was in some respects defective at that time, and probably is at this time still further from being exact, it approached accuracy near enough to give us an idea of the number of woollen factories at that period, and thus gratify the curiosity of the reader, desiring to know something of the progress of a branch of industry so directly and extensively connected with the *landed interest*, as to warrant that interest, in requiring it, to be looked after and cherished by public sentiment, and by national (not *party*) legislation.

There were then reported to be *woollen factories*:—

In Maine	28	In Ohio	79
" New Hampshire	58	" Kentucky	9
" Vermont	76	" Indiana	6
" Rhode Island	50	" Michigan	6
" Connecticut	120	" Illinois	6
" New York	327	" Wisconsin	7
" Massachusetts	141	" South Carolina	1
" New Jersey	10	" Iowa	2
" Pennsylvania	101	" North Carolina	4
" Delaware	4	" Tennessee	2
" Maryland	16	" Georgia	3
" Virginia	18		125
	949		949
Making a total of			1074

But this must have been much short of the number, as it may be supposed, since Professor Tucker, in his "Progress of the United States," where something like order and philosophical deduction are brought out

of the chaotic census of 1840, puts down the number of woollen factories, five years before the time when this statement was published by Mr. Grahame, at 1420.*

In Connecticut, as we learn from the statistical report already referred to, the Thompsonville Woollen Company alone consumed upwards of 1,000,000 of pounds, or 2500 bales of wool. The population of the village was 1400, and of these, 1000 were employed by this company; as thriving and prosperous consumers, be it remembered, of the products of the farms and the gardens, the orchards and the dairies, in their immediate vicinity; and to whom the farmer and the gardener could sell, and with whom he could make his exchanges, without losing half his time and manure, and spending a large portion of the value of his products on bad roads in search of customers, as is the case where no manufactures exist.

The wages paid by this single woollen factory amounted to $125,000; and when it is considered how large a proportion of the wages of every class, and especially of the laboring classes, goes to pay for *food*, is it difficult to see how inseparably is the welfare of those who follow the plough interwoven with the prosperity of those who labor at the loom and the anvil, at the lapstone and the needle, the coal-mine and the iron-foundery? We pray you, reader, let us repeat, to bear in mind constantly, that we ask the question only in the light in which such questions are entertained by us—that is, *as they concern the interests of the planter and the farmer.*

The Tariffville Woollen Manufactory, in the same little State of Connecticut, (a perfect bee-hive, with a population of 300,000, on an area of 3,000,000 of acres,) consumed, in 1845, another 12,000,000 pounds of wool, besides 168,000 pounds of cotton, and 60,000 pounds of flax annually, giving constant employment to 1000 persons, men, women, and children, to whom was paid $150,000, to be here again expended, in very large proportions, among the farmers of the neighborhood for the products of the *plough;* and here again, the one sells and the other buys, with scarcely a fraction of the loss and expenses of transportation and exchange, in the shape of freights, and commission, and long journeys over bad roads, leaving the rich soils undrained, and the timber land uncleared, as must always happen in States that turn their face against the policy and the institutions that are indispensable to the healthy and prosperous growth of all the

* Here it may be remarked, that those who, as political inquirers, or for practical objects, desire to become familiar with the whole subject of sheep and wool husbandry, in all their bearings; and especially such as desire to appreciate more exactly the yet undeveloped capacity and resources of our country, to meet, profitably, the demands foreshadowed by Mr. Lawrence, are earnestly referred, for the ablest, most original, and comprehensive exposition, to the letters of Col. H. S. Randall, of Cortland village, N. Y., addressed, through the Farmer's Library, to Col. Allston, of South Carolina. These letters, illustrated by numerous engravings, will soon be published, and on sale in a compendious form, making a volume of some three or four hundred pages, which ought to find a place in the library of every American cultivator.

branches of domestic industry—preferring to send their cotton to be spun, and their wool to be wove, and their provisions, if sent at all, to be eaten at Leeds and Manchester, with all the deductions from the value of their own products, and all the additions to the cost of the manufactured articles, which must be incidental to such a system. Would the reader believe, that though three quarters of a century have elapsed since we proclaimed our political independence of England, she yet holds us in colonial vassalage, so strict as that, though she may allow us to manufacture "hob-nails," she yet contrives to supply, and we submit to buy of her, her produce and manufactures to the amount (in 1844) of more than $40,000,000,* while for the production and manufacture of the very articles thus imported, no country on the globe is better prepared than we are, in climate, in soil, in water-power, and power of every sort—natural, physical, and intellectual. Let the *American* farmer make for himself his own estimate of the value of the products of the plough, which it would take to meet the consumption of those who are employed in the manufacture of what we thus import from a single country—a country so deserving, it is true, of renown, for many of the most glorious fruits of civilization—and when he has made the estimate, let him say whether, while we still go to her for slops, and haberdashery, and copper, and brass, and cotton, and earthenware, and hardware, cutlery, iron, steel, linen, silk, tin, pewter, woollen and other manufactures, made by the labor of starving operatives, we ought not to cease from celebrating the Fourth of July, and making a vain boast of our "glorious independence!" Let him ask himself, whether it be not time to *act as a nation* with *one heart and one mind* upon the opinion, as declared by Mr. Jefferson, in his letter to Mr. Austin, in 1816, that "we must now place the manufacturer by the side of the agriculturist!" Let him compare the value of his farm with that of similar farms in the vicinity of Thompsonville, or Tariffville, or Lowell, and satisfy himself if the difference is not due, solely and exclusively, to the fact that consumers and producers are there in close connection with each other, and then let him determine for himself what would be the value of his farm, if he could by any means persuade the owners of machinery to build a Lowell in his neighborhood. Having done that, let him estimate the amount of clothing that he and his family would consume in the three or four years that might be necessary to establish that home competition that would bring down the price of clothing to the level of that of foreign cloths, and compare it with the advantage derived from having on the spot a market for all the products of his farm—his eggs, and milk, and veal, and beef, and potatoes—and for the spare time of his family, and see if the *real* gain would not surpass an hundred times the *apparent* loss.

Farmers and planters, you need not be told any more, that if you want heavy returns of wheat, or of butter, you must take care to feed your land

* £7,938,079, according to Macgregor.

and your cow. You need not be told, that one manure is good and that another is better—but you need be told what policy will bring in nearest proximity to your plough the loom and the anvil—the iron-monger and the coal-heaver—the tanner and the shoemaker—the brass-founder and saddler—the hatter and the wheelwright; in a word, what will draw men together instead of dispersing them, that so their demands for consumption may draw the produce from the rich lands, and leave you time to improve the great machine of production. Thus it is that wealth will increase—population will increase—intelligence will be diffused—education be provided for, and with it peace and good fellowship among mankind. War will be banished from our republic, as the despicable relic of ignorant and barbarous ages, and all the noble fruits of civilization be advanced and secured. To this glorious end, let union, harmony, and *mutual support*, and good fellowship prevail between the plough, the loom, and the anvil; then truly may we sing—

"Firm united let us be,
Rallying round our liberty."

Rely on it, all our industrial interests—all the trades and manufactures for which we have the soil—the climate—the water-power—the iron—the coal—the cotton—the wool—the hemp—the rice—the sugar—the provisions—all—all should join hands, in one bond of brotherhood, for all support, and all are supported by each other, and all must flourish, or all decline together.

One of the grossest and most mischievous errors that ever misguided a free people, has been the prevalent idea that agriculture, far from being itself a manufacture, is of a nature entirely different, and to which all other pursuits are naturally hostile. It is allowed that between all other industries there are friendly reciprocities of interests; but, after all, what is the production of wheat, and turnips, and corn, and cabbage, but another species of manufacture, in the fabrication of which the earth stands the farmer in the same stead that the loom does the weaver, and the forge the smith? If one wants wool, and oil, and wheels, and spindles, and the other wants coal and iron, does not the farmer want seed, and manure, and horses, and ploughs, and hoes, in *his manufactory?* and if the weaver wants the farmer's wool, and the blacksmith his corn and potatoes, does not he want the weaver's cloth, and the blacksmith's ploughs and horse-shoes, and a little of their money besides? Away, then, with this savage notion, that the farmer is a sort of land-pirate, whose hand should be lifted against all the world, because all the world has its hand lifted against him. All are manufacturers, but of different commodities. The farmer can no more manufacture a bushel of wheat, or a bale of cotton, out of the one or the other, without the use of the soil and the various tools and appliances, than the shipwright can build and fit out a vessel, without timber, and iron, and sails, and cordage.

Some cry out for free trade, and tell the planter to sell in the country where he can get most, and buy where he can buy cheapest. That might

do for the general average interest of the world, if all countries were united under one government, as all our States are under one confederation. But look at the effect, at this time, of dependence on the foreign market for the consumption of cotton. England is seized with a mania for speculation in railroads—all her capital is invested in railroad stock—a great crash ensues, and down goes the price of cotton, with ruin to our planters. For a view of these ruinous fluctuations in the price abroad, of cotton, sugar, wheat, and corn, see page 45.

Countries may be compared to a great fleet of ships. While all are under one commander, their movements may be combined—all made to harmonize and co-operate for mutual support and safety. But far otherwise, when each ship is under an independent commander. Then each must look out for itself, and harmony and identity of interests extend no further. So with us—those who follow the plough, the loom, and the anvil, all belong to the same ship; the same stars—the same stripes—protect us all. Be it then, the duty, and the action, of the commander—the government—to make all dependent on each other, and independent of the world. We have the soil and all the capacity to produce every thing, and to manufacture every thing. Let us, then, compel those who would manufacture for us to come with their capital and their machinery, and, as Mr. Jefferson said, place themselves along-side of the agriculturist.

INTERESTING TO WOOL-GROWERS.

From the Vermont Patriot

"*Lowell, (Mass.) Feb.* 10, 1848.

"My Dear Sir:—Your very kind and interesting favor of the 27th ult., duly came to hand, and should, if practicable, have received an earlier reply. The business of wool-growing in this country is destined to be of immense importance; and I am firm in the belief that within twenty-five years we shall produce a greater quantity of wool than any other nation.

"You ask, 'Is the present home-demand supplied?' There is not enough annually raised in the country by 10,000,000 pounds to meet the demand of the manufactories.

"You ask, 'What countries can we export wool to?' &c. This country will not export wool regularly for fifteen years, for the reason that the consumption will increase as rapidly as the production. I can point out articles made of wool now imported, which will require thirty millions of pounds of a medium and fine quality to supply the consumption.

"The business of manufacturing wool in this country is on a better basis than ever before, inasmuch as the character, skill, and capital engaged in it are such that foreign competition is defied. A very few years, and all articles of wool used here will be of home manufacture.

"Now I beg of you to keep the wool-growers steady to the mark. Let them aim to excel in the blood and condition of their flocks, and the day is not far distant when they will be amply remunerated. I shall always have great pleasure in hearing from you, and remain yours, most truly,

"Henry S. Randall, Esq., Cortland, New York." "Sam. Lawrence.

As the readers of this journal, interested in the wool trade of the country, may often have occasion to know the state of the English market, and to understand English accounts and essays on the same subject, it may be well that they should bear in mind the following table of wool weight:—

7 lbs. avoirdupois make	1 clove.
2 cloves or 14 lbs.	1 stone.
2 stones, or 28 lbs.	1 tod.
6½ tods, or 182 lbs.	1 wey.
2 weys, or 364 lbs.	1 sack.
12 sacks	1 last.
20 lbs.	1 score.
12 scores	1 pack.

THE GROWTH AND MANUFACTURE OF SUGAR,

AND THE DEMANDS OF THE SUGAR INTEREST OF THE UNITED STATES.

Boston, 27th May, 1848.

My dear Sir:—You have requested me to send you a communication on the growth, &c., of sugar in this country. It is a subject of vast importance, and demands a much more thorough investigation than I have leisure to apply to it. Indeed had I not felt it an irresistible duty to hold out the hand of help and fellowship to one who has so long and so ably devoted his pen to the cause of agriculture in all sections of the United States, as yourself, I should hardly have ventured to put on paper the following ideas, and you will consider yourself at liberty to omit any portion of them at your pleasure.

That government which constantly pursues an even-handed course in encouraging equally the industry of those who live under it, and in sustaining with its whole power the quiet, free, and unreserved enjoyment of the fruits of that industry, is the best government in the world for the happiness of the people. Now there is no difference in industry; it is the same whether applied to the loom, to the soil, to literature, or to any thing else—all is manufacture. Raising cotton is as much manufacture as spinning or weaving it; raising wheat as much so as grinding it into flour; raising sugar as much so as refining it. Nor can there be truly any difference in the effects of the promotion of these various kinds of industry on the general welfare of the country; where all are employed, all hang together as links of the same chain, are mutually dependent on each other, and the industry of each is entitled to equal consideration.

What would be thought of the farmer who supplied Lowell with vegetables, fruit or corn, petitioning for the free admission of cotton goods from Europe, that he might purchase his shirts or his bed-linen a little cheaper, and thus destroy the factories to which he sold his produce; or how can we sweep to destruction one whole branch of industry without more or less affecting many others? That country which exhibits its own industry flourishing, when from causes over which it can have no control all around is destruction, exhibits the superior wisdom and the paternal care of its rulers.

I am fully aware of the argument, that it would be folly to raise grapes in hot houses in the north, for the purpose of making wine, when a much better article could be imported from France at one-tenth of the cost. Extreme cases, however good for illustration, seldom have a practical bearing; but even

here if thousands of acres were under this glass cultivation, and a large population of glass-makers, coal-miners, carpenters, farmers, gardeners, &c., would be suddenly thrown irremediably out of employment by the sudden importation of cheap French wines, I think any body of men would hesitate considerably ere they changed the course of a stream of industry, which had by long and assiduous attention worked out its own quiet and prosperous channel.

The depressed state of one of the staple products of this country, *sugar*, has called forth these remarks, and I propose to make a very few observations on the cultivation of this article in the United States.

The first suggestion of common sense is to examine the state of the producers of this article in other parts of the world, in order to discover whether their superior means render our endeavors so hopeless as to determine an abandonment of this branch of industry.

Jamaica and the British sugar colonies.—Since the manumission of the slaves, the negroes work generally only four days in the week; their wages are from 1*s.* 6*d.* to 2*s.* per day. The whole testimony lately given before the House of Commons in England, making every allowance for interested views, exhibits heavy losses connected with this production, even at the prices of 1847, and the total abandonment of many of the sugar estates appears highly probable, unless the government applies some remedial measure, or speculation with its giant lever raises the value of sugar considerably.

Cuba.—That the cultivation of sugar, up to 1847, must have been very profitable is clear from the enormous increase of production, and the large sums which have been laid out in improving the manufacture. But even here it must be remembered that there has been a rise of nearly 100 per cent. in the cost of labor, that is in the value of slaves, which, independent of the low price of 1848, must check much farther extension.

In the small *Danish Islands* not much increase of consequence can be expected.

In the *French sugar colonies* the same measure of the abolition of slavery will unquestionably produce the same effect of decrease in production as it has in those of England.

It is now necessary to take a glance at the production of sugar in the *East Indies* and the *China Sea*.

In the former as well as in the latter, the largest proportion of the crop is extracted from the cane by small holders of land. The process by which this is effected is extremely rude, and the quality very inferior. The sugar called Khaur in the East Indies, is merely the juice, with all its feculencies boiled down to a certain consistency. This Khaur is often imported into Europe, but much of it is remanufactured in the country of produce by larger establishments. There, of late years, English capital has been engaged both in this remanufacture and also in the cultivation of the cane, one company having 700 acres planted. The Dhobah Company invested £200,000 in this business, and made profits at first, but in 1847 the balance of loss for the whole period of their operations was about £30,000. It required $2\frac{1}{4}$ cwt. of Khaur to make 1 cwt. of the lowest Dhobah sugar. The average yield is 450 to 500 lbs. sugar per acre, the wages of the native laborer is $2\frac{1}{2}$ cents per day, but it requires six of these to do the work accomplished by one negro. In Rajahmundry in the Madras Presidency, the capital required would be only one-tenth of that required in the West Indies, the cost of labor and buildings one-thirtieth. In 14 years—from 1833 to 1847—600,000 tons were exported from the East Indies.

On reviewing a vast body of evidence on this subject, it appears that the manufacture and production of sugar in the East Indies have resulted in

severe losses, but it is clear that these arise from extrinsic causes, such as high local revenues raised there in the shape of duties, rents, &c., imperfect manufacture, and expensive managements.

In *Manilla*, as before stated, the main crop is collected from small proprietors and remanufactured—but it is well known that when this rude produce does not fetch above a certain price, the population employ themselves otherwise, in collecting hemp, &c.; such is their position at the present time. The freight from Manilla to this country for sugar must be calculated from $\frac{3}{4}$ to 1 cent per lb. It is chiefly, nay entirely, used for refining into loaf sugar, and therefore hardly comes into competition with Louisiana sugar, which under its present method of cultivation is not adapted for this purpose.

But in the *Straits of Malacca*, where the cultivation of sugar has commenced and seems increasing, it appears as if the article could be produced at a very low rate. The land costs a mere trifle; the laborers employed are chiefly Chinese. These men will do twice as much work as the negro, and although great consumers of food, this consists chiefly of rice, which is very cheap; they will eat besides any kind of vermin, rats, cats, or dogs. They are very intelligent and understand the process of sugar-making. Contracts are often made with them to deliver sugar granulated but not drained at $\$1\frac{1}{4}$ per picul of 133 lbs.

On the sugar cultivation in *South America*, I do not possess any data of sufficient authenticity. Comparatively little comes to this country, nor is it probable that any great increase in its production can take place, owing to the increased difficulties in procuring slave labor.

I have gone through considerable evidence on this part of the subject; the impression remains on my mind, that the cultivation of sugar in the southern section of the United States is a legitimate and fair employment for industry, and that it cannot fail to be generally prosperous and steady, if the government will lend a fostering hand to protect it against frequent prostration by sudden and unforeseen accidents or speculations in foreign countries. Fair, steady competition it does not fear.

Sugar has now become a necessary of life; it is no longer a luxury, and the importance of independence from other countries for a supply therefore is undoubted. Nor should it be forgotten that in nurturing this branch of industry, we are preparing it for the wants of a coming population of one hundred instead of twenty-five millions, as at present.

There is however a second and more important view to be taken of this subject. It is of the improvement in the cultivation of the cane, and in the production and manufacture of sugar therefrom.

Now this cannot be accomplished except by the application of capital, and capital will not flow into this industry unless government place it in a state of stability. From what precedes, it must be seen that foreign competition imperatively requires all the improvements of intellect to be applied to this subject, and that those who neglect them will soon find themselves in the back-ground.

It is needless for me to add to the considerations which you have so often and so strongly urged on the subject of Colleges for the improvement of agriculture; but it is impossible not to see that agriculture comprises the growth of cotton and sugar as well as that of wheat or corn. What vast steps have been made in production of improved varieties of wheat, of maize, of barley, &c.—all grasses, like the sugar cane; why have there not been parallel improvements in this? is it not for want of the application of knowledge?

The cane, it is said, produces but little seed. This is the case with many plants which are constantly propagated by cuttings, or suckers, or tubers.

Nature has provided two ways of propagation, by seed and by buds; if the latter is constantly in use, there is an inclination towards a decline in the production of the former.

This will be immediately understood by reference to the remark of the farmer, who remembered the introduction of a favorite potato which he had cultivated for twenty-five years. He stated that at first it used to produce plenty of balls (seed), but that now scarcely any could be found on the plant. He thought that this had something to do with the potato rot, whereas it arose simply from the constant propagation by tubers (buds). Many other plants could be named, from my own experience, which clearly exhibit the same tendency. Now it is from *seeds alone* that improved varieties spring. A farmer will select the finest and largest ears of wheat for his seed. A gardener will select the pods of peas which contain the largest and the greatest number of peas for his seed; and those which are the earliest in flower and in pod one year will produce earlier than the others the next year: by following this process through successive generations, highly improved and permanent varieties are produced, liberal cultivation being always afforded. When propagation by seed is recommenced, the inclination to bear seed quickly returns, and thus cane seed may in a few years be had plentifully—it is only by understanding the process by which nature works that we can force her to attain the highest perfection.

The finest and most carefully selected seeds would in every probability give rise to varieties of the cane better suited to the climate and surpassing those in cultivation. This has been well exemplified in the native seedlings of various fruits raised in the northern sections of the United States, such as the apple, the pear, the strawberry, &c.; nearly all the good seedlings raised there are better suited to the climate, and generally superior in quality to those with high-sounding names imported from Europe.

In Tirhoot, in the East Indies, it was found that the Otaheite cane could not be cultivated with success after the second year of production, and the planters reverted with advantage to what is there called the native cane, and this was done by a company with English capital, so that it could not be referred to the prejudice or ignorance of the natives.

It is a question however yet to be resolved by careful experiment, whether the cane preparing but a small quantity of seed would give more or better juice than that preparing a large quantity of seed. In the manufacture of sugar from Indian corn, it has been found advantageous to take off the fruit soon after it has attained its form; in that from the beet, the sugar of the root disappears (is transformed) as soon as the flower comes to perfection; yet it seems *à priori* probable that a plant preparing a large quantity of seed should prepare a proportionate large quantity of juices, but then the seed would have to be sacrificed. These and numerous other experiments might be suggested, tending to increase knowledge on this subject, and to improve the breed and production of the sugar-cane, as well as to better its adaptation to the climate of our southern sections.

Another important consideration is, the best kind of soil or manure for the high development of the cane. The two first crops of sugar in the Straits of Malacca, from marshy land of a saline character, imbibed so much of these salts that the sugar always remained moist, and it was only after draining and exhausting the land of these saline qualities that the sugar would remain dry. It is suspected that something of this nature affects much of the Louisiana sugar, and that its unfitness for refining does not altogether depend on the want of ripening the juice; but there is no evil of this kind without its agricultural remedy.

The last, but by no means the least, important consideration I shall notice

on the subject of sugar is, the economy and improvement in the manufacture from the cane juice. I have not time, and perhaps not the ability, to dilate much on the subject, but I can offer the opinion that I have examined the latest publications on this branch with very little satisfaction or practical utility. It is well known that all vegetable juices, when first extracted, are compounds of such unstable chemical combination, that a few hours in a hot climate suffice to produce changes of great importance. Hence the necessity of placing them, (particularly that of the sugar-cane,) without delay in a stable, unchangeable state, by concentration with the application of the least possible degree of heat, is quite evident. To attain this object, evaporators of a novel and highly philosophical construction, manufactured by Walworth and Nason, of Boston, have been introduced this season for the first time at St. Croix, and they seem to have answered the most sanguine expectations, both as to rapidity of evaporation and augmentation of product of a superior quality. That part of the juice which is not sugar, and which is technically termed the feculent matter, must be first separated, and the uncrystallizable sugar or molasses must be afterwards got rid of by draining. In Cuba much has been done to improve the old processes, but it is a subject which is very far from being exhausted, for the ablest French chemists have proved by analysis of fresh juice that nearly the whole is crystallizable sugar. Science has been long and most assiduously at work on this branch of the sugar manufacture, and has already accomplished much; still, either from want of capital, of faith, or of knowledge, many of the improvements lie dormant or are but partially put into operation.

The objects which have dwelt on my mind, and which I have endeavored to show, however imperfectly, are—

That there is no good reason why the cultivation of sugar should not be a prominent and a permanent branch of industry in the United States.

That beginning, as all such do in the United States, with moderate capital, the government is called upon to protect it, in this its infancy—for in its progress it will render the coming immense population of America independent of other countries for the supply of an article of necessity.

That great improvements have yet to be introduced into this branch, by the careful application of science and agriculture, which require the employment of capital.

That the flow of capital in this direction can only be attained by the cultivation and manufacture of sugar being protected by the government, and thus rendered stable and productive.

On the means and method of applying this protection I will say nothing at present, except that more solid and reliable information could be obtained by the government, on all subjects of trade and manufactures, by the assistance of a permanent commission, with proper powers, always sitting at Washington. Their public reports, which might be ordered by Congress whenever these objects came up for discussion, would soon show whether this Commission contained the right men.

Yours most truly, J. G. TESCHEMACHER.

To J. S. Skinner and Son,
Editors of the Plough, the Loom, and the Anvil.

THE CATTLE TRADE OF NEW YORK,

WITH REMARKS ON THE RULES THAT PREVAIL THERE.

The Cattle Trade of New York, though it makes no figure on 'Change, forms quite an item in our city's business. The new market opened on the 6th inst., and the number of cattle entered for sale since that time is as follows:

May 6 to May 8 - - - - - - - -	1755
Week ending May 15 - - - - - - - -	1747
" " " 22 - - - - - - -	1089

We believe the larger numbers are unusual, and that 1000 to 1200 head weekly is about the average. Very few remain over from one sale to another. Monday is the great sale-day, on which nearly all the cattle received up to that time are disposed of. What few remain over are generally sold during the week to chance customers, while the new arrivals are held in hand for the next sale-day. The purchases are not made for our city alone, but Newark, Paterson, Bridgeport, New Haven, Hartford, Boston, &c., are regular buyers at these sales.

The various modes of computing the weight and value of the animals sold which are employed at different markets, must often perplex and mislead a reader not especially made acquainted with them. At each market, cattle are reported as selling at so much per hundred weight, and Boston prices are often if not generally lower than those of New York, though the cattle sold at Boston (Brighton) are generally driven by, if not actually bought here. The reason is, that here nothing but the naked beef—"the four quarters"—is counted and paid for in the cattle market, the hide and rough tallow being thrown in to the buyer; while in Boston "the *five* quarters" are counted; that is, the hide and tallow are computed in the selling weight, and so paid for by the purchaser. On the other hand, a New York "hundred weight" is one hundred pounds avoirdupois; in Boston, it is one hundred and twelve. (In Philadelphia, we believe, "the four quarters" only are counted, while there the "hundred weight" is one hundred and twelve pounds.)

The cattle are sold alive, thus paid for and driven off by the purchaser, though only "the four quarters" are allowed to enter into the computation. The rule is, that one hundred pounds in the gross weight on the hoof will give fifty-five pounds of beef, though the best cattle will of course exceed, while the poorer will fall below this standard. Generally, however, the parties agree on the weight as well as the price in making their bargain, so that few cattle are actually weighed out to the purchaser.

The spectacle afforded by the cattle market on a sale-day is an animating one. Here are drovers from Kentucky, Ohio, Illinois, and Western New York, who have been from three to eight or ten weeks on the road (driving on long routes only ten or twelve miles per day.) They are generally well-built, hardy, intelligent-looking men, fairly but not nicely dressed; while their boys, and other assistants in driving, manifest considerable originality and entire independence in the matter of costume, though many of them are paying their respects to the great city for the first time. The butchers and their boys, who come to drive home the cattle they purchase, form a distinct class; and among them may be now and then a speculator on the look-out for a rare bargain, or a neighbouring farmer looking for a drove to

pasture for a day or so; so that a sale-day draws together some one or two hundred people—possibly more—by whom ample justice is rendered to the substantial and inviting dinner served up at the hotel, at the unfashionable but convenient hour of 1, P. M. The charges here, we believe, are moderate; the guests, though many of them wealthy, being a class who visit New York, not for show, but for substance; not to waste money, but to make it: and the number of their drivers, and the indefinite duration of their stay rendering economy desirable. We did not inquire on this point, but we presume a drove from Kentucky, which sells for $5000 in our market, will have cost nearly half that sum in travelling expenses, from the time the cattle are collected to that when the drover reaches his home again.

Nearly all the cattle in market at this season are bullocks and oxen. There were very few cows and heifers on the ground yesterday. A great majority were three-year-olds.

We cannot conclude without calling the attention of our citizens to the imperative necessity of removing the slaughtering business from within the compact portion of our city. It is a shame that this has been neglected so long. The present practice is revolting to the senses and dangerous to the health of our people. We know no other city which aspires to cleanliness or exemption from contagion that tolerates the nuisance. Philadelphia, we are sure, does not; Boston never did, at least not within the memory of the present generation. The banishment of slaughter-houses from Paris, and their establishment in one place, at a proper distance from the city, is a reform for which Bonaparte is still gratefully remembered. New York has greater facilities, and at least equally urgent reasons for such a change. The new concern might be located on one of the rivers, a few miles above the city, so as to be thoroughly cleansed by a jet of the Croton daily, and so that one little steamboat, plying thence frequently to all the chief markets, might render the transportation actually less expensive than it now is. Why should this wait?

In the New York Register and Gazette we find the above remarks, on a subject curious for the general reader, and of practical consequence to a large class of agriculturists.

As to the various methods of weighing cattle, and other modes of computing their "heft," as they call it in New England, the reader is referred to that most profound and valuable work, that, in our judgment, we have ever seen, "Von Thaer's Principles of Agriculture."

For the sake of having the English copy of it in our Library, we very lately gave twelve dollars for one, in Boston; yet the whole of it has been re-printed, word for word, in the Farmers' Library, making one volume, and may be had of the editors of this journal, one copy for one-fourth of the above-named price, with the addition of Petzhold's lectures on Agricultural Chemistry.

As to the weight of cattle, Von Thaër says, some persons profess to determine by the dimensions and measurements of particular parts of the living animal; and the rules for doing so have been published again and again, within our knowledge, for twenty-five years. But, says Von Thaër, truly, supposing this method to be applicable, with tolerable certainty, to the greater number of cases, the rules thus fixed upon could only be applicable to a particular and well-established breed; so that every breed would require its distinct formulæ, to be practically determined after much experience. But according to actual observation in England and in the United States, the quantity of net "butchers' meat" may be estimated with sufficient accuracy for fair and practical use, by ascertaining the *weight on the hoof.*

By net weight is meant what the beast weighs when hung up in the shambles, with his head, fore legs, entrails, and suet removed. Still the health and the condition of the animal is to be taken into consideration.

For the ox, not absolutely lean, but still not fatted, the following is the rule of the trade:

Take half the whole weight of the animal while alive, and add to it four-sevenths of the whole, and divide the sum by two; the quotient will be the weight of net meat. For example, suppose a live ox to weigh 700 lbs.

Half of 700 - - - - - - - -	350 "
Four-sevenths of 700 - - - - - - -	400 "
	750 "
Half sum - - - - - - - - -	375 "

In this case, every twenty pounds would yield ten and five-seventh pounds. But when oxen are a little fatter, it has been found that twenty pounds commonly yield eleven pounds of butcher's meat; and when they are completely fattened, twelve or twelve and a half pounds will be yielded by twenty pounds of live-weight; for experience has proved, that as an ox gets fatter, the proportion of his flesh to the refuse becomes greater.

Yet it does not follow that the meat becomes more palatable or wholesome, nor does it justify agricultural societies in the ridiculous practice of offering premiums for excessive obesity, that children and groundlings may open their eyes with wonder, exclaiming, "*Oh! what a monstrous fat beast!*" Monsters may they well be called, but *do they pay?*

Finally, the rule of the New York market appears to be about the fair thing between graziers and victuallers.

But we must on all occasions be true to our purpose, which is—what? Not so much to indulge in vain and oft-repeated lectures to the farmer and planter on matters of field practice, in the daily pursuit of their profession, and of which they have little to learn; our object and wish being rather to incite them to study their position for themselves, their social and political condition; to inquire and determine, calmly and dispassionately, whether any thing, and what, can be done by the action of government, in our domestic policy, and in our foreign relations, to increase and render more permanent the profits on what they do make.

Leaving foreign markets out of view, and looking to the articles of beef and pork, as they concern the American farmer, is it not better that all who consume them—the hatter, the weaver, the tailor, the iron-monger, the tanner, and the shoemaker; in a word, all who buy and consume the various commodities which he does, or which he could, raise for sale, should be as near to him as possible, even if, for any one or all of these productions, the consumer should pay a little less than they would produce in the foreign market? The nearer the consumers are, and the shorter and less expensive the transportation to them, the greater will be the variety of things he can cultivate with a certainty of a remunerating demand; his whole landed estate acquiring, in fact, from that very circumstance, the additional value which proximity to market never fails to impart. As his land cannot be moved, the true policy of the landholder is to bring as near to it as practicable the largest body of consumers, for, in proportion as he can do this, his pursuit will partake more and more of the nature of horticulture, and thus yield greater profits.

We lately passed a day, to us in a manner the most congenial and agreeable, enjoying his hospitality and walking over his estate, with that exceed-

ingly well-bred, well-informed farmer, Mr. E. Phinney, of Lexington, Massachusetts. A dozen pages might be profitably filled with a detail of what we saw, and what we learned. There were the cattle imported by the Massachusetts Agricultural Society, North Devons and Ayrshires, with their progeny, all well minded and well managed: but for this detail we have not time or notes at hand. Suffice what follows in corroboration of the undeniable axiom, that *concentration* is the thing to remove stones, clear up swamps, drain bogs, and fell timber, and make poor land rich, and rich land richer.

Viewing with admiration, we may say with amazement, the difficulties Mr. Phinney had encountered and overcome, in subduing his rugged inheritance, causing verdant meadows and fruitful orchards to flourish in place of bogs utterly impassable, and where the ground had been covered with stone, some of it in such large masses that from a great portion of his land it had been blasted, and removed by man and ox power, at the rate of more *than a ton to every six feet*, "what," thinks I to myself, "would a southern farmer say, if land were offered him for nothing, from which he had to remove a ton of stone for every six feet square before he could stick his plough in the ground?" But what will not the presence of abundant and thriving consumers do to give activity to landed capital? In contemplation of all we saw, surprise prompted the inquiry—"In the name of all that is wonderful, my dear sir, where do you find remunerating returns for this vast amount of labor? Where do you find a market for your $2000 worth of apples, for instance, taking, as you have done, sometimes eight barrels from a tree?" "Why," said he, "do you forget that besides Boston with its more than 100,000 thriving consumers, and the West India and the European market, to say nothing of *many other towns in this state*, we have here in Lowell 30,000 *fruit eaters*?" And this brought us to remember that there, in Lowell, with a water-power inferior to the falls of Potomac, and to many similar unimproved sites in the South, a single woollen-mill employs 1500 persons, male and female, manufacturing 119,000 yards of broad cloth, and 264,000 yards of kerseymeres, annually; the pay for which goes out in very *large proportion* to the neighboring farmers and gardeners, for food in every form that the land can be made to produce it—for it is, after all, with *food* that bricks are made, and saddles are made, and houses are built, and ships are manned and rigged. *Food, food*, is the great material, and mother earth the great machine of production: concentration always enriches—de-concentration always impoverishes her.

STEAM PLOUGHS.

PRESENT AND PROSPECTIVE USE OF THEM.

Mr. Wray, in his work on the cultivation of the cane and the manufacture of sugar, speaking of the *steam plough* in Demerara, and of the *effect of drainage* on the quality of sugar, makes some remarks that may be worthy of the notice of our friends "on the coast" above and below New Orleans.

"We all know the improvement in the quality of sugar that has resulted from the use of the vacuum pan, and improved methods of evaporation, &c.; but few allow the full importance due to the improved system of drainage, as now practised in Demerara. In former days the sugar

from this colony was of the most dark and inferior description, but recently the use of the vacuum pan and the better drainage of the cane lands, have, together, completely altered its quality, and raised its *value to a high standard.*

"The planters are also said to have hit on a plan of *plowing their land by the aid of a steam-engine*, that is at once simple and effective. The estates are usually about four hundred or five hundred yards in breadth, and from three to five miles in length, with a canal running up the centre, and a smaller canal or drain running with it, on either side of the estate; the engine is then fitted into a boat, which traverses the centre canal, and gives motion to the plough by means of an endless chain or rope attached to a wheel placed in another boat, which last takes up a position in one of the parallel drains or canals, so that the plough is drawn backwards and forwards between the two canals.

"As the plough arrives at the extremity of the field, the two boats move on the required distance; then the motion of the engine is reversed, and the plough returns: so that by this simple arrangement, the plowing of an estate is accomplished most expeditiously."

Mr. Wray goes on, contending, by a course of argument which we have not time to transcribe, but which we will give in a subsequent number, "that such an engine for plowing may be serviceably employed on any tolerably level estate, having roads, and which is not too rocky.

"What," says he, "the planter would like to avail himself of, is the great power, unwearying labor, and nice precision of the steam-engine. In the performance of such work as he would require of it, he would not wish for speed, either when stationary or when moving about the estate. However, this will be more intelligible after I have enumerated the chief labors which the auxiliary engines *may be expected to perform!* These comprise :—

"1. Plowing.
"2. Harrowing and *hainghering* until well pulverized.
"3. Plowing trenches six feet apart, for cane tops.
"4. Cleaning, moulding, and first-banking young canes.
'5. Bringing out cane from the field to carts and wagons in the road.
"6. Drawing cane carts or wagons to the mill and returning with green trash.
"7. Distributing the green trash throughout a recently cut field.
"8. Leveling banks and covering up cane trash, &c.
"9. Bringing manure carts to the field and distributing the same.
"10. Bringing sand to the field, if required, and distributing the same.
"11. Sanding the roads and rolling them, whenever required.
"12. Pumping water for irrigation, when necessary.
"13. Draining land whenever required.
"14. Drawing carts to the wharf with produce, and returning with coals.
"15. Sawing up timber into boards and planing the same.
"Besides many minor performances from time to time arising."

Such are the uses to which this experienced and intelligent planter pre-

dicts the power of steam will soon be applied. How instructive and surprising to those who live in the retirement of the country would be an enumeration of the various and wonderfully labor-saving purposes to which steam is now applied, in such a city as New York, to mechanical purposes, from the power of one up to that of a thousand horses, and with as much minuteness and precision, and as perfect control, as the shoemaker has over his awl and lapstone. It is ascertained that in Philadelphia alone, steam is applied to save manual and other more expensive power, in more than three hundred establishments, large and small.

What a pity that among agriculturists we have not many more of mechanical genius, such as Whitney, or Arkwright, or Stevens, or Bogardus. But, as Mr. Poinsett says, "agriculturists live apart and meet but rarely to take into consideration their common interests, and, when they do meet, remain together too short a time to originate or perfect any great measure of general improvement." But even these disadvantages would be obviated in a great measure by a system of instruction, which should secure for the sons of farmers a practical education adapted to their profession, embracing the sciences applicable to it—on the plan that the representatives of farmers liberally provide for those to whom life commissions and high salaries are to be given, and whose sole business is to keep their guns bright and their swords sharp, in preparation for wars.

A WORD ABOUT MULES.

If this too much abused and derided hybrid could speak, as did one of his far back ancestors, we should claim from them a vote of thanks, for what we have said, and caused to be said, in favor of their value, and their claim to kind consideration and treatment.

Many years ago, at our suggestion, for he needed no persuasion, the then remaining survivor of the signers of our Declaration of Independence, the venerable Charles Carroll of Carrolton, offered a piece of plate, with appropriate inscriptions, for the *best essay on the mule, in comparison with horses and oxen for farm labor.*

An admirable essay, on which the prize was worthily bestowed, was written by that inquisitive and active-minded observer and gentleman of various knowledge, Willis Pomeroy of Massachusetts. Since then, we have on various occasions embraced opportunities to vindicate the useful qualities of the mule, even for the saddle, over rough and mountainous roads; and in an essay on "THE NATURAL HISTORY OF THE ASS AND THE MULE," written while in the office of assistant P. M. G., we took further occasion to assert the excellence and economy of this underrated animal, as a labor-saving operative on a farm. The reader will see that he occupies the front ground in the design, which illustrates the title and purposes of "THE PLOUGH, THE LOOM, AND THE ANVIL," but he would not know, if we did not choose to tell him, that the place there now occupied by the mules had been assigned by the artist to a pair of sleek horses; on seeing which, we requested him to stick on a

longer pair of ears, and a smaller tail, and to otherwise modify the picture, in such manner as should indicate our preference for them over horses, for *farm work*. In a fox-chase, it might be otherwise. They might not, *under the saddle*, be so ready to go at timber; but when worked hard all day and turned out at night in a bare pasture to starve, as they sometimes are, it is admitted they are not slow to get over or through a fence, by hook or by crook—and who can blame them in such case? As to the longevity of mules, we find in a new work on the culture and manufacture of the sugar-cane, describing and comparing the East and the West India systems,—being the result of the author's sixteen years' experience as a sugar planter in these regions,—the following: "We know that the average working period of a steer, *or heifer* in Jamaica, under favorable circumstances, is ten years; but when a little extra care has been taken of them, we may safely reckon on fifteen years, [is not that extraordinary?] whilst a *mule*, with common care, will work for twenty, thirty, and even forty years. I have had four mules, ranging of an age from forty-five to forty-eight years each, as proved by the most undoubted evidence, and all of them at that age taking their regular spells in turn."

COMBINATIONS AGAINST FARMERS.

THE COMPLAINT IS OFTEN UNFOUNDED.

Farmers are deceived and misled by the cry of combinations against them —*haud experientia loquor*. We have been ourselves misguided by the thought of combinations of other classes against them; but, on reflection, we have come to ask ourselves, what is more natural than for men to combine for common good? Is it not the foundation of all social organization and improvement? Why should not the iron-monger, and the coal-miner, and the wool-comber, combine with the wool-grower, and the grower of sugar and coffee, to secure a *national* policy, under which each shall have the benefit of the custom, and the support of all the rest? Above all classes, who so much interested as the cultivator of the soil, in having, as near as possible, as many as possible who are not cultivators, but whose thriving condition and employment shall enable them to buy, and freely consume the *products of the soil?*

Take the sugar-planter, and the wool-grower, for instance. If the latter is ruined in his business, by the importation of untaxed foreign wool, can he afford to throw sugar as freely as it would be palatable to do, not only in his tea and coffee, but in his pies and puddings? On the other hand, if the sugar-grower is protected from the rivalry of the West and East Indies, can he not more freely clothe himself, and all about him, with the staple of the wool-grower? In place of a stupid jealousy, founded on the apprehension of antagonist interests, neither true nor natural, let all true friends of the public welfare inculcate harmony of action, for the welfare of all. Every man who has any thing to sell, whether it be wheat, or rice, or sugar, or wool, or corn, or cotton, or *labor* of any sort, is directly benefited by that course of policy, and that state of things, which rears up in his neighborhood the greatest number of wealthy people to be competitors for, and consumers of, all he has to dispose of. This is common sense, and let every man of sense beware of the demagogue, who would incite the envy and the malice of the poor against the rich.

The impulse of every good heart, and well-informed mind, would be this—"Let me be as well-informed and as wealthy as I may, it is better for me that all around should be yet better informed, and more opulent—for their loss must be my gain—the tendency is ever to come to a level. Do not cities grow by the rise of capital and industry, and do not lands rise—other things the same—as they approach large cities?"

FOREIGN MARKETS.

WHAT THE FARMER MAY EXPECT FROM DEPENDENCE ON THEM.

From the Cleveland (Ohio) Herald.

THE following comparative table is mostly from Cook, Young, & Co.'s New Orleans Price Current. The date employed for 1847, it will be perceived, was before the time of high prices, when the tariff of 1846 was operating in its full vigor:—

	April 24, 1848.	*April* 24, 1847.
Cotton, middling, per lb.	5¼ *a* 5¾	10½ *a* 10¾
Corn Meal, per bbl.	1 50 *a* 1 75	5 00 *a*
Flour, Ohio, &c., per bbl.	4 00 *a* 4 25	6 00 *a* 6 12½
Wheat, per bush.	80 *a* 95	1 25 *a* 1 33
Oats, per bush.	23 *a* 28	50 *a* 55
Corn, per bush.	35 *a* 30	70 *a* 80
Gunny Bags	8 *a* 9	26 *a* 27
Pork, Mess, per bbl.	8 00 *a* 8 25	15 50 *a* 16 00
Pork, Prime, per bbl.	— *a* 7 00	11 25 *a* 11 50
Bacon, sides, per lb.	3¾ *a* 4	3 *a* 3¾
Bacon, shoulders, per lb.	2 *a* 2¼	5 *a* 5¾
Lard, per lb.	4 *a* 6	8 *a* 9
Sugar, per lb.	1¾ *a* 4¾	5½ *a* 7½
Molasses, per gal.	15 *a* 19	26 *a* 30

The above is not, however, a fair illustration of the discrepancy between the high prices which men predicted were to rule as the effect of the tariff and those which actually do exist. We now present a comparative table of prices more to the purpose, for which we shall not go out of our own market:—

	May, 1848.	*June*, 1847.
Flour	4 87½ *a* 5 00	7 00 *a* 7 50
Wheat	1 01½ *a* 1 09	1 50 *a* 1 52
Corn	31 *a* 39	65 *a* 66
Pork, Mess	8 25 *a* 8 50	*a* 14 50
Lard	5 *a* 5¼	8 *a* 9

Great Britain and Ireland take the bulk of our exports of flour, meal, wheat, and corn.—Here are the figures from September, 1, 1847, to the commencement of the present month:—

FROM	FLOUR, *bbls.*	MEAL, *bbls.*	WHEAT, *bush.*	CORN, *bbls.*
New York	137,085	33,343	177,934	1,064,101
New Orleans	15,544	24,997	33,194	970,025
Philadelphia	1,563	25,121	- -	166,145
Baltimore	770	1,796	4,010	97,388
Boston	704	3,900	- -	119,993
Other Ports	-	- -	- -	34,813
Total	155,666	89,157	215,139	2,452,921
Same time last year	1,685,734	455,666	1,570,614	11,245,775
Falling off	1,530,068	366,509	1,355,475	8,792,854

ON THE COMPARATIVE VALUE OF PEAS AND CLOVER.

Connemara, April 19th, 1848.

My Dear Sir:—I hand you enclosed a note of my operations upon the pea with plaster, and regret that circumstances beyond my control have delayed it so long. I am so well satisfied of the great beneficial effects of the plaster, that I have gone to a great expense of labor in preparing to grind the article for myself; by this means I procure it at a cash cost varying from 18 to 20 cents the bushel. I have not entered at all into the argument of the superiority of the pea fallow over one of clover; that will come more properly from you, if you should agree with me in that superiority. Much in this question depends upon the propinquity to markets. Clover *may be*, with a good market for hay, butter, cheese, or the like, a more profitable crop than the pea—but supposing all things to be equal, the points in which the pea is superior to clover are—

1st. In the fact that it takes but two years to come round to a hoe crop, and of course this requires less land—a great advantage where there is a stationary supply of hoe hands.

2d. Clover generates several kinds of rusts, which are injurious to a rewarding grain crop—whereas the pea leaves the grain more free from vermin of all kinds than any other crop I know.

3d. When the ensuing crop is of a kind that ought to be kept very clean in its early stages, clover is very objectionable, (this is especially the case with the cotton crop,) whereas the pea cleanses the land better than any other crop. It is destructive to the wire-grass, and I believe will be found to be so to that nut-grass of which the Louisiana planter complains so much, and the peculiar name [Coco.—*Ed.*] of which I cannot at this instant recall.

4th. The pea crop is amazingly advantageous as a great stimulus (and a very cheap one) to the supply of pork, which is a cash article.

But do not understand me as undervaluing the clover as an improver. I believe it is exceedingly advantageous, and the perfection of hog raising and fattening is to have good clover to put them on in May and June—good oats to turn them to in the field, in order to let the clover take its sure growth, and then good ripe peas to fatten them with, and with these appliances the unmerchantable corn on an estate will make pork cheap and abundant, and will save the Southern States a vast sum which they annually pay for that article.

I fear you will think me extravagant, and even foolishly so, when I speak of turning hogs upon an oat field—yet at a distance from market, so great as to render the cultivation of so bulky an article very unproductive, I find it to be a saving of corn and an improvement to the land, besides a great saving of labor at an important period of the corn crop to make my hogs harvest my oat crop.

I congratulate you on the very handsome manner in which your petition to the Senate was launched by Mr. Johnson of Maryland, and hope you will meet with success, but I fear the reverse.

Whenever your convenience and pleasure permits, I shall be very happy to see you at this place, 13 miles below Halifax; and with reminding you of your engagement to keep me out of print,

Believe me, very respectfully yours,

J. N. D.

There is another use of the pea, which I confess I began with great doubts, and have continued from a conviction of its utility—viz.: when the corn is

ready to lay by, sow peas in it, and then do the necessary work of laying by. In bad seasons and early frost, a failure of the crop is generally the result—but even then the vine greatly aids the land, and if the season be a usual one, in this climate it produces well, and I cannot see that it injures the corn, although I feared it. I plaster the pea this season at the rate of 50 lbs. to the acre.

Notes on the above.—The above was courteously and kindly intended merely to envelope the following communication that accompanied it, but while we know the writer will excuse, we are equally sure the reader will thank us for sending both along together, as they came.

In regions where clover will "take," as they call it in Maryland, it is hard to calculate the value of it. A single crop in some parts of that State, Prince George, Anne Arundel, and Calvert counties, for instance, brings poor land, that would not yield two barrels of corn or one hundred pounds of tobacco, at once up to 6 or 8 barrels of corn and 800 or 1000 pounds of tobacco. There it is the poor, soft, and yellow-looking land, with broom sedge, that is most quickly and magically improved by clover and plaster. The use of these, in the region referred to, has, in hundreds of cases, raised the value and selling price of lands from 8 and 10 up to 30 and 40 dollars in five or six years. But, strange to say, in many, perhaps the larger portion of the State, they produce no such effect. Now, if the efficacy of plaster or sulphate of lime, acting on clover, were referable to its power of promoting the growth of the latter by attracting moisture or ammonia, why should it not possess THAT power, as well in one place as another? May we not then infer that it acts on something *in the land*, converting it into food for clover, which something, whatever it be, exists in certain soils and not in others? It is a remarkable fact about plaster of Paris, that the least modicum of it seems to answer all the purposes of a larger quantity? We once heard Mr. Tolbert, one of the most upright and exemplary planters in Prince George, say, that he *had known* half a bushel to the acre have all the effect of any larger quantity.

We may be allowed here to express our satisfaction in the belief, that Mr. D. heartily unites with those who are persuaded that American agriculture is destined to prosper and to find its surest and steadiest market in the prosperity of every other branch of industry, prosecuted by those, in *our own* country, who manufacture the raw materials, and consume the products of the American farmer. We do not know what may happen to be the cast of his politics—for we can safely say, that in thirty years of study to know how and in what way practical agriculture can be best advanced, and its rights and claims most effectually asserted and maintained, we have never cared to know to what party the man belonged, who could *give us information* that would enable us to add even an iota to the stock of such knowledge as might prove useful to the practical farmer. That Mr. D. has no interest to mislead others, or to be himself deluded on this great question for the country, suffice it to say, that his annual stake in agricultural produce is to the tune, we believe, of considerably over 100,000 bushels of corn annually!!

As to the Editor's memorial, in behalf of the plough, so kindly and so eloquently presented by Senator Johnson of Maryland, is it not enough that it sought some action of government in behalf of the *landed* interest, to ensure it to be buried in the tomb of the Capulets? Had it been a memorial praying for a military exploration or survey, or analysis of some substance for *death*-dealing purposes, Congress would have granted 10, ay 20,000 copies or maps at a breath, without inquiry or hesitation—what, let us ask, after more than six months' session of Congress, have the Military Committees said or done? and echo answers—*what?*

SOUTHERN SENTIMENT

ON THE POLICY OF ENCOURAGING DOMESTIC INDUSTRY.

To those whose opportunities enable them to mark the progressive changes of public opinion, on great questions of national policy, nothing can be more apparent than the spread of opinion in the Southern States, that the time has arrived when, to follow up the declaration of Mr. Jefferson, in 1816, "we must now place the manufacturer along-side of the agriculturist." Of this fact, the proofs are numerous and conclusive. We have seen it stated, it is believed, in that excellent journal, the *Southerner*, conducted, at Richmond, by our friend J. M. CRANE, with singular zeal and intelligence,

that upwards of ninety companies were incorporated by southern legislatures, during the last wintersessions, for manufacturing, or for kindred purposes.

The subject is not otherwise particularly attractive for us than as it is intimately connected with the welfare of the cultivators of the soil. The sentiment of which we speak tends to the establishment in the old States of a fixed populatino, not engaged in agriculture, but which will be consumers of all that agriculture can produce; in a word, it shows that the time is coming when public men will be forced to establish and maintain, as an *American, national* policy, a system, under which we shall have *concentration* instead of dispersion.

We have pleasure in preserving, as an evidence of the sentiment to which we have referred, the following extract from a gentleman in North Carolina, who, with the highest capacity to judge of what is best for the landed interest, unites the assurance of fidelity, to be found in the consideration that his own interest is deeply and intimately connected with it:—

"The alteration that you propose making in the publication of 'The Farmers' Library,' I think a judicious one, and should you succeed in effecting a purchase, I think that I can venture to promise as many as five or ten subscribers. You shall have my good wishes, as well as my support, in your efforts to induce the consumer and manufacturer to settle along-side of the plough, believing that a tariff for the protection of the manufacturer is, *in effect, a protection to agriculture itself.* The man who could induce our southern agriculturists to vest their surplus capital in the erection of manufactories, sufficient to work up one-half of the cotton and wool that is produced in the Southern States, 'would deserve better of the *southern* country than all the race of its politicians put together.' Could my friend and neighbor, Mr. Thomas P. Devereux, be induced to give you the result of his experiments in the pea culture, I have no doubt he would communicate results that would surprise your Maryland friends.* Should business or pleasure ever induce you again to cross the Roanoke, it would give me pleasure to make the personal acquaintance of one, with whose writings and efforts in the cause of agriculture I have been familiar from my boyhood. My father (now no more) was for many years a subscriber to the American Farmer, and whatever fondness I now have for such pursuits, was acquired from reading that work. For your health and prosperity, I am, dear sir,

"Your ob't ser't, R. H. S."

ON THE CULTURE OF THE GEORGIA, OR COW-PEA, AND ITS VALUE AS A FERTILIZER.

My Dear Sir:—I owe you an apology for the delay which has taken place in the performance of my promise to give you some account of the effect of the field-pea, or the Georgia pea, or the cow-pea, (as it is indifferently called,) upon worn or exhausted lands. Accident brought before me, several years ago, very strongly, its renovating power, when sown broadcast as a fallow crop. I had known and valued it for years, but had no idea of the extent of its effects until the time I speak of. Another accident suggested to me the probability that as it was a papilionaceous plant, gypsum might have the same specific effect upon it that it had on clover, and a slight trial induced me to make a number of more accurate experiments, conducted as follows: I laid off portions of several fields in squares of one acre each, and sowed the whole with peas. About the time when they began to put forth their

* It will be seen that he has had the goodness to do so.

tendrils, I sowed each alternate acre with different quantities of plaster, beginning with five bushels, and going as low as one. The effect was apparent, and about as striking as upon clover. But as my object was to ascertain the effect upon ensuing corn crops, in the fall and after the pea vines were dead, I sowed upon selected portions of the field similar quantities of plaster; I then had every thing plowed in, and suffered it to lie until spring, when the whole was planted in corn. The difference was striking from the time the corn came up, and although the result varied as to the amount of product, I was satisfied there was an increase upon those squares where the plaster was sowed upon the growing pea, of about fifteen to nine. I could not detect any difference between those squares where the plaster was sowed upon the dry vine and the residue of the field. Being satisfied that the improvement over-paid the expense, I began upon a larger scale, and the following are the results of two crops, one of peas with plaster, and the other of corn. I ought to say, that the number of acres, and the crops, were not accurately measured. The first being ascertained by the number of corn-hills, and the crop by measurement in cart-loads:—

1. A field, containing about 75 acres, worn by long cultivation in corn and cotton, produced, in 1845, 750 bushels of corn, and in 1847, after the fallow crop of peas with plaster, the crop was 1650 bushels.

2. An old field, containing 27 acres, which was cut down, plowed up, and suffered to lie one year, was planted in corn in 1845, and produced 400 bushels. In 1847, after peas and plaster, the crop was 750 bushels.

3. On a field, containing about 160 acres, part worn, and part old field, (No. 2 being a part of it,) the crop of 1845 was about 2500 bushels. This was such a crop as I had a right to expect, compared with other lands, and other crops upon the same land. The crop of 1847 was 4781 bushels. This crop was stored to itself, and was delivered as a part of the sale crop, and the result is strictly accurate. It would probably have measured more, had it not been from a combination of accidents which prevented its being gathered until the 22d of January.

4. An old field, treated in every way as No. 2, but better land, containing 20 acres, produced, in 1845, 200 bushels of corn, and in 1847, 600.

No. 5. A field, worn out by alternating crops of corn and oats, and then as pasture, containing 35 acres, produced, in 1845, 350 bushels of corn, and in 1847, 650. This land is not equal in natural fertility to any of the fields above mentioned.

I ought to add, that in none of the above cases, was the land naturally poor in its native growth—all but the last were very fertile; that they had all been greatly injured by hard cultivation, and that the maximum of their yield could hardly have been as high as 50 bushels to the acre. It is not my purpose to trouble you with a disquisition upon the mode in which plaster acts, nor of the causes why it so signally fails upon some land, and acts so powerfully upon others. My object has been to state nothing but facts, and in execution of that I have to add that grass is the great enemy of the pea when sown; that weeds do not seem to injure it, and that there are many sensible and well-judging men who contend that the crop is surer when sown in the month of June, upon the corn-stubble, and then plowed in, than when the land is first broken up with double ploughs, and the seed harrowed or plowed in. The cause assigned is, that the last method is more favorable to an early growth of crop (crab) grass than the former. I ought also to add, that I have been unable to perceive any difference upon the pea where five bushels of plaster have been sown upon it, and where the quantity was confined to a single bushel. I ought also to say, that the best mode of harvesting the pea is to turn a stock of hogs upon them when

ripe; that the preferable kind is the red pea, because it does not rot when exposed to the weather, and that care should be taken to choose that variety which combines productiveness of crop and luxuriance of vine.

ELEPHANTS USED AND RECOMMENDED FOR THE PLOUGH.

In his work on the cultivation of sugar, Mr. Wray says, "hundreds of active young elephants can be procured at from 50 to 100 dollars each: admirably suited for estates work of various kinds, but more especially for plowing—one of these animals will close-plow a full acre of land during a day, with the greatest ease to himself, and only requires to be attended by his keeper, in addition to the plowman.

"To perform similar work, that is chankoling, (hoeing,) an acre of land requires at least 50 Chinese laborers—which is a fact admitting of no denial. Is it not evident, therefore, that we cannot hope for a knowledge of the lowest price at which sugar can be produced in these settlements, until the plough is brought into general operation? Any one visiting Singapore can see a male elephant, named 'Rajah,' working daily on the estate of J. Balestier, Esq., (the American Consul,) and although the animal is only five years old, he will plow his acre of land a day with ease. I have repeatedly walked up and down the furrow with him, and been delighted with his performance. One man holds the plough, and another (the keeper) walks beside the animal, and directs him in his duty. The docile little creature obeys every word that is said to him, and (although no doubt sorely tempted) will plough all day between the cane rows without plucking a single cane. I am positive that a less number than fifty Chinese laborers could not dig up the same quantity of land that I have repeatedly seen this little elephant plow in a day. But independent of elephants, buffaloes and cattle abound, costing not more than $10 each on an average. These animals, if properly fed and tended, are excellent for plowing and other estates purposes. But above all other power, a *small auxiliary locomotive engine* is that which is best suited to the wants of the planter in these settlements—with it he could plow up his lands, pulverize the soil, and perform all the work already specified." The author goes on with details to show what would be the saving such an engine would accomplish.

In further recommendation of the elephant, he remarks, "I consider elephants of small size preferable to buffaloes on a sugar estate; and have no doubt that one will do more work than five buffaloes. In plowing, the elephant applies his weight to the draught in a peculiar and extraordinary manner; maintaining a constant and very steady pull, instead of that quick jerking motion so often imputed to him."

"They are better able to stand the heat of the sun than buffaloes, and I do not think them near so susceptible of disease, for with ordinary care they have been known to perform unabated service during upwards of fifty years. In Upper India among the natives, they have been known to labor upwards of eighty years."

Now it is quite probable that among our readers there may be not one who can make *profitable* application of what is here related, about *elephants in the plough:* but what of that? Has the farmer no right to expect to be provided with the curiosities of his profession, and with things that may be useful, only in being *entertaining? Has he no relish for such things?* If not, then are we mistaken in the character, as well as in the wants of our readers.

THE HORSES OF PENNSYLVANIA.

HOW TO BE IMPROVED.

Does not the importance of the subject, and the number of farmers interested in it, commend to general consideration the question: How far the improvement of the breed and quality of horses ought to be made the subject of *legislative action?* Does it not amount to a great public nuisance, that any lazy fellow, looking out for some means to live without working, should be allowed, at the first budding of the trees in every spring season, to mount on the back of any big, fat, *logy* stallion, and go riding round the country, to contaminate and deteriorate our stock of horses, in itself bad enough? When it is considered that the same food and care that are employed in rearing a worthless, heavy, straight-shouldered, splinted and spavined garron, would suffice for a well-bred, sleek-coated, well-formed, high-mettled hunter, or carriage horse, who can estimate the loss which ensues to the State, by neglect of the quality of the horses appropriated to breeding?

In Pennsylvania there are not less than 400,000 horses. Now does anybody doubt that by a government regulation, condemning the use of stallions, which a board of judges should proscribe as worse than worthless; and licensing only such as they would sanction, the whole stock of the State might in a few years be so improved as to insure an average appreciation of $10 per head; which would amount to $4,000,000? As to any objection on the score of *power*, the State government, representing the majesty of the whole people, may surely do what is not constitutionally forbidden. Is not the power which compels the farmer to submit his flour to inspection, and which seizes his "light" butter in the market, equal to the regulation of the quality of a horse, which is to meliorate or to poison all he crosses? So injurious, in England, has been the effect of reducing the weight and the distance formerly observed in racing, that a qualified writer has lately asserted, "I am of opinion that no one would undertake to contract to supply 500 well-bred, clean, sound horses, under eight years, perfect as hunters and equal to fourteen stone, (196 pounds,) with one month's notice, at 150 guineas ($750) each.

As it is incumbent on those who find fault to propose practical remedies, I would suggest that memorials be gotten up in the different counties, to the Legislature, to require all horses employed as stallions to be licensed under a board of well-known judges of what constitutes a horse worthy of propagating his stock. Let all who have horses for public use be bound to produce them at the court-house of the county on a given day of each year, say 4th of March. If not allowed to interdict, altogether, the use of blind, spavined, and curbed beasts, with bull withers and weak loins, let it be the duty of the judges to regulate the license by a *sliding scale*, making the license fee *lower and lower*, in proportion as the horse should be found to *rise* in excellence, and let the proceeds of this license be added to the infamously mean salaries paid to the teachers, male and female, in our common schools, not nearly equal, in many cases, to the pay of an orderly in the army, who cleans the horse or the boots of an officer, with his life commission as long as he remains above ground, and pension for his surviving family. If the Legislature, or municipal authorities, have power to tax dogs and stills; why not tax horses, which, when inferior, cannot be used without great prejudice to the farming interest? The effect would be to lessen the number of bad ones, and so to increase the support yielded to those of a better kind, that their services might be afforded at a lower rate, and as "like be-

gets like," the general result would soon be visible, in the general improvement and increased average value of the horses bred in Pennsylvania, to an aggregate amount of some millions of dollars. If any such opportunity offered for an equal increase of capital invested in manufactories or commerce, depending solely on an act of legislation, within the admitted competence of the representatives of the people; how long would it be before they, the merchant and the manufacturer, would cause themselves to be *heard and heeded?* But, as Mr. Poinsett says, farmers too rarely come together to confer for their general benefit, and when they do, wont stay long enough to devise any effectual measures to obtain the relief and protection which they have a right to claim. Hence does it not become the especial duty of agricultural associations to look to the course of public legislation, as it has been or may be made to bear directly on the landed interest of the State? Finally, would not this and subjects like this, be highly proper for the consideration of the Philadelphia Society (and all such throughout the country) for the promotion of Agricultural Improvement? Let the agricultural community see them thus moving in matters obviously calculated to achieve practical results, and a sense of self-interest and of justice would prompt them to seek the fellowship and membership of such associations; and we should no longer witness the (I was going to say scandalous) spectacle of indifference on the part of the farmers of Pennsylvania to the prosperity and success of an association of gentlemen formed exclusively for the benefit of the landed interest, and animated by the purest and most patriotic motives. A FRIEND OF THE PLOUGH, THE LOOM, AND THE ANVIL.

THE SHEPHERD'S DOG—VARIETY AND QUALITIES.

In the last of a series of admirable letters on Sheep Husbandry, closed in the last number of the Farmer's Library, for which they were written, by Col. H. S. Randall, of Cortland village, New York; and in which the general subject has been presented and ably treated in all its ramifications—the Author gives an account of the various races of dogs employed in the care of sheep in different countries, with descriptive engravings of three of them.

Of these, the cut here used serves to represent what he calls the "*Spanish Sheep Dog*"—and as many of the patrons of this may not have been subscribers to that work, those of them who were will excuse us for repeating here a part of what is there said of a particular breed, of which this is the first account that we remember to have seen.

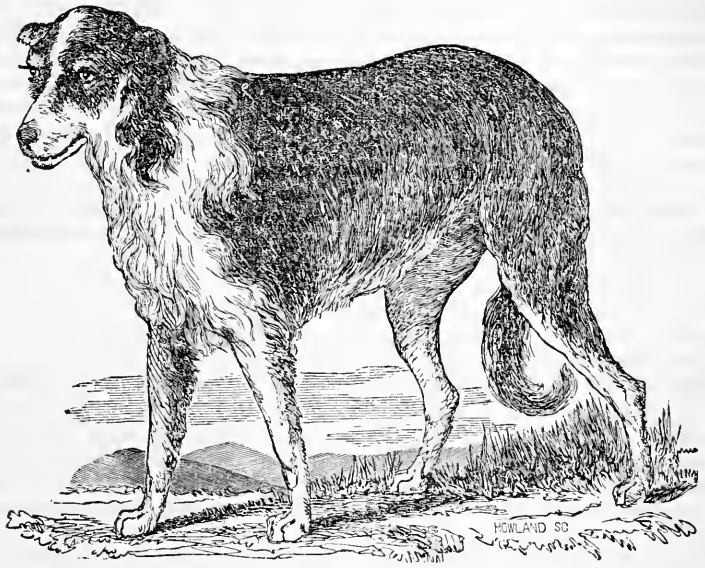
The shape is quite different from that of two large young Pyrennean sheep-dogs, sent some years since by General Lafayette to Mr. Skinner, then of Baltimore,—different as here exactly described by Col. Randall,—the latter being, though of equal weight, shorter on the leg, and of fuller body, with a mild countenance and temper, at once courageous and magnanimous, such as would lead them to spare the life of any fallen foe, except that of a sheep-killer, without expecting reproach from any brave or generous master.

The Spanish Sheep-Dog.—Of the origin of this celebrated race, I do not recollect to have seen any thing. I have observed them several times spoken of, latterly, in newspapers and agricultural publications, as the same variety as the Alpine Spaniel, or Bernardine dog. This, I think, must be an error, though there may be a general resemblance between the two species. Arrogante, on the next page, though a dog of prodigious power, decidedly lacks the massive proportions, both in body and limbs, of several Bernardine dogs, which I have seen, of unquestionable lineage. The *temper* and disposition of the two species, too, seems to me to be essentially different.

Mr. Trimmer, and various other foreign writers, speak in warm terms of

the value of the Spanish sheep-dog, for guarding the migratory flocks of that country from the attacks of wolves—staying behind to protect feeble and lagging sheep, &c. In the Memoirs of the Pennsylvania Agricultural Society, there is a communication from the well-known John Hare Powell, Esq., of Philadelphia, from which the following are extracts:—

"The first importations of Merino sheep were accompanied by some of the large and powerful dogs of Spain, possessing all the valuable characteristics of the English shepherd's dog, with sagacity, fidelity, and strength peculiar to themselves. . . Their ferocity, when aroused by any intruder, their attachment to their own flock, and devotion to their master, would, in the uncultivated parts of America, make them an acquisition of infinite value, by affording a defence against wolves, which they readily kill, and vagrant cur dogs, by which our flocks are often destroyed. The force of their instinctive attachment to sheep, and their resolution in attacking every dog which passes near to their charge, have been forcibly evinced upon my farm."



Arrogante—A Spanish Sheep-dog.

Arrogante, whose portrait is above given with admirable fidelity, was imported from Spain with a flock of Merinos, a number of years since, by a gentleman residing near Bristol, England. His subsequent owner, Francis Rotch, Esq., of this State, thus describes him in a letter to me, which, though not intended for publication, I will venture to make a few extracts from:

"I have, as you desired, made you a sketch of the Spanish sheep-dog Arrogante, and a villanous looking rascal he is. A worse countenance I hardly ever saw on a dog! His small blood-shot eyes, set close together, give him that sinister, wolfish look, which is most unattractive; but his countenance is indicative of his character. There was nothing affectionate or joyous about him. He never forgave an injury or an insult: offend him, and it was for life. I have often been struck with his resemblance to his nation. He was proud and reserved in the extreme, but not quarrelsome. Every little cur would fly out at him, as at some strange animal; and I have seen them fasten for a moment on his heavy, bushy tail, and yet he would stride on, never breaking his long, 'loping,' shambling trot. Once I saw him turn, and the retribution was awful! It was upon a large, powerful mastiff we kept as a night-guard in the Bank. He then put forth his strength, which proved tremendous! His coat hung about him in thick, loose, matted folds, dirty and uncared-for,—so that I presume a dog never got hold of any thing about him deeper than his thick, tough skin, which

was twice two large to fit him anywhere, and especially around the neck and shoulders. The only other evidence of his uncommon strength which I had observed, was the perfect ease with which he threw himself over a high wall or paling, which often drew my attention, because he seemed to me wanting in that particular physical development which we are accustomed to consider as necessary to muscular power. He was flat-chested, and flat-sided, with a somewhat long back and narrow loin. (My drawing foreshortens his length.) His neck, forearm and thigh certainly indicated strength. If the Spanish wolf and the dog ever cohabit, he most assuredly had in him such a cross; the very effluvia of the animal betrayed it. In all in which he differed from the beautiful Spanish shepherd-dog, he was wolfish both in form and habits.* But, though no parlor beauty, Arrogante was unquestionably a dog of immense value to the mountain-shepherd. Several times, he had met the large wolf of the Apennines, and without aid slain his antagonist. The shepherds who bred him said it was an affair of no doubtful issue, when he encountered a wolf single-handed. His history, after reaching England, you know."

Some portions of that history I cannot resist the temptation of narrating, as illustrative of the character of this interesting breed, and commemorative of the virtues of the stern, but honest and dauntless Arrogante. If his courage was tinctured with ferocity, and sometimes instigated by a revenge, going a little beyond the canon which permits bad debts to be paid in kind, he did every thing *openly!* He made no sneakish, cur-like attacks, on the heels of his foe. By him, as by Robin Hood and his merry men—commemorated by Drayton—

"Who struck below the knee [was] not counted then a man;"

and his spring was always at the *throat* of his quarry. But he made not that deadly spring until he gave "warning fair and true," and never without provocation.†

Soon after Arrogante's arrival in England, a ewe under his charge chanced to get cast in a ditch, during the temporary absence of the Spanish shepherd who had accompanied the flock and dog at their importation. An English shepherd, in a spirit of vaunting, insisted on relieving the fallen sheep, in preference to having the absent shepherd called, though warned by his companions to desist. The stern stranger dog met him at the gate, and also warned him with sullen growls, growing more menacing as he approached the sheep. The shepherd was a powerful and bold man, and felt that it was too late now to retract with credit. On reaching the sheep, he bent carefully forward, with his eyes on the dog, which instantly made a spring at his throat. A quick forward movement of his arm saved his throat, but the arm was so dreadfully lacerated that immediate amputation became necessary. To save the dog, which had but done his duty, *as he had been taught it*, from the popular excitement, he was shipped in a vessel which sailed that very afternoon, from Bristol for America. He was sent to Francis Rotch, Esq., then a resident of New-Bedford.

For a long time Arrogante would not pay the least attention to his new master; the voice of the latter would scarcely arrest him for a moment. After attempting, in vain, for several weeks, to obtain some recognition of mastership from him, Mr. Rotch chained him securely to a tree, punished him severely, and then, with not a few misgivings, released him. But he submitted, for he well knew that the punishment came from his master, and afterward gave a cold, haughty obedience to all required of him.

* I never have supposed, from the several conversations which I have had with Mr. Rotch on the subject, that Arrogante was any thing less than a thorough-bred Spanish shepherd-dog. Mr. Rotch here means that he was an ill-favored individual of the family—and he thinks that this *may* be owing to a bar-sinister on his escutcheon, left there by some wolfish gallant. His temper was even *less ferocious* than Mr. Powell describes that of *his* Spanish dogs.

† Was there any thing *wolf-like* in all of this?

ON THE JERSEY, MISNAMED ALDERNEY, COW.

BY COL. LE COUTEUR,

Of Belle Vue, in the Island of Jersey.

THE breed of cattle familiarly known throughout Great Britain as the Alderney, and correctly termed in the article Cattle, of the "Library of Useful Knowledge," "the crumpled horn," was originally Norman, it is conceived, as cows very similar to them in form and color are to be seen in various parts of Normandy, and Brittany also; but the difference in their milking and creaming qualities is really astonishing, the Jersey cow producing nearly double the quantity of butter.

The race is miscalled "Alderney," as far as Jersey is in question; for about seventy years since Mr. Dumaresq of St. Peter's, afterwards the chief magistrate, sent some of the best Jersey cows to his father-in-law, the then proprietor of Alderney; so that the Jersey was already at that period an improved, and superior to the Alderney, race. It has since been vastly amended in form, and generally so in various qualities, though the best of those recorded at that period gave as much milk and butter as the best may do now.

Ten years have elapsed since the attempt was first made by fixed rules to improve the form and quality of the Jersey cow. A few gentlemen, presided over by the then Lieutenant-governor, Major-General Thornton, selected two beautiful cows, with the best qualities, as models. One of these was held to be perfect in her barrel and fore-quarters; the other equally so in her hind-quarters. From these two the following points were laid down to be the rule for governing the judges in all the cattle shows of the Jersey Agricultural Society.

The accuracy of this arrangement is proved by the fact that no deviation from it has been made, the experience of ten years having only added to the scale the points for general appearance and condition.

Scale of Points for Bulls.

Art.	Points.
I.—Purity of breed on male and female sides, reputed for having produced rich and yellow butter	4
II.—Head fine and tapering, cheek small, muzzle fine and encircled with white, nostrils nigh and open, horns polished, crumpled, not too thick at the base, and tapering, tipped with black; ears small, of an orange color within, eye full and lively	8
III.—Neck fine and lightly placed on the shoulders; chest broad, barrel hooped and deep, well ribbed home to the hips	3
IV.—Back straight from the withers to the setting of the tail, at right angles to the tail. Tail fine, hanging two inches below the hock	3
V.—Hide thin and movable, mellow, well covered with soft and fine hair of a good color	3
VI.—Fore-arm large and powerful, legs short and straight, swelling and full above the knee, and fine below it	2
VII.—Hind quarters from the huckle to the point of the rump, long and well filled up; the legs not to cross behind in walking	2
VIII.—Growth	1
IX.—General appearance	2
Perfection	28

No prize shall be awarded to a bull having less than 20 points.

Scale of Points for Cows and Heifers.

Art.		Points.
I.	—Breed, on male and female sides, reputed for producing rich and yellow butter	4
II.	—Head small, fine, and tapering; eye full and lively. Muzzle fine and encircled with white; horns polished and a little crumpled, tipped with black; ears small, of an orange color within	8
III.	—Back straight from the withers to the setting of the tail; chest deep and nearly of a line with the belly	4
IV.	—Hide thin, movable, but not too loose, well covered with fine and soft hair, of good color	2
V.	—Barrel hooped and deep, well ribbed home, having but little space between the ribs and hips; tail fine, hanging two inches below the hock	4
VI.	—Fore legs straight and fine, thighs full and long, close together when viewed from behind; hind legs short, and bones rather fine; hoof small; hind legs not to cross in walking	2
VII.	—Udder full, well up behind; teats large and squarely placed, being wide apart; milk veins large and swelling	4
VIII.	—Growth	1
IX.	—General appearance	2
	Perfection for Cows	30

Two points shall be deducted from the number required for perfection on heifers, as their udder and milk veins cannot be fully developed. A heifer will therefore be considered perfect at 28 points.

No prize shall be awarded to cows, or heifers having less than 21 points.

The evil was, and still exists, that most Jersey farmers, like many others, never thought of crossing with a view to improvement, conscious of possessing a breed excellent for the production of rich milk and cream—milk so rich in some cows that it seems like what is sometimes called cream in cities—and cream so much richer that, from a verdant pasture in spring, it appears like clouted cream. But the Jersey farmer sought no further. He was content to possess an ugly, ill-formed animal with flat sides, wide between the ribs and hips, cat-hammed, narrow and high hips, with a hollow back.*

She had always possessed the head of a fawn, a soft eye, her elegant crumpled horn, small ears, yellow within, a clean neck and throat, fine bones, a fine tail; above all, a well-formed capacious udder, with large swelling milk veins.

Content with these qualities, the only question in the selection of a bull,

*Some time since, we were called on by Mr. Stetson, of the Astor House, to go with him and look at an Alderney he had just imported at a high figure. She was of white color, fine, with rich yellow skin, red ear, and crumply horn, but so much higher and better formed, so much more nearly resembling the "improved short horn," than any Alderney we had ever seen, that, not aware of the degree of improvement described and illustrated in this paper, we were half-persuaded she could not be a genuine Alderney; but if this account of the improved Alderneys be well founded, it re-establishes her claim to legitimacy. And if, in the process of the melioration of shape and properties here spoken of and exhibited, there has been no sacrifice or impairment of the milking properties peculiar to the original Alderneys, all we have to say is, that the art of animal modification has been carried to a higher point than we knew of, though such things have been with us a passionate study for thirty years.

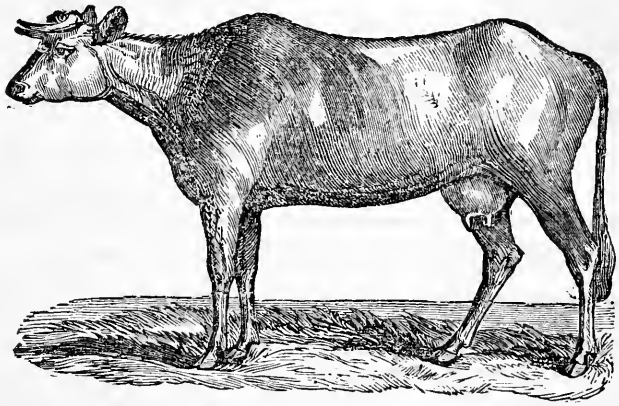
We well recollect that many years ago, there was a lot of genuine Alderneys imported in Baltimore, by the means and agency of that *then* wealthy, and *then* much courted, and always enlightened and patriotic merchant citizen, D. A. Smith. This choice herd was distributed through the neighborhood, and traces of their fine qualities for butter may yet be seen in the products of the Waverly, the Hampton, and other dairies, on the breakfast tables of the hospitable citizens of Baltimore.

The points of the improved cow in this case, were she not labelled, might be taken for an Ayrshire or short-horn in miniature.—Eds. P., L. & A.

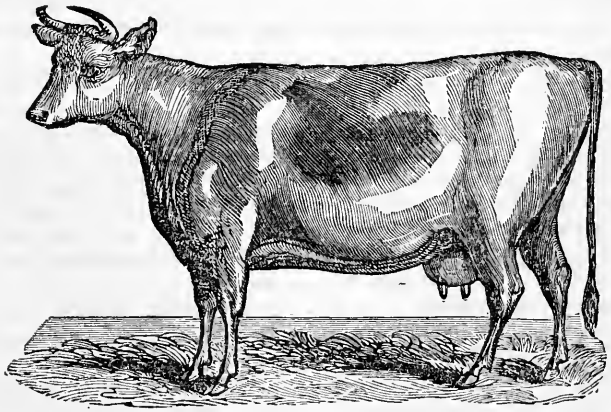
among the most judicious farmers was, "Is the breed a good one?" meaning, solely, had its progenitors been renowned for their milking and creaming qualities? But the mere attention to this was one of primary importance in a circumscribed spot like Jersey: it may have been quite sufficient to establish an hereditary superiority in the most needful quality.

It may also have established it with a rapidity that could not have been obtained in a wide-extended country like France. Hence, perhaps, the present superiority of the Jersey over the French breed.

Some idea may be given of the difference in the form of the ancient and the improved breed by the following sketches:



The Old Jersey Cow, from 1800 to 1830, still to be seen in some pastures. The following points would be taken from her:—cheek large, 1—ewe neck, 1—hollow back, 1—cat ham, 1—flat side, 1—not ribbed home, 1—hind legs crooked, 1—general appearance, 1. In all 8; these deducted from 26, the number less the pedigree, leaves 18, which was about the average number the best cows had at the formation of the Society.



1843, Portrait of "Beauty," a prize cow, 4 years old, bred by Colonel Le Couteur, at Belle Vue. She has already produced 11 lbs. Jersey, or 11 lbs. 13 oz. imp., of rich yellow butter, weekly, in May, from 19 quarts of milk daily. She was awarded 27 points, as a 2 year-old heifer.

The Jersey cow is a singularly docile and gentle animal; the male, on the contrary, is apt to become fierce after two years of age. In those bred on the heights of St. Ouen, St. Brelade, and St. Mary, there is a hardiness and sound constitution that enables them to meet even a Scotch winter without injury; those bred in the low grounds and rich pastures are of larger carcase, but are more delicate in constitution.

Of the ancient race, it was stated, perhaps with truth, that it had no tendency to fatten; indeed some cows of the old breed were so ungainly high-boned, and ragged in form, Meg Merrilies of cows, that no attempt to fatten them might succeed—the great quantities of milk and cream which they produced probably absorbing all their fattening properties.

Yet careful attention to crossing has greatly remedied this defect. By having studied the habits of a good cow with a little more tendency to fatten than others, and crossing her with a fleshy, well-conditioned bull of a race that was also known to produce quality and quantity of butter—the next generation has proved of a rounder form, with a tendency to make fat, without having lost the butyraceous nature.

Some of these improved animals have fattened so rapidly while being stall-fed, from the month of December to March, as to suffer in parturition, when both cow and calf have been lost; to prevent which it is indispensable to lower the condition of the cow, or to bleed in good time. Such animals will fatten rapidly. Their beef is excellent; the only defect being in the color of the fat, which is sometimes too yellow. It is now a fair question, whether the improved breed may not fatten as rapidly as any breed known?

Quayle, who wrote the "Agricultural Survey of Jersey," states "that the Ayrshire was a cross between the short-horned breed and the Alderney."

There is a considerable affinity between these two breeds. The writer has noticed Ayrshire cows that seemed to be of Jersey origin, but none of them were said to have produced so large a quantity of cream or butter; nor was the butter in Scotland of nearly so deep a tinge of yellow as the most rich in Jersey. One Jersey cow that produces very yellow cream will give a good color to butter produced from two cows affording a pale-colored cream.*

It is not doubted that crosses from the Jersey breed have taken place. Field-Marshal Conway, the governor of this "sequestered isle," as Horace Walpole termed it, and Lieutenant-General Andrew Gordon, who succeeded him, nearly half a century back, both sent some of the best cattle to England and Scotland. If pains were taken, the race and its consequents might be distinctly traced, which might lead to important results in breeding.

In the "Farmers' Series," at the article "The Angus Breed," a portrait of a beautiful heifer is seen; she is said to have been "out of a very small cow, with a remote dash of Guernsey blood in her." Her dead weight was estimated at 130 or 140 stones. She sold for 50*l.*, after having obtained several medals, and had been publicly exhibited.

The grand desideratum is to discover a breed that will be useful to the grazier, the dairyman, and the small farmer. In so small a spot as Jersey, it is difficult to cross the breed essentially—a great step towards it is gained by crossing the cattle bred in the low rich pastures with those of the

* The senior editor of this journal had, many years since, on a farm, near Baltimore, a single Alderney in a herd of eight cows, and well remembers, that an honest Irish dairy woman begged that *that* cow might not be sold, as her milk served to color the butter of all the rest.

exposed hills on the western or northern coast: these being smaller, finer boned, of a more hardy constitution, and feeding on a short, rich bite, impart strength of constitution and hardihood to the larger and more delicate animals of the sheltered low grounds.

It is believed that cattle are generally more healthy and free from epidemics here than in most countries. This may be attributable in some measure to the saline particles which, being so frequently in suspension over the island, are afterwards deposited on the herbage, and tend to its salubrity.* After heavy gales, it is frequently found that the grass all across the island has a strong saline flavor. So partial are cattle to this flavor, that they will greedily devour grass which has been watered with sea-water which they previously rejected. Two pipes per acre, spread from an ordinary watering-cart, or from a pipe which may be made to pour into a long deal-box perforated with holes, will be found of great utility where sea-water or salt can be obtained at small cost.

The Jersey farmer treats his cow with gentleness and care; it might be more correct to say that his wife does so. On good farms she is usually housed at night after the end of October to the end of February, if heavy rain, hail, or snow prevail. It is deemed to be healthful to give a cow a short run daily through the winter, excepting in stormy weather. At this season, which is usually several degrees warmer than in the mildest part of Devonshire, she is fed with a certain portion of straw, from 10 lbs. to 20 lbs. of hay, with about 10 lbs. to 20 lbs. of parsnips, white carrots, turnips, or mangel-wurzel.

The small portion of grass which she may pick up in the winter, with the above quantity of food, enables her to produce a rich and well-colored sample of butter till within six weeks of parturition.

At this period, which is usually regulated to take place about the month of March or April, just when the cow being in full milk may soon be placed on the fresh spring pasture in April or May, she is an object of extreme care. On calving, she is given a warm potation of cider, with a little powdered ginger. Quayle hints that pet cows are further indulged with a toast in their caudle.

The calf is taken from the cow at once, and fed by hand. It may be well to advise that, on the first occasion of calving, the calf should be allowed to draw the cow fully; for no milking by hand will so completely empty the udder, nor cause the milk-veins to swell to their full development, as will the suction of the calf.

Some of the early meadows produce rich grass in March; but the general flush of grass, which comes on generally late in April, is the period to which the Jersey farmer looks forward with anxiety. The cow is then tethered to the ground by means of a halter 5 or 6 feet long: this is appended by a ring and swivel to a chain which encircles her horns, closed by a ring and bar; the other end of the halter is fastened to a chain 6 or 8 feet long, which is connected by a swivel and ring to a stout iron stake a foot long; this is driven into the ground by means of a wooden mallet. The cow having this circular range of 12 feet or more, is compelled to eat it clean. She is usually moved thrice a day, and milked morning and evening, on many farms at midday also. Under this system, the writer has owned four cows that produced eight-and-forty pounds Jersey, or above 51 lbs. imperial,

* We believe in this from our own observation. How well young cattle thrive and grow in our own country, that are driven in spring from the forest down into the "salt water country!"—Eds. P., L. & A.

weight of rich yellow butter per week, in the month of May and part of June.

In very hot weather in July or August, it is advisable to shelter the cow from the heat and flies; otherwise these tease cows to such a degree, by forcing them to run about incessantly, that they have no time for repose or for chewing the cud; they, in consequence, afford much less milk or cream.

It was anciently thought that cream from the Jersey cow was too rich for making cheese. Mr. Le Feuvre of La Hogue, who has a fine breed of cows, tried the experiment two years since, and succeeded to admiration. It was made from the pure milk, cream and all, as it comes from the cow. It was found that the quantity of milk that would have produced a pound of butter afforded 1½ lb. of cheese.

From the quantity of milk which produced a cheese of 20 lbs. weight, the *drainings* of the curds and whey, on being churned, yielded 4 lbs. of butter. This butter was of an inferior quality when eaten with bread, but was superior to any other for the making of pastry; it was peculiarly hard, and of excellent texture for such use in hot weather. The writer has tasted cheeses from Mr. Le Feuvre's farm, quite equal in quality to the richest double-Glo'ster.

On one or two farms besides General Fouzel's, butter is made from clouted cream in the Devonshire mode; but as this is not peculiar to Jersey, it is not noticed further than that 10 lbs. of butter are usually made in five minutes by this process. The usual way of procuring the cream is by placing the milk in pans about six inches deep—the glazed shallow earthenware having taken place of the unglazed deep vessels.

It is admitted that the richest milk and cream are produced by cows whose ears have a yellow or orange color within. Some of the best cows give 26 quarts of milk in twenty-four hours, and 14 lbs. of butter from such milk in one week. Such are rare. Good cows afford 20 quarts of milk daily, and 10 lbs. of butter weekly, in the spring and summer months. Butter is made every second and third day.

Lactometers indicate the degrees of richness, or cream, which the milk of any cow affords, with great nicety. This varies with different food. The mode is to fill the lactometer up to zero with the first milk that is drawn from the cow in the morning; then, when the udder is nearly emptied, to fill a second lactometer with the residue of the milk, throwing a little out of the lactometer, to refill it to zero with the very last drops which can be drawn from the cow: these will be nearly all cream. The lactometer filled with the first milking may only indicate 4 degrees of cream, while that filled with the last milking may indicate 40 degrees of cream. Then, by dividing the sum total, 44, by 2, we have 22 degrees of cream, which a very good cow will produce; others so little as 10 or 15.

Jersey butter, made when the cows are partially fed on parsnips, or white carrots and grass, in September and October, when salted and potted will keep till the following spring, preserving as well as Irish butter, with a much less rank flavor.

The present price of the best Jersey cows, including points and quality, is from 20*l.* to 30*l.*; and up to 20*l.* is given for the best heifers. Yearling bulls, of the best breed and points, from 10*l.* to 15*l.*

MISCELLANEOUS SCRAPS.

The Hatching of the Eggs of Poultry.—The following table will show that there is a great difference in the period of hatching, according to the mother bird employed, and other circumstances.

Eggs of the	Period of incubation. Shortest.	Mean.	Longest.
Hen hatched by a turkey	17	24	28
Duck do. do.	24	27	30
Turkey do. do.	24	26	30
Duck hatched by a hen.	26	30	34
Hen do. do.	19	21	24
Duck do. do.	28	30	32
Goose do. do.	27	30	33
Pigeon do. do.	16	18	20

Composition of Butter.—Butter, says Dr. Thomson, contains, as usually obtained, foreign matter, consisting of water, and curd or casein. One hundred parts of butter produce

Casein	0.94
Oil	86.27
Water	12.79

To the casein and water is owing the *tainting* of butter. To render butter capable of being kept for any length of time in a fresh condition—that is, as a pure solid oil—all that is necessary is to boil it in a pan till the water is removed, which is marked by the cessation of violent ebullition. By allowing the liquid oil to stand for a little, the curd subsides, and the oil may then be poured off or it may be strained through calico or muslin into a bottle and corked up. Bottled butter will thus keep for any length of time.

Transit of Live-Stock.—[One could wish that the Statistical Society of Philadelphia would cause inquiry to be made as to the expense of live-stock travelling on the great thoroughfares to this city: similar to the following which we find in an English paper.] On an average three fat bullocks weigh one ton. On the road a fat bullock travels on the average 15 miles in one day, costing per day 1*s.* or ¾*d.* per mile. About 5¼ lean bullocks weigh one ton; these travel from 15 to 20 miles per day, say 17 miles, costing on an average of seasons 3*s.* 6*d.* per 100 miles, say ½*d.* per mile. On an average there are four ordinary horses to a ton: travelling on the road from 14 to 20 miles per day, say on an average 17 miles, costing per day 4*s.*, or say per mile 2·9*d.* Twenty fat sheep weigh on average a ton: on a road they travel about 11 miles per day, costing say per score (this differs, however, very materially, according to season and locality) 6*d.*, or per mile about ½*d.* Sixteen pigs on an average weigh a ton: they travel on the common road about 21 miles a day, costing per score about 9*d.*, or per mile per score ¾*d.*—*Jour. Stat. Soc.*, vol. 9, p. 113.

Salt.—For sixteen years after I came to this farm I was every year more or less subjected to great loss by the cob-worm or grub, particularly the oat crop after lea or grass land of one year old; and being now on this farm upwards of thirty years, I have made use of salt for these seventeen years bygone, at the rate of two to three cwt. per acre, which only costs from 4*s.* to 5*s.* per acre, and not one cob or grub has, during that long period, set its face in one field of this farm; and this year, although many of my neighbors round about me have suffered most severely from the cob, the fields on this farm are as free from it as if there was no cob in the country. I may mention that I sow the salt broadcast eight to ten days before sowing the oats.—*R. K., Finglassie.—Gardeners' Chronicle.*

[We have understood that salt has been used with very decidedly good effects, on a considerable scale, applied to the turnip crop, by Mr. George Williamson near Baltimore, and would like to know the particulars, both as to the time and mode of application, the result, and particularly the cost!—Ed.]

Experiments on Depths of Sowing.—Oct. 23—Planted, at 3 inches distance, 16 seeds of wheat, taken from one fine ear. Two were deposited at exactly 1 inch deep: two at 2 inches deep; two at 3 inches deep; two at 4 inches deep; two at 5 inches deep; two at 6 inches deep; two at 7 inches deep; and two at 8 inches deep. The land was in good heart, and finely pulverised or meliorated 1 foot deep, on purpose for the experiment; the situation facing the south, and in the middle of an open field. At harvest, the result was as follows, viz.:—Those deposited at one inch deep were almost turned out of the ground, had tillered very little, and the ears were few, and the grain lean. Ditto deposited at 2 inches, tillered largely, and stood upright on the ground, were well filled, and excellent grain. Ditto deposited at 3 inches deep, tillered more largely, and had stronger straw and larger ears, ripened well and seasonably. Ditto deposited at 4 inches, nearly the same. Ditto deposited at 5 inches, did not tiller so much as those deposited at 4 inches, neither did they produce such strong stalks, nor so much grain. Ditto deposited at 6 inches deep, tillered less, and did not ripen so well as the above. Ditto deposited at 7, produced only one stalk; it shrivelled to nothing before midsummer. Ditto deposited at 8 inches deep, never came above ground. The result of this experiment, and a variety of others, made at different times on different seeds, and in different soils, the particulars of which I shall not here trouble you with, give me reason to conclude, that from 2 inches deep to 5 is the

greatest latitude which this operation admits of. The lightest soils and driest seasons require the greatest depths to be used; and wheat, of all the grains, admits of being deposited deepest. When the soil has been lately broke up, and rich, or is a very fine sandy loam, &c., full of manure, (and withal a dry seed time,) I have found 4 inches the best depth; but, in general, 3 inches, in my experiments, has answered best.—*Clarke's Theory of Husbandry*, 1781.

Westphalia Hams.—The following compound will give to any common ham the taste so much appreciated in that sold as Westphalia; and is recommended to them who prefer that flavor. In one hundred parts of water dissolve four parts of salt, two parts of brown sugar, one part Barbadoes tar, and one part spirits of wine. After it has been well mixed and stood for several days, three table-spoonfuls may be mixed with the salt necessary to cure an ordinary ham.—*English paper.*

[Talk as we may of Westphalia hams, but give us the *pea-fed* ham, such as are reared and fattened on Georgia or cow-peas in North Carolina. We have always stickled for *corn-fed* pork, but that was, with the mind's eye, on the still-fed hog of the west, and the slop-fed or dairy and pumpkin-fed hog of the Eastern States.

We were lately honored with a present of a barrel of hams, esteemed the higher as they came from a gentleman to whom we are personally a stranger—we expect to have a particular account of the breed of the hogs, the fattening and curing process, &c. In the mean time, we must not delay to say, that the jury (and a *Maryland* jury at that) pronounced the only one yet put on trial, fully equal to the best ham they had ever seen or tasted. The hog had been almost entirely fattened on peas. Let the reader conceive every requisite of excellence, and the unanimous verdict of the jury was, they were all combined in this ham.

To sum up all in a few words, it was equal to a Montgomery county Maryland ham, from among the Waters, the Stablers, and the Brooks, and other *Friends!*—Ed.]

Can't be Beat.—Our quondam friend, Dr. *Bayne*, will not be outdone in raising fruit. On Wednesday he sent us a quantity of his unequalled Strawberries. Some of them measured upwards of 4½ inches, and the doctor writes us that he gathered on Monday morning 330 quarts, and could have pulled 100 more. The berry has not, he says, been so large with him this season as usual, owing to protracted ill-health preventing him giving his personal attention to his horticultural operations. We are glad to learn that his health is much improved. The lot of Cherries sent by him excelled any we have ever seen.—*Marlbro' Gazette.*

[What does friend Wilson mean by his *quondam* friend *Dr. Bayne?* We hope the doctor is still living, and that his friendship survives for Mr. W., as was in fact most agreeably demonstrated by the present above mentioned. The doctor's merit is not so much in the excellence of his horticultural productions, remarkable as that is, but in the *value of his example*, in a region where it stands out in bold relief, by the *force of contrast.*

When such men as Dr. Bayne come to be respected and honored in *just proportion* to the beneficent tendency of their tastes and their labors, we may begin to hope that agricultural societies will desire to make their shows attractive, rather by an advertisement and an exhibition of red *beets*, or red *cows*, than—*red collars!*—Ed.]

Harvesting Carts: saving of Animal Labor.—Considerable discussion has, to this end, recently taken place, as to the superior economy of employing, on many farms, one-horse carts in preference to wagons. Mr. E. Loomes finds that a one-horse cart is capable of carrying much more than one-half of what can be carried on a two-horse wagon; or (*Jour. R. A. S.*, vol. vi., p. 398)—

One-horse cart.	Two-horse wagon.
Wheat sheaves 172	Wheat sheaves 207
Corn, cake, &c. 25 cwt.	Corn, cake, &c. 45 cwt.
Bones - - - 60 bush.	Bones - - - 100 bush.

In *dung carting*, *one*-horse carts appear to have a decided advantage. Mr. Love has given a table of the economy of both *one* and *two*-horse carts (*Jour. R. A. S.*, vol. 7, p. 225.) In this, each boy driving is counted as the fourth of a man tipping. A man is reckoned at 2*s.*, and each horse 3*s.*, per day of nine hours.

	One-horse carts.	Two-horse carts.	One-horse carts.	Two-horse carts.
Distance in furlongs - -	3	3	3	3
Time of travelling a revolution - - - - - -	15	15	15	15
Number of horses - - -	3	3	5	5
Number of carts - - -	3	2	5	3
Men filling the carts - -	2	2	4	4
Time of filling - - - -	10	15	5	7½
Men tipping and driving	1½	1	1½	1½
Time of tipping - - - -	5	7½	5	7½
Total time to each revolution - - - - -	30	37½	25	30
Number of loads drawn	54	29	108	54
Number of yards drawn	54	43½	108	81
	s. d.	*s. d.*	*s. d.*	*s. d.*
Expense of horses - -	9 0	9 0	15 0	15 0
Expense of men - - -	6 6	6 0	11 6	10 6
Total day's expenses - -	15 6	15 0	26 6	25 6
Expense of carting 30 yards - - - - - - -	8 7	10 2¾	7 4¼	9 5
Saving by one-horse carts, per acre - - - - -	1 7¾	—	2 0¾	—

Indian Corn, &c.—The following table gives the amount of nutritive matters contained in 100 lbs. of various cultivated crops (J. F. Johnston's Elements of Chem., p. 227):—

	Starch, Gum, and Sugar.	Gluten, Albumen, & Casein.	Oil.
Indian corn	70	12	5 to 9
Oats	65	18	5 to 8
Barley	60	12	2½
Rye	60	14½	
Wheat-flour	55	15	2 to 4
Peas	50	24	2½ to 3
Beans	40	28	2½ to 3
Potatoes	12	2¾	¼
Turnips	10	1¼	¼

Cutting the Flowers off Spring Bulbs.—Can you decide this point between my gardener and myself? There is a notion that cutting the flowers off spring bulbs, such as Hyacinths, Narcissus, Crown Imperials, Scillas, &c., prevents their forming good bloom in the year following, but tends to the formation of offsets; what is your opinion? or what is the experience of your correspondents on this matter? I think in Holland there is a prejudice against cutting the flowers of bulbs.—*Dodman.* [It will in all probability have the effect of causing an excessive production of offsets.]

A Cotton Factory in the South.—The Pensacola Gazette describes the Arcadia Cotton Factory, which is now in successful operation. It is worked entirely by slave labor, runs twenty-four looms, and turns out 1000 yards of cotton a day.

[Now is it not obvious that in this case the social proximity of the plough and the loom is mutually advantageous. May not the planter, the manufacturer, and the consumer of the produce of both, divide among them the expenses for freight, commissions, transportation, &c., by land and water, that would be incidental to sending this same cotton to Manchester to be spun and wove by men and women, who never, except in case of extreme scarcity or famine, would consume the products of the American plough, or orchard, or dairy, or garden?

The ink is hardly dry with which we expressed our surprise that the obvious fitness of Montgomery, Alabama, for the establishment of cotton manufactories was not availed of—and here we see that the suggestion has been anticipated.—Ed.]

We learn from the Montgomery Journal that Messrs. J. S. Winter & Co. have nearly ready at that place an extensive establishment for manufacturing purposes. It is their intention to combine several important branches of manufactures, including woollen and mixed goods—something which is entirely new in Alabama.

Horticultural Exhibition.—There was a fine display of the productions of the greenhouse and conservatory at Horticultural Hall, Boston, on Saturday morning. Pot plants of fine growth and rare kinds were exhibited by Messrs. Wilder, Hovey & Co., Bowditch, Col. Perkins, by Mr. Quant, O. H. Mathers, Warren, Nugent, Miss Russell, Miss Kenrick, Barns, and others; and cut flowers of open culture by Messrs. Breck & Co., Richards, Copeland, &c. The pot plants were Pelargoniums, Ericas, Cactus, Fuchsias, Stocks, Lilies, Azeleas, Cinerarias, Roses, &c., and many well-grown specimens were on exhibition. The hall was rendered odorous with the fragrance of the flowers.

[There is not in the Union a town nor a village, where such exhibitions might not be made, without detracting one iota from the profitable industry of the inhabitants; nor one where such exhibitions could fail to improve the character and even the value of the property of the citizens. How easy would it be for half a dozen ladies and gentlemen in all our country villages, to put this ball in motion! Why do not the resident clergy encourage, as they might, the cultivation of flowers and the establishment of horticultural societies, and a taste for natural history generally among their flocks. A taste for such studies and pursuits would greatly aid them in banishing gaming tables and the use of the bottle!—Ed.]

Bones for Grape Vines.—Much has been said respecting the advantage and disadvantages of mixing bones (unbroken) with the soil in which Vines are planted; the following has been my experience. Two years ago I planted my Vines and Orange trees upon a quantity of bones (the bones of horses and cows.) The border in which they were planted was thoroughly well made, the soil excellent, with good drainage. The plants never flourished, and at length they appeared in a dying state. I have just taken some of them up; I found every part of the roots which had come in contact with the bones completely decayed, and the roots were covered with an offensive white powder, which was also attached to the bones. I have no doubt that if the plants had remained much longer in the vicinity of these bones, they would have died.—*A Subscriber, April* 27.

Nitrate of Soda.—A steady demand is kept up in England for this article, and full prices paid for the use of it *as manure.* By the last accounts, the market was firm at 14*s.* 3*d.* to 14*s.* 6*d.* per hundred pounds. For *Guano,* the demand kept pace with the supply, and this after very extensive use and ample experience of its cost and results. In prices there is not much variation; Peruvian, 9*l.* to 9*l.* 10*s.*; Patagonian, 5*l.* to 7*l.*; Saldanaha Bay, 5*l.*; Egyptian, 8*l.*; Ichaboe, 8*l.* per ton.

READINGS FOR MOTHERS AND CHILDREN.

If there be, according to our observation, any one thing more than another lamentable in rural domestic habits and management in our country, it is the too general failure on the part of the father and master of the household to provide an adequate stock of fresh and suitable reading for the different members of his family, such as blends amusement with more or less instruction.

If it were not so notorious, and so almost universal, one might be tempted to ask, whether it be possible that thousands of gentlemen in the country make no regular provision for a systematic and constant supply of refreshing and healthful food for the mental, as well as the physical, wants of their wives and children—as if one were not as indispensable and as obligatory as the other? The Bible, the almanac, some old stereotyped school-books, and a few old musty volumes, that chance may have saved from the "wreck of ages," in too many cases, constitute the entire library of a man, with an hundred or more acres of land, out of debt, and independent and well to do in the world—his own reading consisting too frequently and chiefly in an *eager perusal* of his party *newspaper*, that he may the better judge of the chances for and against those for whom he has been told he must vote. Oh that farmers and planters, of all parties, would learn to think for themselves, and measure out their support of men by their success in honest, useful pursuits, and by their capacity and determination to understand and support the *landed interest of the country;* for, when *that* is best provided for in the policy of the government, all other interests are cared for; so true is it, that all, when well understood, will be found hanging together like a bunch of crabs that cannot be rudely separated, without maiming and injury to some material part of the concern. But the point on which we meant to teach and argue in favor of thorough reform, is the failure to keep up for the mother and the children the means of a constant accession of knowledge, useful and appropriate, by means of entertaining and instructive reading.

As far as that may be done in a portion of one periodical, dedicated mainly to the staple interests and pursuits of the master over all, we shall endeavor to accomplish it in "The Plough, the Loom, and the Anvil," under the heading we have chosen for this portion of each number, to wit:—"Readings for Mothers and Children;" and here we may repeat, that, in our humble judgment, those who have undertaken to address themselves to housewives and mothers, have been too much disposed to regard them rather in the light of upper servants, who only need to be taught in the round of the coarser household and culinary offices, than as our intellectual partners, placed in positions of the highest moral responsibility; for is it not on them that devolves chiefly the task of amusing as well as instructing all the younger members of the family, at the very time of life that they are most curious to learn, and most susceptible of moral impressions? And is it not the height of injustice—nay, is it not cruel to expect the mother to discharge this high and exalted trust, and yet withhold from her all the means of its performance? To what nobler distinction can a mother aspire, than to have the eloquent and discerning biographer, when a son rises to eminence among men, attribute his renown, in good measure, to *maternal influence!* What better omen for the son than respectful attention to the teachings of the mother! but how can she teach, to whom the means of teaching, and, perhaps, the blessing of a good education for herself, has been denied? "The child of seven years," (says Professor Everett, in his admirable "Eulogy on the Life and Character of John Quincy Adams,") "who reads a serious book with fondness, *from his desire to oblige his mother*, has entered the high road of usefulness and honor."

Little did the mother of the departed sage of Quincy, probably, dream at the time of the posthumous honor she was earning, to have it written of her, and delivered before the whole body of the representatives of Massachusetts, in funeral and solemn assembly convened, and that by one of the first and most distinguished scholars of the age:—

"And here I may be permitted to pause for a moment, to pay a well-deserved tribute of respect to the memory of the excellent mother, to whose instructions so much of the subsequent eminence of the son is due. No brighter example exists of auspicious maternal influence, in forming the character of a great and good man. Her letters to him, some of which have been preserved and given to the world, might almost be called a manual of a wise mother's advice.

The following passage from one of her published letters, written when her son was seven years old, will show how the minds of children were formed in the revolutionary period. 'I have taken,' she says, 'a very great fondness for reading Rollin's Ancient History since you left me. I am determined to go through with it, if possible, in these days of my solitude. I find great pleasure and entertainment from it, and have persuaded Johnny to read a page or two every day, and hope he will, *from his desire to oblige me*, entertain a fondness for it.' In that one phrase lies all the philosophy of education. The child of seven years old, who reads a serious book with fondness, from his desire to oblige his mother, has entered the high road of usefulness and honor."

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"The counsels of the faithful and affectionate mother followed him beyond the sea. In one of the admirable letters to which I have referred, written during the visit to France, she says:—'Let me enjoin it upon you to attend constantly and steadfastly to the instructions of your father, as you value the happiness of your mother, and your own welfare. His care and attention to you render many things unnecessary for me to write, which I might otherwise do. But the inadvertency and heedlessness of youth require line upon line and precept upon precept, and, when enforced by the joint efforts of both parents, will, I hope, have a due influence upon your conduct; for, dear as you are to me, I would much rather you should have found your grave in the ocean you have crossed, or that an untimely death should crop you in your infant years, than see you an immoral, profligate, or graceless child.'"

In supplying this department of our journal, far from confining ourselves to recipes for killing vermin, and compounding soap and sausages, we shall better indicate our views of the studies and the duties that become the mother and the children of every household, by the latitude of choice we shall exercise in the selection of topics for their department of our journal. These will embrace moral essays, the more useful and refined branches of horticulture, with sketches of natural history, biography, &c. We hold it to be impossible for any one to read a work on natural history, such as the Rev. Gilbert White's Natural History of Selborne, Gleanings by Edward Jesse, &c., without reflecting how many *facts* come within the personal observation of every boy who leads an active life in the country, that if *noted down* would serve to throw light on the natural history and habits of animals, birds, &c. It cannot fail to strike the mind of every elderly reader—what an accumulation of such facts he might have stored up in his own days of giddy and thoughtless youth, if he could have imagined to what account such things might be turned in the hands of amiable and accomplished naturalists, such as those to whom we have referred. Let then, all parents who perceive the justness of what we have said, place, as they may at very trifling cost, in the way of their children, books that will entertain and inspire them with a habit of extracting something interesting from every thing that lies on the way-side to their snares and traps, to their fishing grounds, or on that saddest of all roads, the one that *leads to the country school-house.*

Another inducement to the prosecution of this study, (natural history,) says the amiable and pious Jesse, "is the added pleasure which it gives to every hour we pass in the country, to every walk, and to every ride, whether alone or in society. An incurious person has, as it were, his eyes closed to the animal world around him, while an attentive observer, and a lover of nature, has his time and his thoughts delightfully occupied in the contemplation of every insect which crosses his path, and of every bird which he sees near him. He endeavors to find in them something heretofore unnoticed, he admires the beautiful symmetry and elegance of their appearance, and he studies their different manners and modes of living.

"It is a study not only delightful in itself, but tending to promote good and kind feelings, and to raise our affections to that Being by whose infinite power and wisdom all things were made. Indeed, the more minutely we search into the history, habits, and economy of birds, animals, and insects, the more reason shall we have to admire the ineffable wisdom of the Creator, in the order and harmony, the utility and beauty, which are apparent throughout the entire range of animal life."

How deeply then is it to be lamented that to the millions of young people growing up in the country, so many sources of intellectual enjoyment, such inexhaustible stores of knowledge, and of pleasure, should be closed for want of that key to unlock them, which would be placed in their hands, by *education even a little improved!*

But let us forbear vain regrets, and essay something towards that reform, to which the humblest mind animated by an earnest will may contribute something; begging the reader to be persuaded how true it is that

> "Who studies nature's laws,
> Sincerest pleasure from the country draws;
> And while the arts his friendly aid receive,
> For him, and him alone, does nature live."

STUDY OF NATURE.

"There are still in thee,
Instructive Book of Nature! many leaves
Which yet no mortal has perused."

To note the habits, instincts, and peculiarities of the animal creation has long been a favourite pursuit with me. It is a study, not only delightful in itself, but tending to promote good and kind feelings, and to raise our affections to that Being by whose infinite power and wisdom all things were made. Indeed, the more minutely we search into the history, habits, and economy of birds, animals, and insects, the more reason shall we have to admire the ineffable wisdom of the Creator, in the order and harmony, the utility and beauty, which are apparent throughout the entire range of animal life. We are led to see that from the most stupendous to the most minute things in nature, all are appointed for some good end and purpose, and that "Deity is as conspicuous in the structure of a fly's wing, as in the bright globe of the sun itself." The following passage from Derham's Physico-Theology is both delightful and instructive. Speaking of the formation of insects, he says, "It is an amazing thing to reflect upon the surprising minuteness, art, and curiosity, of the joints, muscles, tendons, and nerves necessary to perform all the motions of the legs, the wings, and every other part: and all these things concur in minute animals, even in the smallest mite and animalcule; and having named these animals, why should I mention only one part of their bodies, when we have in that little compass a whole and complete body, as exquisitely formed, and (as far as our scrutiny can possibly reach) as neatly adorned, as the largest animals? Let us consider that there we have eyes, a brain, a mouth, a stomach, entrails, and every other part of an animal body, as well as legs and feet, and that all those parts have each of them their necessary apparatus of nerves, of various muscles, and of every other part that other insects have, and that all is covered and guarded with a well-made tegument, beset with bristles and adorned with neat imbrications, and many other fineries."

It appears impossible that any attentive observer of this exquisite workmanship should not be compelled to acknowledge that it is produced by, and is worthy of, a great, all-powerful, and benevolent Creator, who had some good and wise purpose in every thing he did: and, surely, when this conviction is once firmly impressed upon the mind, it will find infinite pleasure and gratification in searching out the works of Nature; and the further these inquiries are carried, the more shall we be led to acknowlege that "*the hand which made them is divine.*"

Another inducement to the prosecution of this study, is the added pleasure which it gives to every hour we pass in the country, to every walk and to every ride, whether alone or in society. An incurious person has, as it were, his eyes closed to the animal world around him; while an attentive observer, and a lover of Nature, has his time and his thoughts delightfully occupied in the contemplation of every insect which crosses his path, and of every bird which he sees near him. He endeavors to find in them something heretofore unnoticed, he admires the beautiful symmetry and elegance of their appearance, and he studies their different manners and mode of living. It is the object of the following pages, to give the youthful mind an early bias to contemplations and inquiries such as these; which, I am convinced, will be found conducive not only to health and cheerfulness of spirits, but also to the purifying and the elevating of the *mind*.

ORDER OF PROVIDENCE.

Animals which prowl, or move about much in the dark, are furnished with projecting hairs or whiskers from the upper lips, which guide them in their passage through holes or narrow openings in hedges. These hairs serve as *feelers*, and are of such a length, that the body of the animal will pass through an opening which these projecting hairs just touch on either side. They are very sensitive, and if they are ever so slightly touched while the animal sleeps, it is instantly aware of it. Hares very often make their runs or mews between two strong upright sticks in a hedge which will just allow them to pass through, without being sufficiently large to admit the passage of a dog, should it be in pursuit. This is a very extraordinary instinct, and shows a great foresight of danger. In passing through such a passage at night, these *feelers* must be of great service to the animal, who without them would probably run against objects which might injure it. Horses have these strong hairs both on the upper and lower

lips, but with them they are designed for another use; probably that of keeping flies and insects from annoying them by getting into their nostrils while they are grazing. They are sufficiently close together for that purpose; and, moving as they do while the horse is feeding, serve to brush away any thing offensive. Some animals are not furnished in this manner, but then they have some other means of protection from a similar annoyance. The elephant, for instance, has a sort of valve placed at the extremity of his proboscis, which he carefully closes when he is not using it, to prevent any thing getting up his trunk which might injure him. His eyes are small: but, if they were in proportion to his size, he could not, with his peculiar formation, protect them so readily from injury in countries where insects are very formidable. He is, however, furnished with large pendent ears, which serve him as *flappers* to protect his head from flies. Indeed, there are few, if any, animals, which are not provided with sufficient means to guard themselves from injuries from those creatures who may annoy but do not prey upon them. They have also some instinctive or actual properties, which enable them in some degree to secure themselves against the attacks of stronger animals, who in their turn, in order to obtain their food, are obliged to use great watchfulness as well as strength. We see this in every gradation in the animal world, and it is a striking instance of that order in nature which serves to keep up a due proportion of each created thing, without suffering any one species to be exterminated. This would be the case if too much facility were afforded to predatory animals of securing the weaker ones whenever they pleased. A lion or a tiger has to wait long in ambush, and to exert much patience and watchfulness, before it can find an opportunity of springing upon its prey. This is the case with the cat, fox, and some other animals, and occurs also amongst amphibia and even insects. What is wanting in swiftness is made up in cunning; so that, in some cases, even a semblance of death is put on for the purpose of securing food more readily.

I have entered into these remarks, because I have always considered the subject worthy of attention. How much would our actual enjoyment and comforts in this world be diminished if any one of the various species of quadrupeds, birds, or insects, which we see about us, were suffered to increase in too great a proportion! We can hardly form a calculation of the greatness of the evil either to ourselves or to other created beings. At present, however, every thing is most beautifully ordered and arranged, and no one species predominates disadvantageously over another. Those which are most useful to man multiply in a much greater proportion than others which are noxious. But even the latter have their appointed use, and in the hands of a superintending Deity are made instruments of good. To a contemplative mind it is often a fearful consideration to reflect on the various modes of existence, and the different bodies wherein it has pleased God to cause life to dwell: many of which are subjected to great sufferings, and especially from one part of the creation preying upon another. What, however, many have brought forward as an argument of the want of mercy and justice in the Almighty is, on the contrary, a proof of his goodness and benevolence.

The means which Nature takes to secure every race from becoming extinct is to produce them in superabundance. The only way, therefore, of preventing them from overrunning the earth is to produce enemies who shall prey upon and keep them within due limits. These different races, unless they were killed by their enemies, would increase beyond the supply of their food, so that the ordinary course of death amongst them would be the most painful one that can be imagined, namely, starvation. The real effect, therefore, of what may appear a disorder and cruelty in Nature, is, in point of fact, mercy; as the individuals are taken off by a sudden death in the height of their vigor, instead of being subject to a lingering and protracted one, which a want of food must have occasioned.

"How admirable are the works of God! how excellent the operations of his hands!

"I consider plants and animals; four-footed beasts, and creeping things;

"In all was manifested infinite wisdom, and an excellent workmanship that I could not comprehend.

"Yet so much was made known unto me, as declared the power and goodness of God; and the continued agency of the Great Creator, and Lord of all things.

"Wherefore have we eyes to see? and hearts that we may know and understand?

"O Lord, make me to contemplate thy glorious works: and that which I know not, teach thou me!"

It has been justly remarked that there is nothing done by men worthy of commendation, but God has imprinted some imitation of it even in brutes and insects. We see this in various instances. Beavers are not only an example of great industry, but the manner in which they perform their operations in making their dams or embankments according to existing circumstances, in a way which one would almost have thought mere

instinct could not have taught them, proves them to be possessed of a faculty which might be considered as only belonging to man. If we want instances of fidelity, attachment, and sagacity, we have them in the dog; and all that we know of the elephant proves him to be capable of imitating some of the best faculties which are found in rational beings. His trunk serves him instead of a hand, and with that member, added to the great share of sense and docility with which he is endowed, he is capable of performing various actions, which man, in a state of ignorance and barbarism, would not have attempted. If we want to see beautiful architecture, we should watch the operations of the bee and other insects; and the weaver might take a lesson from the web of a spider. The persevering industry of the ant has been held up to us for imitation, not only by Solomon, but by the ancient poets.

"Magni formica laboris,
Ore trahit quodcunque potest, atque addit acervo
Quem struit, haud ignara ac non incauta futuri."
HORACE.

"As the small ant, for she instructs the man,
And preaches labor, gathers all she can,
And brings it to increase her heap at home,
Against the winter, which she knows will come."
CREECH.

Pope has beautifully expressed these thoughts in his Essay on Man:—

"Thus, then, to man the voice of Nature spake—
Go, from the creatures thy instruction take;
Learn from the birds what food the thickets yield;
Learn from the beasts the physic of the field;
Thy arts of building from the bee receive;
Learn of the mole to plough, the worm to weave;
Learn of the little nautilus to sail,
Spread the thin oar, and catch the driving gale."

LANGUAGE OF INSECTS.

My bees are a constant source of amusement to me; and the more I study them, the more I am led to admire their wonderful instinct and sagacity. Few things, however, surprise me more than the power which they possess of communicating what I can only call "intelligence" to each other. This I observe to be almost invariably the case before they swarm. Some scouts may then be observed to leave the hive, and for a time to hover round a particular bush or branch of a tree, after which they return to the hive. In a little while the new swarm quits it, and settles on the branch which had been previously fixed upon by the explorers. The same power of communication may be observed in the ant. I have often put a small green caterpillar near an ant's nest: it is immediately seized by one of the ants, which, after several ineffectual efforts to drag it to its nest, will quit it, go up to another ant, and they will appear to hold a conversation together by means of their antennæ; after which they will return together to the caterpillar, and, by their united efforts, drag it where they wish to deposit it.

I have also frequently observed two ants meeting on the path across a gravel-walk, one going from, and the other returning to the nest. They will stop, touch each other's antennæ, and appear to hold a conversation; and I could almost fancy that one was communicating to the other the best place for foraging: this Dr. Franklin thought they have the power of doing, from the following circumstance. Upon discovering a number of ants regaling themselves with some treacle in one of his cupboards, he put them to the rout, and then suspended the pot of treacle by a string from the ceiling. He imagined that he had put the whole army to flight, but was surprised to see a single ant quit the pot, climb up the string, cross the ceiling, and regain its nest. In less than half an hour several of its companions sallied forth, traversed the ceiling, and reached the depository, which they constantly revisited until the whole of its contents was consumed.

Huber says, "that Nature has given to ants a language of communication by the contact of their antennæ; and that, with these organs, they are enabled to render mutual assistance in their labors and in their dangers; discover again their route when they have lost it, and make each other acquainted with their necessities. We see, then," he adds, "that insects which live in society are in possession of a language; and in consequence of enjoying a language in common with us, although of an inferior degree, have they not greater importance in our eyes, and do they not embellish the very spectacle of the universe?"

What I have said respecting the power of communicating intelligence to each other, possessed by bees and ants, applies also to wasps. If a single wasp discovers a deposit of honey or other food, he will return to his nest and impart the good news to his companions, who will sally forth in great numbers to partake of the fare which has been discovered for them. It is, therefore, I think, sufficiently clear that these insects have what Huber calls an "antennal language,"—a language, we can have no doubt, that is perfectly suited to them,—adding, we know not how much, to their happiness and

enjoyments, and furnishing another proof that there is a God,—almighty, all-wise, and all-good,—who has "ornamented the universe" with so many objects of delightful contemplation, that we may see him in all his works, and learn, not only to fear him for his power, but to love him for the care which he takes of us, and all his created beings.

LOVE OF FLOWERS.

Why should we dwell on this elegant resource, for the cultivation of which the rural residence would seem to offer peculiar if not exclusive facilities, were it not to deplore the fact, as we have often done, that in our country the pursuit of the "almighty dollar," and the habitual restlessness and anticipation of change that seem to characterize our people, would appear to forbid encouragement of tastes that every one admits to be at once the signs and the promoters of civilization.

If anywhere more than another in the United States, the population is more stable and more cultivated, it is in Boston—

> "Where mortals dare
> To vanquish nature, and correct the air."

And there it is that we see the cultivation of fruits and flowers carried to the highest perfection. For this high honor, the community is indebted to a more diffusive and a higher grade of education; and, availing of that, to the enlightened exertions and beneficent influence of the Horticultural Society of Massachusetts, animated and directed by such men as Dearborn and Marshall. Strange, and lamentable as strange, however, it must be admitted, that in many parts of our country, there exists in the *towns* more of this evidence of refinement which flowers afford, *than in the country*. In many of our cities may be seen a greater variety of shrubbery and flowers, on little spaces of a few square feet, than is to be found on thousands of farms of several hundred acres, and that too where there are—what we would hardly infer—ladies in the farm houses! How much to be deplored, that daughters should be reared without any cultivation of a taste at once so natural and so chaste—that they should be brought up with a feeling of insensibility to the very "smiles of God," as flowers have been aptly called.

Among other of the nameless charms which are said to characterize and render so bewitching the women, even the grisettes of Paris, this love of flowers is an universal passion—almost a *monomania*—if there be no exaggeration in the following, from the pen of an "American in Paris," from whose work it was kindly transcribed at our request by a fair young lady, and what is still better, *as good as she is fair*.

"Quite contrary to the great Parisian lady, who only loves flowers when she has nothing else left to love, the Parisian grisette loves flowers before she begins to love any thing else. The latter commences, as the former finishes. There is not, in all Paris, in the melancholy heights, in the sloping garrets—where the house-sparrow hardly dares take his flight lest he should be giddy—a single girl, poor and alone, who does not come, at least once a week, to this flower market, to enjoy the spring and the sky. The poor girl in Paris, who gains her living by the hardest labor, from whom an hour lost takes a portion of her day's bread, has not time to go very far in search of verdure and the sun. And as neither verdure, nor the sun, nor the brilliancy of flowers, nor the song of birds, comes to seek her in the frightful corners where she conceals her sixteen years, it is she herself who goes in search of them. Nothing is more delightful to see than this poor, half-clad child, coming to buy a whole flower-garden in one single pot. She stops a long time, fearful, undecided, and curious; she would fain see, and smell, and take away all. She admires their forms, their colors, their indescribable perfume; she is delighted! However, she must at last conclude, by making this long-coveted purchase. The poor girl advances with a timid step. 'Madam,' says she, 'how much are your flowers?' Your flowers! It is generally a pot of mignonette, which gives but little hope of thriving. At these words the flower-woman smiles good-humoredly. Of all the honest people who gain their living by buying and selling, the flower-woman has, without contradiction, the most upright conscience, and the most sincere good faith. She sells at a high price to the rich, but a very low one to the poor. She thinks she ought to encourage so good a passion, and that it is much better for this young girl to buy a flower to ornament her wretched little room, than a ribbon to adorn herself. Thus she sells her pot of mignonette or sweet peas almost for nothing. And then the young grisette goes away more happy, and more triumphant, than if she had, in the presence of a notary, purchased a whole domain. See her light step, as she carries off an estate in her arms, singing as she

goes! And for a week she experiences the greatest delight. She waters the sweet plant, morning and evening; she sings to it her choicest songs; she seeks for it some nice little corner upon the roof, by the side of the chimney, which proteets it from the north wind. At the first ray of sun which penetrates those melancholy walls, the flower is exposed to the pale and trembling light; at the first whistle of the north wind, the flower is carefully shut up in the room, and then the amiable girl does for her flower what she has never done for herself—she prevents the air from intruding through the ill-joined door, the half-open window, or the chimney, which has neither fire nor flame. Vain, but delightful efforts! At first, the humble plant, grateful for so much care, throws out here and there a few scrubby leaves, which cheer the heart of the happy proprietor of this estate of half a foot; after the leaf, the flower sometimes appears—not the flower itself, but the hope of one. Then the grisette claps her hands: 'Come,' she says to her neighbors, 'come and see how my periwinkle is flowering!' But at these first announcements of spring, all this hope of fertility usually stops; night and cold are more powerful than the zeal of the young girl; after a month of struggling and suffering, the flower fades, languishes, and dies; it is only the shadow of a shadow. She weeps over it; she thinks, this time, she really will give up such vain delights. But how can hope be stifled in young hearts? When she has had a long fit of weeping, she again makes another attempt, fruitless as the former, until at last, this honest passion is replaced by one far less honest."

The following piece we extract, as appropriate to the subject in hand, from a volume entitled "Tam's Fortnight Ramble," published by Carey & Hart, Philadelphia:

OUR LITTLE GARDEN.

Within the crowded city,
Where life has scarcely room,
I have a little garden
Where simple flowers bloom.

There grows the morning-glory,
With many a varied hue;
Its flowers are pink and purple
And virgin-white and blue.

The four-o'clock each evening
Unfolds its scented cup;
And from a nook the violets
With diffidence peep up.

The marigold and rose-bush
Have each a fitting place;
And there the yellow jasmine
Expands with modest grace.

The blue-bell and geranium,
The beauteous balsamine,
The pink, the lady's-slipper,
The tender cypress vine.

The brilliant-hued nasturtion
Is climbing up the wall;
And there the tall sun-flower
Looks proudly on them all.

I have some rarer flowers;
Of these I will not tell,
Though I find many reasons
To love them all full well

The humbler plants are dearer
And give me deeper joy;
They tell me of my mother,—
And when I was a boy.

She loved such simple flowers,
And tended them with care;
These many years in Heaven,
She tends the flowers there.

And we now teach our children
To love such flowers too,—
To pattern by her virtues,—
As she once did, to do.

So, when they have no mother,
And when their father's fled,
They'll have some sure memorials,
To tell them of the dead;

Some humble, blooming flower
(Which God renews each year)
To bid them in their duty
With faith to persevere.

When they to cares of manhood
And womanhood attain,
The lessons flowers teach them
They'll find are not in vain.

AN HOUR AT THE OLD PLAYGROUND.

It will not be often that we shall take space for poetical effusions, but the following will strike a chord in the bosoms of so many, who have been educated in the country, that we cannot refuse it a place. We should like to know how many eyes it will meet of those, who, more than forty years ago, were at school in Calvert county—or at Charlotte Hall—or at Queen Anne in Maryland?

Some years since we met with one of these old school-fellows on the banks of the Mississippi, after a lapse of twenty years, who, to his dying day, called us nothing but "John." Overcome with joy and surprise,

he gave vent to his feelings in alternate laughing and crying hysterically, until after midnight. How many, many luckless rabbits had we, together, on Saturdays and holidays, tracked to their last forms in the snow? How many gay squirrels had we brought down from the topmost boughs of the maple and the hickory?

I sat an hour, to-day, John,
Beside the old brook stream,
Where we were school boys in old times,
When manhood was a dream;
The brook is choked with falling leaves,
The pond is dried away;
I scarce believe that you would know
The dear old place, to-day.

The school-house is no more, John,
Beneath our locust trees,
The wild rose by the window side
No more waves in the breeze;
The scatter'd stones look desolate,
The sod they rested on
Has been plough'd up by stranger hands,
Since you and I were gone.

The chestnut tree is dead, John,
And, what is sadder, now,
The broken grape-vine of our swing
Hangs on the wither'd bough;
I read our names upon the bark,
And found the pebbles rare
Laid up beneath the hollow side,
As we had piled them there.

Beneath the grass-grown bank, John,
I look'd for our old spring,
That bubbled down the alder path,
Three paces from the spring;
The rushes grow upon the brink,
The pool is black and bare,
And not a foot, this many a day,
It seems, has trodden there.

I took the old blind road, John,
That wander'd up the hill—
'Tis darker than it used to be,
And seems so lone and still;
The birds sing yet upon the boughs,
Where once the sweet grapes hung,
But not a voice of human kind,
Where all our voices rung.

I sat me on the fence, John,
That lies as in old times,
The same half-panel in the path,
We used so oft to climb;
And thought how o'er the bars of life
Our playmates had pass'd on,
And left me counting on the spot
The faces that are gone.

A Table to Calculate Wages.—Put down, first of all, the nominal wages received by your servant, which by calculation you will find to be the exact half of twice as much. Then subtract the fresh butter from the pantry, and the product will show you how often the best Dorset will go into the tub of kitchen-stuff. Then work out the sum: as the parlor Stilton is to the Dutch cheese, so is the cold meat to the young man who stands outside the area of an evening. Divide the contents of the tea-caddy into what you use yourself, and what is used for you, and the quotient will be as one to six. Write these several results upon a slate, and by adding them up carefully you will be enabled to calculate how much your servant costs you.—*Punch.*

Phillips, in his entertaining "History of Fruits," says, that England had procured from America, 2345 varieties of trees and plants. There *is* one good fruit, that we might have derived from our conquests in Mexico—the transplantation of some of their vegetables, trees, and animals, if they had been pushed in the spirit of Roman conquests. We have heard however of but one—and that by a gallant officer of enlarged and liberal views. *Com. Stockton*, as we should have predicted, has taken measures to have brought the noble race of Californian Horses on which Fremont and Gillespie performed such wonderful journeys.

Knitting Stockings by Steam.—A number of influential inhabitants of Ipswich have introduced into that town an important branch of industry, likely to give employment to a large number of persons. In Carr-street, machines are now at work in knitting stockings by steam. The work is done with beautiful accuracy. One young person can attend to three machines, and each machine will knit one stocking in three hours.

French Sewing Machine.—Late French exchanges say that Jean le Capelin, petit, or little John Capelin, has invented a sewing machine that makes 240 stitches per minute, which by the turn of a screw are changed from fine to coarse in a moment. It will sew, stitch, and make edgings by the same movement.

Benefit of Towns to the Country.—The nearer the cultivator is to a city, the more his operation runs into *horticulture* and the more profitable it becomes. It is computed that more people find employment and subsistence within ten miles around Philadelphia, as cultivators of the soil, than exist in the nine counties of the eastern shore of Maryland.

RECEIPTS.

French Cement.—This cement is designed as a paint for the roofs of houses. It answers all the purposes of common paint, and also protects the roof from fire. Those who are erecting new houses, or are about to paint the roof of old buildings, would do well to try it. The expense of painting a roof in this way, would be much less than in the common method. The cement becomes very hard and glossy, and is said to be more durable than the best kind of paint.

Take as much lime as is usual in making a pail full of whitewash, and let it be mixed in the pail nearly full of water; in this put two and a half pounds of brown sugar, and three pounds of fine salt; mix them well together, and the cement is completed. A little lamp-black, yellow-ochre, or other colouring commodity, may be introduced to change the colour of the cement to please the fancy of those who use it. The gentleman who furnished us with the recipe for making it, observed, that he had used it with great success, and recommends it particularly as a protection against fire.

How to Pickle Walnuts.—Scald slightly, and rub off the first skin of a hundred of large walnuts, before they have a hard shell: this may be easily ascertained by trying them with a pin. Put them in a strong cold brine, put new brine the third and sixth days, and take them out and dry them on the ninth. Take an ounce each of long pepper, black pepper, ginger, and allspice; a quarter of an ounce of cloves, some blades of mace, and a table-spoonful of mustard seeds: bruise the whole together, put into a jar a layer of walnuts, strew them well over with the mixture, and proceed in the same manner till all are covered. Then boil three quarts of white wine vinegar, with sliced horse-radish and ginger, pour it hot over the walnuts, and cover close. Repeat the boiling of the vinegar and pour it hot over, three or four days, always keeping the pickle closely covered; add at the last boiling a few cloves of garlic, or shalots. In five months they will be fit for use.

To Cure Beeves' Tongues.—Rub the tongues with salt, and let them remain a day to take out the blood—then rub them well with saltpetre and put them in brine—after they have been there three or four weeks, take them out and wash them well; let them smoke *a day or two*, and hang them up in a dry place to keep.

To Prevent Vermin from Infesting Poultry Houses.—Have the roosts and the nests made of *sassafras wood.* This is recommended by a lady of great integrity and experience, who says she *knows the fact*, though not the *philosophy* of it—any more than does she know why cedar-wood, or tobacco, or camphor will keep the moth out of woollen cloths—but the fact is so, that vermin, or, she says, to use plain country house-wife phraseology, chicken-lice, will not trouble a poultry-house where sassafras wood is thus used.

It is well known that certain insects are repelled by the odor of certain plants. Every one in the country knows, or ought to know, that if you rub pennyroyal about the head and ears of your horse, the pestiferous horse-fly won't come near him; while the flavor of pennyroyal is for us quite agreeable. So true it is, what's food for one is poison for another.

Sassafras makes excellent ox-yokes, being light and tough.

To Clean Paint.—A recipe for cleaning paint, which has been repeatedly tried with success: 1 pound of soft soap—2 ounces of pearl-ash—1 pint of sand—and one pint of table-beer.

Simmer the above in an earthen vessel; be particular that the ingredients are well mixed; put a small quantity on flannel; rub it on the wainscot; then wash it off with warm water and afterwards dry it thoroughly with a linen cloth.

Cure for the Gapes in Young Chickens and Turkeys.—Set fire to *tobacco* in a large iron pot, put the chickens or turkeys in a common white-oak basket, and place that on the top of the pot. Then throw a blanket or other close covering over the whole. The tobacco smoke passes into the basket, and when the chickens or turkeys are nearly suffocated and overcome, turn them loose in the air; this several mornings repeated will effect a cure. When turned loose they are quite drunk and unable to walk—we have often seen some die away and never revive—but the more they are affected the sooner they are cured—provided they are not entirely killed.

A certain Cure for a Tetter Worm.—Take a lump of rock salt, size of a common hickory nut; the same quantity of alum and copperas—burn them separately on a shovel and pulverize them together—then put them in a bottle and pour in half a pint of strong vinegar—and every night, on going to bed, wash the part affected with a soft rag.

The Plough, the Loom, and the Anvil.

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THE ANTHRACITE COAL TRADE OF PENNSYLVANIA:

HOW IT AFFECTS THE FARMER AND THE PLANTER.

In 1820	there were	shipped	365 tons.	In 1841	there were	shipped	1,108,899 tons.
1825	— —		34,893 "	1842	— —		1,118,001 "
1829	— —		112,083 "	1843	— —		1,263,539 "
1834	— —		383,547 "	1844	— —		1,631,699 "
1837	— —		881,026 "	1845	— —		2,023,052 "
1838	— —		739,293 "	1846	— —		2,343,992 "
1839	— —		819,327 "	1847	— —		2,982,309 "
1840	— —		865,414 "				

The chief object of this journal being that of promoting the interests of the planter and the farmer, we now submit the above statement of the growth of the anthracite coal trade of Pennsylvania, with a view to call the attention of both to the important influence it has already had upon those interests.

The price of a ton of coal at the place of shipment on the canal, or at the railroad depot, is about two dollars, of which one portion goes to the men who open the mines and prepare them for being worked: another to those engaged in the preparation of the machinery: a third to those who raise the the coal: and a fourth to the men and horses engaged in transporting it to the railroad, or canal, depot. The head operator has a small part, which invariably goes to the preparation of new machinery, and is thus divided amongst workmen. The land-owner takes a small part as rent, but the aggregate expenditures of the owners of land in the making of roads and other improvements are greater than their aggregate receipts—so that, taking the whole price of the coal, it may be assumed that *every dollar* received for it is paid out to miners, laborers, and other workmen employed in its production. If, now, we could trace the money that is thus paid out, we should find that nearly the whole of it goes to the farmer. The food of the workmen and their families absorbs a large portion of their earnings, and much of the balance goes towards the building of houses, by which is afforded to the farmer a market for the timber by which his best lands have been encumbered. He now sells, instead of destroying it. His wagon and horses, and his sons, are employed in hauling it to market, at intervals when they would otherwise be idle, whereby his land is cleared and he obtains the means of enclosing and improving it. Another part of their wages goes to paying for cloths and shoes, which represent little more than the wool, and the hides, and the food of the men employed in their conversion—and thus the farmer absorbs nearly the whole proceeds of the coal mine, which is a mere machine for the conversion of his products into a form to fit them for market.

By the time the coal reaches the place of consumption, the average price is about four dollars per ton. Two dollars are thus added, and a similar examination will show that of this nearly all goes to the farmer A part is for the tolls on canal or railroad, most of which is again expended in the payment for labor in repairing and extending those works, and that labor represents chiefly the food consumed by those who perform it. The horse that draws the boat, and the men who manage it, are large consumers of food.

The schooner by which it is transported again represents a vast amount of labor, and the wages of ship-builders and sailors go chiefly for food for themselves and families. The value of the three millions of tons of coal sent to market last year being taken at twelve millions of dollars, we may, we think, safely assume that ten of those millions went directly to the farmer in payment for food and other of his products. If so, it follows that the market *directly* afforded to the farmer by this trade, still in its infancy, in the last year, was equal, if not superior to the average exports of food to all the world, from 1840 to 1846.

This, however, is but the first and smallest of the effects upon the agricultural interest, produced by the existence of this trade, yet, as we have said, and as we beg the farmer to observe, in its infancy, and capable of being increased to an almost indefinite extent. We would ask him now to look to the numerous furnaces that have grown up since railroads and canals have rendered accessible the coal mines of Eastern Pennsylvania, and to recollect that every ton of iron that is produced, represents chiefly the food consumed by the men employed in its production. Let him then look to the numerous mills and factories that have grown up in towns and villages where no water power existed, and where, without this fuel, such action would have been impossible—to the thousands of steam-engines in Philadelphia, New York and Boston, engaged in the conversion of iron into other engines, of food and cotton into cloth, of food and rags into paper, and finally into newspapers, and thus facilitating the further application of labor to the conversion of his products into the various forms required to suit the tastes of those who desire to be consumers, and his customers—and above all let him look at the wonderful demand for sailing and steam-vessels, and particularly of the latter, since the employment of cheap fuel has enabled their owners to carry passengers at such low rates that everybody travels, and to transport grain and flour, and peaches and apples, at rates so moderate that the farmer obtains on his farm nearly the same price that is paid by the consumer in New York, Philadelphia, and other cities—and let him then determine if the *indirect* gain to him by the existence of this trade is not far more than that which he realizes from supplying food to the coal-miners, and laborers, and others directly engaged in the production of the coal itself, although that alone furnishes him a market for probably ten millions of his products. Having made this examination, let him determine for himself if he is not the chief gainer by the trade. He can scarcely fail to see that every ton of coal that is mined tends to increase the price of his great product, food, while increasing the facility of clearing and cultivating his better soils—nor can he fail to see that every ton that is consumed tends to diminish the labor required for producing spades and ploughs, and harrows, and clothing, and all other of the commodities required for his consumption, and that thus he gains on all hands by the creation of this great market for food.

Is this, however, all the farmer gains? It is not. Did not this coal trade exist, the men who are now producers of coal and consumers of food would be producers of food. Instead of customers, they would be rivals. The men who now work coal mines, and smelt iron ore, and convert pig metal into bars, and make steam-engines, and build steamboats, and get out stone and lumber for building factories, and those who run those engines, and man the steamboats, and work in the factories, would now, to the extent of probably a hundred thousand able-bodied men, be raising food in Ohio or Illinois, Iowa or Wisconsin, and thus the *diminution in the market* for the products of the farmer would be attended by an *increase in the supply* of those products and diminution in their value. It can scarcely be doubted that the production of coal, and the power which it has given for the advantageous

application of labor in a variety of ways, have made a market for far more than fifty millions of dollars' worth of food and lumber, and other agricultural products. Let, then, the farmer calculate what would be the effect of the closing of such an outlet for the commodities that he has to sell, and let him add thereto the further effect that would result from an increase of the supply by reason of the conversion of miners, and mechanics, and all the other persons who owe their employment to the existence of this trade, and then endeavor to estimate the advantage that he derives from it. Let him see if he would not have more transportation to perform, while wasting more manure, and getting smaller prices at the end of his journey.

Were it closed, there would be an instant deterioration in the value of his farm, and in the price of food, all of which, wheat, and rye, and corn, and pork, and bacon, and cheese, would then, assuredly, be cheap enough for export. If he doubt this, let him look to see which are the countries that *now supply cheap food*, and he will see that they are those which have made *no market on the land for the products of the land*—Poland, Eastern Germany, and Southern Russia. Let him then look to see what is the value of land in those countries, and he will find it almost valueless. Let him next look to see what is the value of labor in all those countries, and he will see that the laborer is little better than a slave. As travellers relate, you may see hundreds of white women in the fields, at work, without bonnet, shoe, or stocking.

Abolish coal mines, and iron furnaces, and close the factories now dependent upon coal for a supply of power, and the farmers of this country may at once become competitors with the poor people of Germany, and Poland, and Russia, for the ever-varying market of England, the securing of which is deemed by many of our politicians as the first and greatest object of all legislation. Abolish those markets for food, and we can have that one, so highly coveted, but the farmer will obtain less for his food, and he will waste on the road to distant markets the manure that now goes back upon his farm, and he will lose the market for his timber, and he will exhaust his poor soils in raising bushels of wheat, because unable to clear rich ones that would yield tons of potatoes, and then he will fly to other poor lands that are to be again exhausted.

But, it will be asked, why talk of abolishing the coal trade? It has grown up and established itself so fully that it cannot be abolished. *Nothing would be easier.* That trade is dependent for its prosperity upon the prosperity of the farmer and the planter. Let *them* reject the aid that is *even now afforded them* by the tariff of 1846, insufficient as it is, in the effort to seduce customers to come with their looms and their anvils to the side of the plough, and they will become poor, and scatter themselves over the west, and their demands for iron, and steam-engines, and clothing, will diminish, and the coal trade will languish, and the difficulty of maintaining the roads and canals by which the coal is transported to market will be increased, and if the trade do not absolutely die, it will linger on in a miserable existence. It grew under the tariff of 1828. In 1829, the quantity sent to market was 112,000 tons. In 1837, it had risen to 881,000 tons, and farmers, and manufacturers, and coal-miners were prosperous. The rapid reduction of the tariff after that period ruined the manufacturers and depressed the farmers, and in 1842, six years afterwards, notwithstanding the application of coal to steamboats, the quantity sent to market was but 1,018,000 tons.

With the passage of the tariff of 1842 the demand began to rise, and with each year from that period to 1847, there was an improvement in the prospects of the farmers, the manufacturers, and the miners, who, in that year, sent to market nearly three millions of tons. The tariff of 1846 has now become

fairly operative, and furnaces have ceased to be built, while factories are being closed. Coal is a drug in the market, and so are likely to be wheat, and corn, and oats, and hay, and potatoes. The potatoes, and corn, and hay, are commodities of which the earth yields largely, and, therefore, they will not bear transportation. If the market on the ground be lost, the farmer must cease to raise them, and such must be the result, if he will insist upon driving those who are now consumers of food to the west, there to become producers of food. Let him do this, and he will exhaust his land, and then run away himself.

The planter will, however, say, that how true soever this may be, as regards the farmer of Pennsylvania, he himself can have no interest in the coal trade—that he sells no food to miners, or to furnace men, or to builders of steam-engines, and that it is all the same to him whether they use anthracite or Liverpool coal, and that his cotton will sell for as much in the one case as in the other. How far this is true, we may now inquire.

The world is divided into producers of agricultural products and consumers of them. The larger the proportion which the consumers bear to the producers, the higher will be the prices of his products, and the more profitable will be the labor of the farmer, and the more valuable will be his land.

The planter is a producer of food and cotton. If the price of food be low, the larger will be the proportion of his force that he must apply to the production of cotton, and the smaller will be his production of food. If food be high, he will raise more of it and less of cotton.

The larger the proportion of his force that is applied to the production of cotton, the greater will be the demand for ships, the higher will be freights the larger will be the quantity of cotton in market, and the lower will be its price. The less he is compelled to devote himself to cotton, the lower will be freights and the higher will be prices.

The diversion of labor from the production of food to that of cotton, to the extent of 100,000 bales, will, at a very moderate calculation, lower the price of the whole crop one cent per pound, which, upon the present crop, is equal to 10,000,000 of dollars. The diversion of labor from cotton to food to the extent of producing a reduction of the crop, 100,000 bales, will raise the whole crop to a similar extent, and the gain to the planters will be 10,000,000 of dollars, in addition to the further gain from the increased price of the food they have to sell.

These propositions being admitted, as we think they must be, we may now inquire into the effect of the coal trade on the planter's interest.

That trade even now affords, *directly or indirectly*, a market for more food than we have ever exported—more even than we exported last year, to all parts of the world. In addition to this, it affords a market for labor, which, if applied to the production of food, would add immensely to our present large product. The surplus for which markets would be needed in case of the abolition of the coal trade, would be more than three times as great as it is even at present, and the direct effect of such a measure would be an enormous fall in the price of food, the production of which would cease to remunerate the planter, who would then raise less food and more cotton. Large crops would make high freights, while prices abroad would be low, and the planter would be ruined.

If such would be the effect of a total abolition of it, it must be obvious that every reduction of it, however small, tends, in the same direction, to reduce the value of southern property, and to reduce the power of the planter to improve his condition and that of the people whom he employs; while every increase, large or small, tends in the opposite direction: that is, to add to the value of southern property, and to increase the power of the planter to

improve his own condition and that of his people. Such being the case—and that it is so we entertain no doubt—it is obvious that the planter is directly interested in every measure that tends to place the consumer by the side of the producer, whether at the mines of Pennsylvania, or in the factories of Massachusetts or Rhode Island, because every such measure tends to diminish the necessity for emigration to Iowa or Wisconsin, there to become producers of food. *Every man is either a customer to the farmer or a rival to him.* Hundreds of thousands who are now rivals, and whose competition is now keeping down the prices of food and cotton, would have remained at home to become customers, had the farmers and planters of the country understood that protection to the loom and the anvil was, in fact and in truth, protection to the plough.

Throughout the whole Union, properly considered, there is no real difference of interests. Every measure that tends to increase the number of consumers in Massachusetts and Pennsylvania, tends to diminish the necessity for over-stocking the markets of the world with cotton and tobacco; and every measure that diminishes the consumers in those States, tends to render necessary the application of more force to the production of those staples, with diminished returns.

By politicians—the class of men who live by the labor of others, and are paid, either directly or indirectly, out of the taxes they impose—the people of this great Union are divided into northern and southern, eastern and western, all with opposing interests, but the only true division is into that of producers of food and cotton, and consumers of food and cotton. The one has corn and cotton to sell, while the other has labor to sell, and corn and cotton to buy. The more buyers of corn and cotton, the greater will be the demand, and the higher will be the prices. The more sellers, the less will be the demand, and the lower will be the prices. The nearer the loom and the anvil can be brought to the plough, the more numerous will be the buyers, and the larger will be the quantity of cloth or iron obtained in exchange for a given quantity of labor. The more distant they are, the less will be the value of labor estimated in cloth or iron. The nearer they are, the less will be the loss of manure, the better will be the soil cultivated, the more valuable will be the timber, the larger will be the crops, the more regular will be the demand for labor, the more industrious will be the laborer, the more valuable will be his time to himself and to his employer, and the greater will be the power of union for the purpose of building houses, mills, or railroads. The more distant they are, the greater will be the waste of manure, the poorer will be the soil that can be cultivated, the less valuable will be the timber, the smaller will be the crops, the more unsteady will be the demand for labor, the more difficult will it be to obtain labor in harvest, the less valuable will be the time of the laborer, either to himself or to his employer, the less will be the power of union for any purpose of improvement, and the greater will be the tendency to fly from each other. Population makes the food come from the rich soils, and facilitates the further growth of population because of the increased facility of procuring food. Depopulation compels men to abandon rich soils, and fly to poor ones, because of the increased difficulty of obtaining food. Between the planter and the farmer, the manufacturer and the coal-miner, then, there is no opposition of interest. The owner of the plough, whether planter or farmer, is, on the contrary, above all, interested in the measures necessary for bringing the loom and the anvil to his side.

"Man *must* everywhere commence with the poor soils, and the richer ones *cannot* be cultivated until the consumer and producer are brought together. Whatever foreign interference tends to prevent this union, tends

to compel men to scatter themselves over poor soils, to prevent increase in the reward to labor, and to prevent advance in civilization: and resistance to such interference is a necessary act of self-defence. The article of chief consumption is food, of which rich soils would yield *larger* quantities in return to *half the labor* required on the poor ones; and half the difference would convert into cloth all the cotton and wool produced, and make the iron used, in the Union. Such being the case, the exports required to pay for English labor are so much absolute loss, while the great machine itself suffers in the loss of labor that would double it in product and in value."

Under the influence of political causes so obvious, must it not be apparent to every farmer of Maryland and Virginia, and every planter of the Carolinas and Georgia, that they and their children are directly concerned in, and that they ought to keep vigilant watch over, the legislation of State and Federal Governments, to see that no obstacles are created, or allowed to exist, which stand in the way of such associations of capital and means as will promote the growth in our own country of healthful and useful industry, in every department of human employment? And would it not much better comport with the true objects and duties of agricultural societies to promote the investigation and establishment of truth, in reference to questions of such vital importance, than to waste their time in the repetition of mere expedients which have been practised again and again for the last fifty years? Some farmers, high in public estimation, and as high in individual merit, are heard to say—"These are matters we must leave to others to discuss!"—but what said Hercules, when called on by the wagoner? First put thine own shoulder to the wheel. All the world over it is true—that if you want a thing done, leave it to others—if you want it *well done*, look *to it yourself.*

NINETY TONS,

NOT QUARTS, NOR BUSHELS, BUT NINETY TONS, OF MILK AND STRAWBERRIES TRANSPORTED IN A SINGLE DAY, ON THE ERIE RAILROAD, INTO THE CITY OF NEW YORK.

With the contemplative farmer, whose interest and inclination alike should prompt him to investigate the true foundations of prosperous agriculture, what a train of reflection must follow the perusal of the above statement, which occurs in a country newspaper, while he who looks habitually at the surface of things, reads it with momentary admiration, and without ever dreaming that in this fact, more than in the force of a thousand isolated premiums, is to be discovered "*how to make poor land rich!*" and then what a volume of testimony does it present to the reflective mind, on the influence of the more perfect systems of internal improvement in meliorating the practice of agriculture, and all the pursuits of civilized life! Ninety *tons* of strawberries and milk, which go so well together everywhere, passing in one day over one out of a thousand channels leading to a single city, peopled by half a million of men, women and children, laboring and prospering, in the various arts and manufactures, trades and professions, that make up the business of a great community—carpenters, bricklayers, tailors, shoemakers, livery-stable keepers, printers, bookbinders, lawyers, doctors, women at the loom, and men at the anvil, none of *them* rival producers of the farmer, but all of them daily consumers of the products of the plough and the spade! and yet there are demagogues of narrow minds who would persuade the cultivator of the soil to regard with envious distrust the followers of every industrial

calling but his own: and to look on the well-doing of all other classes as detracting from his own! Be it, then, our duty as unaffected, we might almost say sworn friends of the plough, to persuade him who follows it to consider the numbers, the prosperity, and even the wealth of all other classes as the best possible guarantee for his own; as it is his most reliable, nay, his only security for a uniform compensating demand, not merely for a few of the principal staples of agriculture, such as corn and wheat, and cattle and hogs, and cotton and rice and sugar; but for commodities the most bulky and the most delicate and perishable—even milk and strawberries as we here see by the ton, and such as the most perfect and remunerating husbandry only can produce; and such moreover as will never pay, and, therefore, never be produced by those who live at a great distance from the consumer, and who has to travel that distance over bad roads to fluctuating and uncertain markets. Had it been the policy of Virginia to favor a system of domestic and of national legislation, that should force the foreign capitalist to come with his money and his machinery, to use her own water-power and her own coal-mines and ore beds, and to weave her own wool, then, too, might Virginians, weeks in advance of the people on the Hudson, be sending their *tons* of milk and strawberries to market. But, instead of that, what is the melancholy fact? Look here, at a paragraph we find in the Colonial Herald:

Depopulation of Virginia.—The Petersburg Gazette informs us that upwards of seventy emigrants, a few days ago, passed through that town, from the Valley of Virginia, on their way, with a large number of slaves to Missouri, and the remainder to Iowa. Thus, says the Gazette, is Virginia peopling other states, when she ought to hold her own and attract immigration from abroad.

It is a singular fact, that while the tide of population is rushing westward like a torrent, there is an immense portion of the country, lying along and near to the Atlantic, that is a waste. In Virginia and North Carolina, and South Carolina, tens of thousands of acres remain untouched, and in Virginia especially, the annual increase of population is so very trifling that in comparison with many other states, it is absolutely retrograding. In the heart of Pennsylvania and New York, there are thousands of acres of land which have never been settled, and it is strange that while crowds are turning their steps to the far west, even to the distant Oregon and California, there should be a want of improvement in those places which are near the greatest civilization, and quite as naturally capable of being made productive as any lands in the west.

While we cannot people such states as Virginia and North Carolina, and while the rich lands of Pennsylvania and New York remain in any degree untouched, it seems the acme of folly to be seeking after new territory.

To a great extent, the same observations might be applied to Pennsylvania, where the study of her wiseacres, representing her *landed interest*, has been and is, not how to attract wealth—not how to increase and concentrate population by natural increase, and by holding out rewards to the immigrant to settle with his little capital, and his skill and labor, within her borders, but how she shall disgust and repel capital and immigrants by rendering the union of capital as difficult and perilous as possible!!

In these ninety tons of milk and strawberries, we see the undeniable benefit of concentration instead of dispersion—and hence the wisdom of a settled, all-pervading national policy, which would so increase the number of artisans in our own country, that they would reward the farmer for making tons of milk and strawberries in lieu of bushels of corn and oats.

Such a policy would encourage the capitalists of Europe—of France, of Germany, and of England, to break up their establishments there, and come with their lighter machinery for fashioning the products of the earth, to settle down near the great machine of production,—the earth itself, on which the food is produced. By such a policy, better than all the premiums that society can offer, we should make it the interest of the ironmonger and

coal-heaver to come and delve and dig in our own mines. Thus we should draw the weaver with his loom, and the smith with his anvil, to come as they are seen on the cover of this journal—to come and settle as nearly as possible to the plough; and that not alone for the benefit of the weaver and the smith, but yet more for that of the ploughman himself—so true is it, that their interests are reciprocal and harmonious, when left to follow the laws of nature. Nature, common sense, common interest, instinct, would draw men together for safety, for social improvement, for social enjoyment. Nothing but the cunning and fraudulent devices of the politician sunders and separates them. Can any thing be plainer than that when the customers of the landholder are at a distance, in proportion to that distance he can afford to go to them with few things?—for if they consist of the bulky commodities of horticulture, which are most profitable, they will not pay for transportation; and if lighter and more delicate, they must perish on their way to market. On the contrary, when he instructs his representatives to establish a system of uniform encouragement to American industry, he draws his customers nearer to his plough, and when he has done that, the greater the number and variety of articles will their demands draw out of the soil, for their strawberries and milk will go along with the corn and the flour, and yet the greater will be the time at the command of the cultivator of the soil to manure and augment the power of the soil, and to that increase in the power of the soil, and of the owner of the soil, will follow every imaginable beneficent consequence that can contribute to the civilization and happiness of the human race.

See below the picture of these beneficent consequences, as described by Mr. Carey, in his *Past, Present, and Future*, a work to which we cannot too often refer the farmer in search of the true and only secret for insuring solid, wide-spread, enduring improvement for American agriculture! As for accomplishing such general and continued advancement of agricultural science, or increase of agricultural improvement and prosperity, by a system of premiums, it is as idle as it would be in Col. Hampton in a dry time to go over his 1500 acres of cotton with a common watering-pot. If you would test the capacity of the soil, and keep that capacity fully to its power of production, you must ensure a *remunerating demand for its produce.* It is not a premium of $50 or $500 or $5000 for a crop of one hundred bushels of corn to the acre, to be given by subscription to one corn-planter out of a million, that will ensure fifty bushels of corn to the acre, through a state or a county; but raise up mouths enough to be fed—and let the feeders be close at hand and prosperous, and then you will get, not fifty bushels of corn, but even strawberries at the rate of $600 to the acre, as they have been produced in old sterile New England—where population brings the food by tons out of the ground, naturally covered with stone, at the rate of a ton to six feet square, as at Mr. Phinney's:—

If now we enter the home of one of these happy farmers, we find him also turning his eyes inward. His wife, his children, his farm, his cattle, and his house, stand first in his thoughts. In these it is that he finds his happiness. We should, however, greatly err if we supposed the man whose thoughts are thus concentrated upon his home to be incapable of associating with his fellow men, or to be in any degree incapacitated for so doing. On the contrary, it is because of his combination with them that he is enabled to exercise the power of concentration. The miller is near him, and he is not obliged to travel abroad with his grain when he desires to have it converted into flour. His near neighbors are the tanner, the shoemaker, the hatter and the butcher, and he is in the habit of daily intercourse with them. He discusses with them and with others of his fellow-citizens, the laying out of roads; the arrangements of the little and growing town: the building of churches; the institution of schools and little libraries for his children, and the formation of a library for their own joint use: and he combines with them in all the arrangements for the maintenance of perfect security of person and property; for the set-

tlement of differences that may arise among their fellow-citizens; for the collection of the contributions required for the making of roads and for other purposes; and for a vast variety of other matters interesting to the community at large. Combination tends to promote security and the growth of wealth, and wealth enables him daily more and more to concentrate his thoughts upon his home, and its occupants: and this concentration, in its turn, promotes the growth of wealth, by enabling him daily more and more to reflect upon the measures necessary to the advancement of the common good: to devote his leisure in aid of those less fortunate than himself: to acquire knowledge by the study of nature, or of books: and thus still further to advance the interests of the society of which he has the happiness to be a member. The labors incident to the performance of the general business of the society are light, for they are divided among all; and they cost little, for they are performed by the men who have themselves to contribute towards its payment. All work and all pay, and hence the work and the pay fall lightly upon each.

What are the common observations of every southern man, as, for the first time, he travels over the delightful roads of New England. Let us recount them as they struck us on a first view of the country, a quarter of a century ago, when we remember with pleasure to have been introduced on the same day, by the venerable Josiah Quincy, to two remarkable characters, (with no irreverence to the first of them be it stated,) the then aged and honorable JOHN ADAMS, and the famous *Oak's cow!* whose portrait and lactiferous out-pourings we gave in the American Farmer, which we had then not long established, in a determination that as long as we could raise the means, agriculture should not decline for want of at least one advocate.

THE SEVEN WONDERS OF NEW ENGLAND,

IN THE EYES OF A SOUTHERN TRAVELLER.

1. EVERY man living in a "bran spanding" new house, or one that *looks* as if it had been painted as white as snow within the past week!

2. All the houses of wood, where all the fences are of stone, which in some places lie so thick as to require to be removed at the rate of a ton from six feet square.

3. Wood for house and kitchen all *sawed* and split up into one uniform length and size, and snugly piled away under cover of an open shed, so that the work of house and kitchen may suffer the least possible interruption—in a word, he sees a place for every thing, and every thing in its place.

4. The care obviously bestowed in the saving and preparation of manure by accumulation and composting.

5. Universal attention to a good supply of fruit, adapted to the climate.

6. Not a poor or superfluous ox, cow, horse, hog, or sheep, the proportion of the short-lived, expensive horse, being on every farm wisely and economically small!

7. The seventh wonder is, after a day's ride, (twenty-five years ago, with great uniformity in their stages at the rate of $7\frac{1}{2}$ miles an hour, now on railroads at the rate of thirty,) where, in the name of all that is mysterious and inexplicable, are these people's staple crops? What do they make for sale? Where are their stack-yards of wheat, straw, and fodder, and oats, and rye? Where their tobacco-houses, and their gin-houses, their great herds of cattle and swine, rooting in the swamps, browsing in the fields, or reposing in the shade? How is it that these people contrive to keep out of debt, and yet never repudiate? How do they go on improving their rocky land, carrying tons of *stun* from the hills above to under-drain the meadows below? building school-houses in sight of each other, and expending millions on education, while buying for themselves, one a little bank stock, another a

little railroad stock, and a little stock in a neighboring factory, at which he sells his milk and his apples, his carrots and potatoes, once in a while giving $100 an acre for a small farm in his neighborhood? Dear reader, to explain all these wonders of New England thrift and go-aheadtiveness in full would make a long story, but if you will turn back to the first page of the cover of this journal, you will see at once *the key to the riddle!* There you see the secret by which alone poor land throughout a country can be prudently and economically made rich—for there you see THE PLOUGH, THE LOOM, AND THE ANVIL, all close to each other, the first being the most prominent.

It is there, and there only, where the cultivators of the soil have the wisdom to encourage all other branches of *American industry*, that you will ever see or hear of *ninety tons* of milk and strawberries going by one road, in a single day, to be consumed before the milk can sour, and before the strawberries can sour, by weavers, and blacksmiths, and shoemakers, and tailors, and churchmen, and laymen, and printers, and printers' devils; and what is more, some of these perishable articles going in one night probably at least 100 miles, to be eaten fresh the next morning for breakfast! So much for easy and expeditious channels of communication that concentration lays over the ground, to provide for the transportation of the food that concentration only can bring out of the ground.

It is in *this* that we find the secret for "*making poor land rich.*" It is not all the premiums that can be offered, nor prize essays, though they be spun out as long as the main-top bowline, that can convert a poor exhausted country into a rich one, and cause a flourishing agriculture and a dense population to take the place of barrenness and dispersion. With good seed, good implements, abundant capital to buy manure, or time and skill to accumulate it, all accompanied with good tillage and good seasons, any one may make poor land productive; but that is not the knowledge that is needed—we have had that illustrated in practice, and told on paper in a thousand instances. Neither do we want militia musterings, nor martial music, nor raree-shows of any sort, to attract gaping crowds of thoughtless spectators. What the agriculture of old states needs, with their thousands of undrained and uncultivated land, or lands exhausted of their fertility and stationary in population, is, not the knowledge of how to make, but where he can find a market for what he could make, if there were people near, with money in their pockets and mouths to be fed.

Where is the farm, in Maryland or Virginia, that might not produce its bushels of strawberries, and tons of butter and cheese, and beets, and carrots, and potatoes, and cabbages, if there, as in New England, the plough, the loom, and the anvil, the tanner, the shoemaker, and the butcher, were all at work in the sight and sound of each other? Nor does any thing conduce so much to general happiness as steady and habitual labor—where labor is sure of its reward. All these results we should have throughout the country, if we could have uniform, permanent, and just encouragement of *American* labor, as the fruit of a general national conviction that American labor has a right to be protected against the over-tasked and under-paid, and badly-fed labor of Europe; and this is eminently due to the farmer, for it is he who wants prosperous, well-paid, laborious consumers, close at hand, tempting him and rewarding him for bringing the food out of his richest lands. It is the farmer who is interested in carrying out the opinion of Mr. Jefferson, that "now we must place the manufacturer by the side of the agriculturist."

When that is done, and not until then, the fruits of the soil will pay for the highest improvement the soil is susceptible of. Then will the farmer's richest lands, which now he cannot afford to ditch and drain, be brought

under the plough, and afford the means of reviving the hills that have been exhausted—then, in short, these old Southern States, with their vastly superior soil and climate, would rival and surpass Connecticut, Vermont, and Massachusetts, and we should cease to hear complaint of want of capital for agricultural improvement, for they would spin their own improvement out of their own bowels, as the spider spins his web.

Then might we witness in these Southern States what a southern man would scarcely credit, were it not related on authority so unquestionable as Mr. Colman, who tells us in his Agricultural Survey of Massachusetts, that in one county, to which was apportioned by the legislature of the state $2000 of the surplus money distributed by the general government, the county commissioners decided that it should be loaned out at interest on good security to the farmers, but—southern reader! would you believe it, not a borrower could be found in the county! In what community would such a phenomenon occur, *except* where there is concentration. Where the plough, the loom, and the anvil are working close together and prosperously; where tons of strawberries are accompanied by tons of milk, and tons of carrots and potatoes are all borne along on the same road, to fill the bellies and bring back the money of industrious and thriving consumers—non-producers of *agricultural produce.* But we have said so much of New England, as exemplifying the benefits of union and concentration, and of simple contrivances for associating capital to lend money and build factories; and inasmuch as many of our readers may never have seen their beautiful roads, their nice, clean, new-looking houses, their everlasting stone-fences, their well-pruned thriving orchards, their green meadows, and their fruitful gardens, their rich dairies, and their country *school-houses*, it is time to adduce something in exemplification of

THE AGRICULTURAL ECONOMY AND CONDITION OF THE EASTERN STATES.

Under this standing head, we shall give, running perhaps from one number to another, many extracts from Mr. Colman's Report, passing to different subjects, pretty much at random, but always endeavoring to present facts and statements, which may show invariably how the presence of consumers will bring the food out of the ground; and how true it is, that if you would improve the soil, you must seek for the means of bringing in close proximity the plough, the loom, and the anvil—the miller, the tanner, the shoemaker, the tailor, the hatter, and the butcher—the coal-heaver and the ironmonger.

The first extract we shall make is one that, according to our plan, blends a legion of facts with instruction in hay-making. We believe that farmers, generally, in the south, are not aware of the loss they sustain, under the idea that hay requires to be much more *dried* in the process of curing, than is usually imagined. As Mr. Colman says, the danger comes, not so much from the undried juices of the plant itself, as from external moisture.

The extract relates to the town of Deerfield:

An example has been given to me of the product of one of these low meadows in Deerfield containing nine acres, at a place called Old Fort.

The first crop of hay was,	25,325 lbs.
" second crop,	15,120
	40,445 lbs.
The hay was sold and delivered as soon as cured, at nine dollars per ton,	182 00
The fall feed sold for	4 50
	$186 50

The whole labor was performed by contract at four dollars per acre for both crops, - - - - - - - - - - - - - - -	36 00
Leaving a balance in favor of the land, of - - - - - - -	$150 50

The hay was considered as sold at a low rate. The same quality of hay in the following winter brought thirteen dollars per ton.

The land has been estimated at 100 dollars per acre. No manure has been put upon the ground. The produce in this case was not more than an average crop. This yield was at the rate of 4,494 lbs. to the acre. First crop, 2,813 8–9 per acre; second crop, 1,657 7–9 lbs. per acre. This constitutes some of the best land in the meadows. There is that, however, which is deemed even more productive.

We shall now give some extracts from his survey of the county of Middlesex, in which are embraced the towns of Boston and Lowell, that the reader may appreciate properly the friendly relations between the plough, the loom, and the anvil.

Pursuits of the Inhabitants.—The pursuits of the inhabitants are various, and trade and manufactures greatly predominate over the agricultural interest. Property to a vast amount is invested in the different manufacturing establishments, and especially at Lowell and Waltham. Many persons engaged in trade and commerce in the capital, have their residences in the vicinity in this county; and though in general their occupations are on a small scale, yet their means give them the power of free expenditure, and their establishments do much to improve and adorn the country. The capital, with the large towns in its vicinity, and the several villages and manufacturing towns in the interior, afford a ready and quick market for all the products of agriculture. This condition determines, in a great measure, the character of the agriculture of the county—which is confined rather to the production of vegetables, fruits, butter, and articles that find an immediate sale in the towns, than to products on a large scale, to be sold in great quantities or consumed upon the farm. Large amounts of hay are produced in many of the districts; but of this, likewise, no small part is sold in the towns, at taverns, to stage and wagon establishments, and not consumed upon the farms. In the immediate vicinity of the capital, the cultivation would rather come under the designation of garden culture than of field culture. In some parts of the county, this cultivation is carried to a high degree of improvement. A considerable portion of the rural population are themselves marketers, sending directly to Boston or other principal markets daily or weekly; and through every part of the county market-wagons pass at regular times, taking the produce of the farmers in butter, eggs, poultry, veal, &c., and selling it upon commission.

In addition to this, a large number of farms are devoted to the production of milk, which is sent to Boston daily, in some cases a distance of twelve or fourteen miles; and the small farmer, the keeper of four or six cows, disposes of his milk to the large dealer, who receives it on his route, or to whom it is sent in order to be taken to market. It is difficult to form an estimate of the amount exported, or the cash received in this way, and from these innumerable and various sources of income; but it must be very large. Sales of 1,500 dollars' worth of turnips from a single farm in one year; from another, of more than 1,200 dollars' worth of winter apples; from another, 300 dollars' worth of peaches; and another, of nearly 800 dollars' worth of strawberries, and early potatoes to the amount of 600 dollars from two acres, have been reported to me under circumstances which do not allow me to doubt the truth of these statements.

Indian Corn is raised, to a greater or less extent, on every farm, but it is cultivated exclusively for home consumption. It would be difficult, when all circumstances are considered, to name a plant whose uses are more numerous, or whose value is greater; and the cultivation of it might be extended to great advantage. Crops of 116 bushels have been produced in the county. Under good cultivation fifty and sixty bushels are obtained, but the average yield is not more than thirty-five bushels. When it is seen what can be done, and what ordinarily is done, it would seem as though the comparison must have its natural effect.

I shall give the statements of particular farmers as to the amount of their own crops; probably in this case the highest yield is given.

In Chelmsford, 70 to 80 bushels per acre. In Tyngsborough, 50 bushels and 70 bushels; the average yield through the town is supposed to be 40 bushels. In Dunstable, 30 to 40 bushels. In Tewksbury, 35 bushels. In Shirley, 35 bushels. In Lexington, 75 bushels. In Westford, 30 bushels. In Framingham, from 40 to 60 bushels. In Marlborough, 30 to 40 bushels; sometimes 50 bushels. In Pepperell, 40 to 50 bushels. In Groton, 50 bushels. In Townsend, 25 to 30 bushels; sometimes 40 bushels. These results are quite various; but I must leave them as they are given.

1. In Groton, the expenses of cultivating an acre of corn, allowing, as in all other cases, one dollar per day for labor, are given as follows:

Ploughing, 3 50; rolling and harrowing, 75,	$4 25
Compost manure, 15 loads, consisting of 3 loads of dung mixed with loam, clear barn manure being not approved,	12 00
One man and one yoke of oxen, 1½ day putting manure in the hill,	3 00
Seed, 25; first hoeing and horse, 2 50,	2 75
Second and third hoeing and horse,	4 00
Topping stalks, 1 50; cutting up and gathering, 2 00,	3 50
Husking, 3 50,	3 50
	$32 50

Returns—Stover = 1 ton of hay,	$12 00	
50 bushels corn,	50 00	
		62 00
Balance in favor of corn,		$29 50*

Of two of the largest crops of corn ever raised in the county, it may not be amiss for me to give the particulars of the cultivation.

The land had been used for pasture ground for nearly thirty years. In the fall it was ploughed. In the ensuing spring it was again well ploughed, and planted with corn in the hills, in the common form; but well manured in the *hill* with a mixture of horse-dung, lime, and ashes. When the corn was fit for weeding, half a pint of unleached ashes was applied to each hill; a part, however, was left without any ashes. The difference between the corn which had ashes applied to it and that which had none, was very apparent. The corn had a slight ploughing when it was weeded, and was half-hilled early on account of its rapid growth. After this, a plough was not suffered among it, nor had it any more hoeing, except to destroy the worst of the weeds, and to stir in the turnip-seed which was sown among it. The product of this corn was at the rate of 78¼ bushels to the acre.

The same field was ploughed again in the fall after the gathering of the crop; and again well ploughed in the spring and harrowed out at a distance of four feet, leaving each furrow one foot wide. The furrows were well manured with a compost of horse-dung, lime, ashes, and dock-mud. The seed raised the last year was planted in the drill on every furrow, making three rows to each. Care was taken to drop the seed about six inches apart. When the corn was at a proper stage, it was carefully thinned; and after weeding, it was dressed with unleached ashes through each drill or furrow. It was half-hilled early in the season on account of its rapid growth, being undoubtedly strongly stimulated by the high manuring of the land the previous season. It had a slight ploughing at this season; and soon after half-hilling, the suckers or barren stalks were all carefully cut off.

The corn was planted in the latter part of May; the stalks topped the first week in September, at which time most of the corn was dry enough for grinding. On the 13th of October it was gathered, and a measured acre of this corn produced one hundred and eleven bushels and one peck. The soil was deep black upon a yellow loam, and that resting upon a gravelly and clayey pan. It will be found that, by this mode of planting three rows to each furrow, there will be more than double the stalks of corn on the same surface than if planted in the usual way.

I subjoin an account of the cultivation of another field of corn in the county.

The soil is a deep yellow loam. It was manured with ten cart-loads of green barn

* Many other cases are given, in all of which the reader would be struck with the items of expense, and particularly with the easy and familiar way in which the surveyor speaks of *large outlays for manure*, while in the Southern States, where anti-encouragement of American industry sentiments and legislation prevail, you will see men living thinly scattered over the country, and in many cases keeping from 50 to 100 head of domestic animals without saving as many bushels of manure. How apparent, and, to a superficial observer, how strange! In one end of the Union, concentration of population, good roads, numerous banks, steam-engines, busy factories, heavy products, and prices that justify an outlay equivalent to $32 50 per acre on corn, including $12 for manure. In other parts of the same union, where false notions and mistaken vicious legislation repels capital and scatters population, you behold bad roads, light crops, heavy expense of transportation, for only a few old staples to distant customers, and land a drug! Who has made a nice calculation to show that in Maryland and Virginia, generally, the wheat and the oats, and the corn, do not, in fact, *cost more than they come to!*

manure spread on the ground, and eight loads of compost manure put in the hills, and a crop of corn taken from it. The ensuing year it was twice ploughed in the spring, and twenty cart-loads of green barn manure spread on it. It was then furrowed in rows about three feet and a half apart; and about twenty cart-loads of barn, hog, and slaughter-yard manure were put in the rows: with the last manure was mixed a hogshead of lime. The kernels were planted eight inches apart in rows. The corn was hoed three times; all the suckers were pulled out in July; and in August were taken away together with the false and smutty stalks. On the 1st of September the stalks were topped; and on the 26th the corn was harvested and spread on a floor, under the roof of a long shed, that it might dry well. On the 14th November, the whole was shelled: it measured one hundred and sixteen bushels, and three and a half pecks of clear sound corn. Weight of the corn 56 lbs. to a bushel.

The value of the stalks and suckers was considered equal to two tons of English hay. The expenses of the cultivation were estimated as follows:—

Ploughing, 2 50; manure, 25 00; seed, 0 50,	28 00
Furrowing and planting, 4 00; hoeing, 4 00	8 00
Suckering and topping, 4 00; harvesting, 4 00,	8 00
	$14 00

This, it must be admitted, is an extraordinary crop, but the account is well attested.*

Oats are frequently made the second crop in the rotation. They are not grown to much extent, compared with the population and demand, though nearly one hundred and three thousand bushels are given as the annual amount to the Valuation Committee. The crop is rated upon an average at forty bushels to the acre. The price is generally about three-eighths the price of Indian corn. This is almost always above their intrinsic value, but the convenience in using and transporting them, and the constant demand for them in livery stables, secure a large price.

They are generally taken as a second crop, after corn or potatoes, the manure being applied to the previous crop.

1. The subjoined is one estimate of the cost and returns of cultivation.

Ploughing, 2 00; seed, three bushels, 1 50,		3 50
Cradling and harvesting,		2 00
Threshing,		3 00
		8 50
Returns—40 bushels of oats, 20 00; straw, 7 00,		27 00
	Balance in favor of oats,	$18 50

2. In Dunstable, the charges of cultivation are as follows:

Ploughing, 1 50; 3½ bushels of seed, 1 75,		3 25
Sowing and harrowing,		0 75
Cradling and stooking, 1 50; threshing, 4 00,		5 50
		9 50
Returns—40 bushels of oats,	20 00	
Straw, one ton,	8 00	
		28 00
	Balance in favor of oats,	$19 50

3. In Tyngsborough, the cost is thus given. The crop is taken after corn.

Splitting corn hills, sowing and harrowing,		2 50
Seed, two bushels of oats,		1 00
Cradling and tying up, 1 00; threshing, 2 00,		3 00
		6 50
Returns—40 bushels of oats,	20 00	
1 ton of oat straw,	8 00	
		28 00
	Balance in favor of oats,	$21 50

This is very light cultivation; and the land is ploughed once only for the whole course. The seeding too is small; very few farmers allow less than two bushels to an acre. Crops of sixty bushels and more are *frequently* raised, where the land is in high condition. In Worcester county, I have the assurance of the present Governor of the Commonwealth,

* The New York State agricultural society gave its highest premium, $20, to a crop of 64 bushels last year.

that he has produced *one hundred bushels to an acre;* and in Berkshire county, a crop of eight acres has averaged *ninety-six bushels to the acre.* The general yield through the State, however, does not exceed forty bushels. Two kinds of oats are cultivated in the State,—the common oat, with a branching and spreading top, and the Tartarian or horse-mane oat, so called from the seed hanging together in clusters on one side. The plants ripen at different times, and it is therefore improper to mix them in sowing. The Tartarian oat is generally of stouter growth than the common oat, and is about equally productive, the crops of one farmer within my knowledge, who has cultivated it for several years, averaging sixty bushels to the acre. His cultivation throughout, however, is of the best character, and his other crops correspondent.

Mangel-Wurtzel, &c.—Of other vegetables raised in the county it cannot be necessary to go into a particular account. The usual varieties are produced in all parts of the county; and the market in Boston is supplied with some of its earliest and best vegetables from the gardens in Middlesex. It would be interesting and useful to point out the particular modes of cultivating and forwarding these different varieties, but this would occupy more time and space than I now feel at liberty to devote to it. The details in these cases would excite surprise; and it might stagger the credulity of some persons to tell them that horse-radish, to the amount of sixty dollars, has been annually sold from two rods of ground; and that the cultivation of the common dandelion is a source of considerable profit. Many statements of this kind, which have been made, demonstrate how much may be accomplished by minute, concentrated, and well-directed labor.

A crop of mangel-wurtzel obtained in Charleston deserves particular observation. The soil on which this crop was grown, is described as a black loam with a clay bottom, on a gentle slope to the north-east. The year previous to the crop of mangel-wurtzel, three-fourths of the land was planted with potatoes, with a moderate supply of manure in the hills; the residue was in mangel-wurtzel and grass. Early in May, in the succeeding year, there was spread on said land about eight cords of compost manure, and ploughed to the depth of eight inches, and harrowed in the usual way. About the 20th of May, the seed was sown in rows about twenty-two inches apart, and the plants, when about the size of a goose-quill, were thinned to about eight or twelve inches apart. The thinning would have been done earlier, but the crop was threatened with wire-worms. The soil was kept loose about the roots, and the land clear of weeds. The under-leaves were frequently cropped, from which much excellent food was obtained for swine and cattle, and the sun and air were freely admitted to the roots. It was desirable to do this by the middle of September, that the crown of the roots might have time to heal. They were harvested in the third week in October. The crop produced 1433 bushels, or 86,961 lbs., or 43 short tons, and 961 lbs. The actual expense of producing the crop was thirty-five dollars. The cost was not quite two and one half cents per bushel. The quantity of land, one acre.

Beets are often a very profitable crop. They are raised in considerable quantities; are packed in barrels and shipped to the south. One dollar and a half is a common price for a barrel containing two and a quarter bushels. The farmer giving this statement has often produced 600 bushels to the acre. They are planted on ridges about four feet apart, in double rows; and the intermediate spaces are often sown with turnips. The ridge planting is decidedly preferred here for all vegetables of this kind. In my opinion, and so far as my own experience goes, which has not been small, it would be better to make the ridges about twenty-seven inches apart, plant the beets in single rows, and cultivate them with a plough. A very useful machine for planting beets is a wheel, set like that of a wheelbarrow, with pins projecting from the rim two inches, and placed eight inches apart, which is passed along on the top of the ridge, and the seeds dropped by hand into the holes marked by the pins. They may then be covered by drawing a rake-head along the top of the ridge. Too much care cannot be taken to perform all operations in planting, where the vegetable is afterwards to be cultivated, in straight lines. The work is by this means greatly facilitated.

Since making the above account, I have received a statement of a crop of sugar-beets grown this season on Nahant, Essex county, by Frederick Tudor, which I have no hesitation in laying before the agricultural community, though it may seem out of place. I shall give the account with which Mr. Tudor has favored me in his own words.

"In the spring of 1840, I caused about an acre of land of the pasture lands of this place, (Nahant,) to be fenced in and trenched twenty inches deep. The ground had never before had an agricultural instrument of any kind in it. It was a pasture of indifferent soil, with many stones in and upon it.

"The trenching consisted in reversing the soil for 20 inches in depth with the spade, and afterwards putting in all the stones (which were found) in the bottom; three inches of muscle-mud were put on them, followed by the turf and best of the soil; then two

inches of rock-weed and kelps fresh from the shores, or cut from the rocks; then the less rich part of the soil and more muscle-mud—the top left with the poorest and most gravelly soil. In all, there were about eight inches in perpendicular height of manure added to the soil, which, when pressed, might have been five to six inches in perpendicular height; so that the land had been moved with the spade a depth of little more than two feet. In the spring of 1840 it was sown with sugar-beets, but did not do very well, the top-soil being extremely poor. In the spring of 1841 I had it ploughed about six inches deep, but the plough did not reach any of the richer parts of the soil below, exhibiting little more than yellow loam and gravel. I caused 93 rods of this to be again sown with sugar-beet seed this spring; and after the beet seed had come up, had the land dressed on the surface, merely spreading it on, with fifteen cords of rich cow-yard manure. This caused the young plants to grow greatly. There has been no particular care given them, and indeed several patches in the ninety-three rods were to be seen where the seed had failed, and which should have been filled with plants if the object had been to try the utmost possible. During the dry weather in August, the tops of several of the rows were cut off for fodder for the cows. My own belief is, it would have been possible to produce on the same piece of ground, if much care had been taken, sixteen hundred bushels.

"I think the crop on my land has not been caused by trenching, but by the looseness of the soil and the top-dressing of rich manure of which I have spoken. The usefulness of a top-dressing, more especially in a dry season, is undoubtedly great."

The whole crop was carefully weighed and sold by weight. The amount, 42,284 lbs. This would be at the rate of 36 tons 746 63-100 lbs. net weight to the acre, or about 1300 bushels per acre at 56 lbs. per bushel. One of the roots, cropped and cleaned, weighed 31 lbs.

This is a highly interesting experiment and result. I have long desired an opportunity of witnessing, on actual trial, the beneficial effects of a thorough trenching;—but have never seen it except in the case of asparagus beds formed after the prescriptions of former times. The practice of subsoil ploughing is in fact trenching. I am much better satisfied with Mr. Tudor's result, than with the philosophy of his explanation. I believe much is due to the trenching of the soil, whereby it was rendered permeable to air, moisture, and warmth. The partial failure of the first crop after the trenching, may be in a degree accounted for by the fact, that the subsoil had been so recently brought to the surface, that it had not been acted upon and enriched by atmospherical agency. The deposit of the stones at the bottom in a kind of bed, served to draw off and to retain the moisture, which had its effects upon the growing crop. The bed of manure, though buried as deeply as described, since the earth above was light and porous, undoubtedly, in the evolution of its gases, contributed its full share to the growth of the crop. The top-dressing certainly was not without its great advantages, not only in supplying the necessary nutriment to the plants, but likewise, as is suggested, in protecting the soil from the severe drought.

It will be questioned by some whether so expensive a cultivation can be afforded. The price of manure is not given. If it were not overvalued, the first crop, even at five dollars per ton, or more than 180 dollars to the acre, would undoubtedly pay the expenses of culture and leave a large profit; but in the next place it is to be remembered that the land is now in condition for at least six or eight years' profitable cropping without any additional manuring.

THE SHEEP.

Let us survey a few of the valuable facts with regard to sheep, which have been noted during the past year. Mr. Pawlett, of Beeston, from a series of careful examinations, concludes that the general opinion is correct, that the sheep goes with young longer with males, than with females. He found that the longest time that any ewe went with

	Weeks.	Days.
A Ram Lamb, was	22	4
The shortest	21	0
The longest with an Ewe Lamb	22	2
The shortest	20	4

He says, "Cabbages planted out in April or May are the best food to make lambs fat that I ever met with; but they are expensive, and would scarcely pay any one to grow for sheep in a general way." Next to cabbages, white turnips he thinks are the best for lambs in September and October, and preferable to swedes, if they are not too old, and are cut by a machine. In a

careful comparative experiment, he found that in a month, eight lambs fed on cabbages and clover chaff gained each 11 lbs.; eight fed with swedes and chaff gained $8\frac{1}{4}$ lbs. Washing the food of the lambs he found to be prejudicial. During the month of December, 1836, he fed two lots of lambs with carrots and swedes. The lot fed with the unwashed, gained in weight each $7\frac{1}{2}$ lbs.; the lot fed with the washed, gained only $4\frac{3}{4}$ lbs. He approves of the early shearing of sheep; he says, "I am convinced that the sheep thrive much faster during the summer if their wool is taken off on the 1st of May, than if it were left on until the first or second week in June." From some careful experiments of Mr. Bruce, with linseed cake and other substances in sheep-feeding, he concludes that "mutton can be produced at a lower rate per lb. upon liberal use of foreign keep along with turnips, than upon turnips alone, taking of course the increased value of the manure into account;" that of this foreign keep, "linseed is the most valuable, and beans the least so; but that the mixture of both, forms a useful and nutritious article of food."

The *urine* of the sheep, "so valuable as a manure for every kind of crop," has been carefully analyzed under the direction of Professor J. F. Johnston. (*Trans. High. Soc.*, 1846, p. 309.) 10 gallons of the urine contain 7 lbs. of dry fertilizing matter. The *dry* matter contained, in 100 parts—

Dry organic matter, containing nitrogen	71·86
Inorganic or saline matter	28·14

The saline matter or ash contained, in 100 parts—

Sulphate of potash	2·98
" soda	7·72
Chloride of potassium	12·00
" sodium	32·01
Carbonate of soda	42·25
" lime	0·82
" magnesia	0·46
Phosphates of lime, magnesia and iron	0·70
Silica	1·06

The urine of the sheep, therefore, contains only a very small quantity of phosphoric acid in combination with lime and magnesia. It agrees very closely in this respect with that of the ox and the horse, in which no trace of phosphate has yet been detected. It abounds also, like the urine of these animals, in salts of potash and soda. It is especially rich in common salt, and in soda, which in the ash is in the state of carbonate, but which in the urine is no doubt combined with some organic acid. If it be natural to the urine of healthy sheep to contain so much soda, we may find in this one reason why they relish salt so highly, and thrive so much better when it is abundantly supplied to them. The organic portion of the urine contains in 1000 parts—

Water	928·97
Urea	12·62
Organic matter soluble in alcohol	33·30
Organic matter soluble in water, insoluble in alcohol	3·40
Organic matter soluble in weak potash, insoluble in water and alcohol	0·10
Organic matter insoluble in any of these liquids	0·15

Inorganic matter consisting of—

Sulphate of potash	0·51	
" soda	1·32	
Chloride of potassium	2·05	
Common salt	5·47	
Sal ammoniac	3·00	20·09
Chalk	0·14	
Carbonate of soda	7·22	
" magnesia	0·08	
Phosphate of lime and magnesia, with a trace of phosphate of iron	0·12	
Silica, with trace of oxide of iron	0·18	

For the Plough, the Loom, and the Anvil.

ON THE INFLUENCE, ACTION, AND DUTIES OF AGRICULTURAL SOCIETIES.

From a period anterior to the Revolution, up to the present time, we have had Agricultural Societies, coming and departing like the ghosts in Hamlet. They have seemed to possess all the elements and materials that could be desired to ensure the results for which they were organized; members full of zeal, intelligence, and practical knowledge, and the public favor—and yet, after all, the question arises with observing men, what has been the average increase through the country, in the product of labor applied to agriculture? and how much of that increase, where it has occurred, is to be attributed to these associations? and in what mode of action has their influence proved to be beneficial?

To me, it seems obvious that agricultural societies have relied too much on the mere effect of premiums offered for particular objects, the attainment of which, in most cases, developes nothing new, either in principles or in the application of principles. These premiums lead, it is true, in many cases, to the accomplishment of extraordinary results—to the production of a heavy crop of grain or vegetables, on a small piece of ground; or to the exhibition of an animal, a hog or a horse, remarkable for size and sleekness; but do they teach the Farmer, in ordinary circumstances, how such crops can be made, and such animals reared, by some new and economical method, within the means of farmers generally; and by means which it would be prudent and profitable for such farmers to adopt? For that seems to me to be the true question! If such were the effects of the proceedings of agricultural societies, should we not witness a general improvement in the face, and a general increase in the productions of the country? Should we not, instead of dispersion and depopulation, and impoverishment, witness concentration and increase of population and wealth? and with these the multiplication of schools, general improvement in the systems of education, and a higher degree of intelligence and civilization from year to year?

These premiums for fat sheep and heavy bullocks, and heavy crops on small patches, serve to stimulate, here and there, some rich or dilettante young farmers, to expend, in the particular cases, more than the object is worth, but, after all, what useful end is obtained that had not been reached before? The gentleman carries home his silver cup, or his diploma, to show to his good lady and his friends, but does it lead to a general or increased diffusion of *useful knowledge*—knowledge by which profitable ends may be generally reached by more profitable means, thus advancing the general prosperity of agriculture?—for, after all, that is the *great and the only desideratum*. Let the directors of these associations give us the measure of any given crop, or the weight of any particular animal, for which they have awarded a premium at any time, since the establishment of the American Institute, or the New York State, or any other society, and my life upon it, I can go back and show from agricultural annals, that as large crops, and as large animals, have been exhibited five and twenty or five and fifty years ago! Be it then repeated—have the average products of the land in the States, within the influence of these societies, been increased? Are population and wealth augmenting? Is education more diffused and ameliorated? Are the useful arts more flourishing? Is civilization advancing? Is public utility becoming more and more the standard of esteem and honor for men and men's actions? Is the sight of Christian blood shed by Christian hands becoming more generally offensive and horrible? Are the people more ready to look on war,

and the authors of war, with detestation, for all these results should be expected as the legitimate fruits of *improved agriculture*, as improved agriculture can only be the fruit of improved intelligence and higher civilization.

Is it, do you suppose, Mr. Editor, for any want of knowledge, how *to make poor land rich*, or for want of silver cups, awarded by societies, that you read in a Petersburgh paper, a few days since, that people are moving off in scores from such a country as lower Virginia, with its water facilities, its marl, its undrained swamps, its lime to be had for five cents a bushel—a country flooded with light shed by such a pen as Edmund Ruffin's?

True, however, and it is admitted with great pleasure, visible improvement has taken place, in many parts of the country; but to what are they to be traced? To the effect of the premiums offered for the same objects, for the last fifty years? By no means—these improvements have been achieved by the mind, labors, and zeal of scientific men, applying to *agriculture* the sciences, which are as essential to its success, as science is essential to progressive improvement in any other art or pursuit under the sun. Thus, who has given us the best dissertation and illustration on the principles of the *mould board of the plough?*—the most important part, of the most important implement ever invented for the use of man, except, perhaps, the printer's type? Mr. Jefferson, derided by fools for his "book knowledge." Who invented the system of hill-side ploughing, and the hill-side plough itself? Governor Randolph, Mr. Jefferson's son-in-law. Who may be said to have almost discovered to us the use of that cheapest and most diffused of all fertilizers, *plaster of Paris?* Judge Peters, laughed at by fools for his want of "practical" success as a farmer. To the action of mechanical genius, too, applied to the wants of agriculture, are we indebted for the great improvements attributable to *better and more labor-saving implements.* Thus has it been, not to agricultural premiums, offered and repeated for fifty years, for large crops, but to the genius of Prouty, that we owe the greatest improvement ever yet effected, in the application of the *centre draft* to that king of implements; as we owe the revolving rake, not to a premium framed to elicit the invention, but to the general demand for labor-saving machinery, for agricultural purposes, acting on the plain useful mind, of the unpretending peaceable Quaker Pennock. Yet do we hear of societies bestowing honors and medals—do agricultural societies, or agricultural committees in Congress, call on the representatives of the people, while they are giving medals, and swords, and pensions, for "brilliant" success in the slaughter of the human race, do they call for honors or emoluments to such benefactors as Prouty or Pennock? or such farmers as Capron, who teaches the moneyed man how he can profitably and honorably employ his capital in agriculture; or to such farmers as Havler and his neighbors in Montgomery, who teach the world how men without means may, in process of time by skill and industry, make poor lands *enrich themselves.*

If then, says the reader, the admitted zeal and good intentions of agricultural societies have been misdirected and fraught with no proportionate benefit to agriculture, what would you have them do? And to this I would respectfully answer, that they should so use their influence and means as to put into activity, by all the high and powerful motives that could be brought to bear upon them, the minds of ingenious mechanics to invent, for the farmer, some decidedly new and valuable agricultural implements or machines; and in the same manner, by the offer of adequate recompense, they should stimulate men of science to useful discoveries in the application of science to agriculture and horticulture, in a way that every year some new principle might be developed, or some known principle made useful

by a novel application, productive of remunerating results. Hear Liebig himself declare, in so many words, that "for the future, agriculture is to be indebted to the application of the appropriate sciences *for all material improvement*"—and yet we behold such an institution as the American Institute, with its high-sounding name, accumulating its thousands annually, procuring itself to be puffed all over the country, with its imposing array of "Committees of arts and sciences," &c., dribbling out its stereotyped diplomas, (for which the winner pays more than they cost,) for best hats, and shoes, and specimens of best soap and candles. Instead of offering hundreds for some new and valuable invention connected with agriculture and the useful arts, and for the best dissertations on questions admitted to form great desiderata in the prosecution of various industries, they offer, again and again, their old stereotype list of old premiums for old objects, making their place of exhibition a mere museum or show shop, for the convenience of mechanics and merchants to advertise their "goods, wares, and merchandise," and where women and children may be lightly taxed for seeing what it would cost them much trouble to see, but what they might find by going from shop to shop.

But, Sir, above all things, is it not incumbent on agricultural societies to inquire into, discuss, and understand; and according to their understanding, to bring all their power to bear on the *action of the governments, state and federal*, so far forth as that action is, or can be *made conservative of the landed interest* of the country, for the welfare of which such societies profess to be organized and to have their existence! Look at all other classes, with what keen, sharp-sighted sensibility they watch every action of the lawgivers of the land! Suppose a new duty is proposed to be imposed or an old one to be modified, don't you see the manufacturers, and the merchants, and the mechanics, repairing straightway to their "Halls" and their "Chambers of Commerce," as busy and as bristling, and as ready for self-defence, as a disturbed hill or hive of ants, or bees, or hornets? *But how is it with Farmers' and Planters' societies?* Not only too insensible to feel and too timid to speak, but actually impatient at being called on to *rouse up and think for themselves!* It is not doubted, for instance, that a large majority of those who may have been, if any have, tempted to follow the writer so far, would much sooner have read some sixteenth edition of a case of a cow yielding twelve pounds of butter in a week, or a piece of poor land being made to produce sixty bushels of corn, by the application of ashes and stable manure, and bone-dust and guano, than to be thus called on to exercise his mind in attempts to discover *what agricultural societies can do, more than they have done, to be really useful.*

For what are societies formed? Is it not to achieve, by *union*, what cannot be effected by individual strength or influence? As it takes two men to lift a log on the house, that one can easily roll to the place of building? How feeble is the voice of an individual imploring the ear of Congress, but let societies unite and demand attention, and the so-called Representative, by an instinct of self-interest and the love of place and power, will prick up his ears and be all attention. You, Mr. Editor, ventured in a memorial to each house, months since, to call upon Congress to do for instruction in the great business of agriculture, some *little* in proportion to what is done to gather and diffuse knowledge, by schools, and surveys, and maps, and charts, connected—not with the art of *feeding* but of *bleeding mankind!* And what have you heard of your memorial since? True it was presented in the Senate with force and eloquence by Senator Johnson. He, like a patriot and a man of some conscience and feeling, showed himself alive to the dignity

of agriculture, and to the indignity with which it is treated by Congress; all that a faithful sentinel could do he did—but what has been done by the committee expressly appointed to watch over the agricultural concerns of the country, as far as they are liable or susceptible of being affected by legislation? These gentlemen have seen voted away, and have themselves voted for thousands and millions for the *sword*, but apparently dare not whisper the claims of the *plough*, or the *loom*, or the *anvil*. To return to the spirit —the *animus*, that should guide agricultural societies in the use of their means, and their influence, there is not one in the Union that ought not to have made itself *heard and felt*, years ago, on the very topics presented in your memorial.

Finally, may we not hope, now that the war is ended, and a state of things seems to be approaching, that party ties are likely to be broken up, and farmers may begin to think for themselves;—may it not be hoped that instead of party meetings, we may have agricultural clubs formed all over the country, in which farmers may discuss, not only the means of practical improvement, but that on which, above all things, practical improvement depends—that is, the influence of the laws on the industrial pursuits of the country?

GARNETT.

DOMESTIC ECONOMY.

EXAMPLES OF, IN NEW ENGLAND.

IN some parts of our country, the idea prevails, that no young man can set up for himself, as a farmer, on less than three hundred or more acres of land, with a certain number of cattle, sheep, horses, implements, and other force and materials; and thus it happens that fathers not being able to bestow such means of beginning life, the son hangs on in a state of degrading and miserable dependence, without industry to labor, and destitute of the means of living without labor.

The great blessing of being reared, where to swing the axe, to handle the scythe, or to follow the plough, carries with it no inference of ignorance or debasement, but the contrary, is, that in such a country, personal integrity constitutes respectability, and health alone is necessary to independence; for in such countries young men are of all things most ashamed to be seen *idle!* and on a few acres, frugality and personal industry, with good sense to despise non-essentials, will make any man independent.

In one of the "AGRICULTURAL SURVEYS OF MASSACHUSETTS," elaborate and valuable in our judgment, as we have always thought, far beyond what they have credit for, Mr. Colman gives us the following sketch from real life, of the "*domestic economy*" of New England.

We think him too fastidious in withholding the *names* of such exemplars of what is most worthy of imitation and admiration. We can see no good reason why such instances of excellence in what is most useful to society, should not be as broadly proclaimed, and public esteem and homage be invoked for those, individually, and by name, who practise such virtues, as is done all over the world, and nowhere more than in this our Republic, for men of whatever grade, who have success in fields of blood, and to whom honors are measured in proportion to their success in the barbarous trade of human butchery.

Hence is it that we see men first selected and educated at West Point, at the expense of the farmers, chiefly,—to these when they graduate, a sword

is given, and on the point of it hangs a commission for life, beginning with a salary, equal at least to a thousand bushels of wheat, and bound to be increased as the officer lives and is promoted in peace or in war; and what then? Why, for the very reason that he *has* served his time in the *military*, enjoying a high salary and life-commission, for that very reason his son *is preferred* for the same favor. That these favors have been to a certain degree hereditary, for one generation at least, need not be denied—but what it imports the farmer to ask, and for agricultural societies to ask, is, whether it was ever yet known that a favor like this was claimed from the government, on the score of the highest possible excellence in the practice of the far more beneficent use *of the plough?*

Yet why? Can any man give a plausible reason why government preference should not be in like manner bestowed on the sons of such men as Wilder, and Lowel, and Phinney, and Whitney, and Ruffin, and Taylor, Doctor Thompson of Delaware, and Jones, and Pennock, and Prouty, and Hill, and Bowie, and Poor of Massachusetts—improvers of horticulture and of agricultural implements; and winners of prizes offered for *best cultivated farms*, in their counties and states respectively? and would not this be done, were agricultural societies to watch, as they should do, to enlighten public sentiment and to guide the action of the government in reference to the landed interest.

"Historians generally," says the classical Historian of Fruits, "seem to dwell with enthusiasm on the splendid achievements in which the cannon, the sword, and the bayonet, are chiefly instrumental,—we however regard these implements of destruction with far less reverence than we bestow on the spade, the rake, and the pruning-knife, which enhance the beauties of the spring and the luxuries of the summer, make our vats overflow in autumn, and secure us comforts for the winter. Not that we are insensible to the merits of the brave *defenders* of our country, but we wish to see those whose talents and industry have so greatly enriched these kingdoms by their attention to horticulture, partaking of the admiration and gratitude of a people who are daily enjoying the fruits of their labours. Has the most splendid campaign which our history boasts, secured the nation a treasure equal in value to the potato plant? or would we renounce the possession of ten of our best adopted fruits, to double the acquisitions of the last ten years by war? For it is not (says the elegant Bernardine St. Pierre) upon the face of vast dominions, but in the bosom of industry, that the Father of mankind pours out the abundant fruits of the earth."

In travelling over New England, one is frequently struck with examples of thrift, comfort, and humble independence, the direct results of industry, sobriety, and frugality, as instructive as they are beautiful. A benevolent mind always contemplates them with unmingled pleasure. They present themselves often in circumstances to ordinary view the most inauspicious. The conditions, which appear most unfriendly to success, seem to constitute the very grounds or occasions of it. The courage is kindled and the resolution strengthened in proportion to the difficulties to be met; and, in a manner the most encouraging to honest labor and strict temperance, they show the power of man, in a high degree, to command his own fortune. Massachusetts is full of these examples. I do not know that they are not as common in other places. It is impossible however that they should exist but in a condition of freedom, where a man has a freehold in the soil; where, unawed either by overgrown wealth or oppressive power, he wears the port and has the spirit of a man; and where, above all things else, he has the voluntary direction of his own powers, and a perfect security in the enjoyment of the fruits of his own toil.

It will not be without its use, if it does no more than present to the imagination a charming picture of rural comfort and independence, if I refer particularly to one instance which strongly attracted my attention. In one of those beautiful valleys in which the county abounds, where the surrounding hills in June are covered to their summits with the richest herbage and dotted over with the rejoicing herds, at the foot of the hills, near

a small stream which here and there spreads itself like a clear mirror encased in a frame of living green, and then at other places forces its gurgling waters through some narrow passes of the rocks, you may find an humble unpainted cottage, with the various appurtenances of sheds and styes and barns around it. Three or four stately trees present themselves in front of it. The door-yard is filled with flowers and shrubs; and the buildings seem to stand in the midst of a flourishing and full-bearing orchard, the trees of which are clothed with living green, with no suckers at their roots, unadorned with the nests of the caterpillar, unscathed by the blight of the canker-worm, and with their bark clean and bright, indicating alike the health of the tree and the care of the proprietor. Every part of the premises exhibits the most exact order and carefulness. No battered axe lies at the wood-pile; no rotten logs, no unhoused sled, no broken wheels, no rusted and pointless plough, encumber the roadway; no growling sow, with her hungry and squealing litter, disputes your entrance into the gate; no snarling dog stands sentry at the door. The extended row of milk-pans are glittering in the sun; and the churn and the pails are scrubbed to a whiteness absolutely without a stain.

The house is as neat within as without; for such results are not seen but where harmony reigns supreme, and a congeniality of taste, and purpose, and character, exists among all the partners in the firm. The kitchen, the dairy, the bedrooms, the parlor, all exhibit the same neatness and order. The spinning-wheel, with its corded rolls upon its bench, keeps silence in the corner for a little while during the presence of the guest. The kitchen walls are hung round with the rich ornaments of their own industry—the long tresses and skeins of yarn, the substantial hosiery of the family, and the home-spun linen, emulating the whiteness of the snow-drift. The floors are carpeted, and the beds are made comfortable, with the produce of their own flocks and fields, all wrought by their own hands. The golden products of the dairy; the transparent sweets of the hive, obtained without robbery or murder; the abundant contributions of the poultry-yard, the garden, and the orchard, load the table with delicious luxuries. There are books for their leisure hours; and there stands too the reverend bass-viol in the corner, constant like its owner to appear at church on Sundays, and kind always to assist in the chant of the daily morning and evening hymn. Better than all this, there are children trained in the good old school of respectful manners, where the words of age, and gray hairs, and superiority, still have a place; enured to early hours and habits of industry, and with a curiosity and thirst for knowledge, stimulated the more, from a feeling of the restricted means of gratifying it. There is another delightful feature in the picture; the aged grandmother in her chair of state, with a countenance as mild and benignant as a summer evening's twilight; happy in the conviction of duty successfully discharged, by training her children in habits of temperance and industry; and receiving, as a kind of household deity, the cheerful tribute from all, of reverence and affection.

Some may call this poetry; it is indeed the true poetry of humble rural life, but there is no fiction nor embellishment about it. The picture is only true; and if it were not a violation of the rules which I have prescribed to myself to mention names in such cases, and that I might offend a modesty which I highly respect, I would show my readers the path which leads to the house, and they should look at the original for themselves.

The owner, when I visited him, was forty-five years old. At twenty-one years old, he was the possessor of only fourteen dollars, and with the blessing only of friends no richer than himself. His whole business has been farming and that only. He married early; and though he did not get a fortune *with* a wife, he got a fortune *in* a wife. They have comforted and sustained their parents on one side of the house. They have brought up three children; and, with the co-labor of the children, they have given them a substantial and useful education, so that each of them, now of sufficient age, is capable of keeping a good school, as they have done, with a view to assist their own education. He began with thirty-five acres of land, but has recently added fifty-five more to his farm at an expense of nearly thirteen hundred dollars, for which there remained to be paid five hundred—a debt which, if health continued, he would be able to discharge in two years. The products of his farm are various. He raises some young stock; he fattens a considerable amount of pork for market, and occasionally a yoke of cattle. He sells, in a neighboring village annually, about one hundred dollars' worth of fruit, principally apples and peaches. Such a situation may be considered, in the best sense of the term, as independent as that of any man in the country.

Now what are the causes of such success? Persevering industry; the strictest and most absolute temperance; the most particular frugality and always turning every thing to the best account; living within his own resources; and above all things, never in any case suffering himself to contract a debt, excepting in the purchase of land, which could be made immediately productive, and where of course the perfect security for the debt could neither be used up, nor wasted, nor squandered.

ON THE USE OF THE DRILL.

Neglect of the Interests of their Constituents, by Members of Congress. Interesting extract from a letter from a Delaware Farmer.

The advantage of *drill husbandry* over the old, slovenly, and wasteful mode, is clearly established in Delaware, some of your correspondents to the contrary notwithstanding. As an instance you saw, when at my house, a field of eighty acres drilled with eighty and a half bushels of wheat, the yield of which was nineteen hundred and twenty bushels. Yet more favorable results from this method of seeding can be shown. Mr. Kibler, a neighbor, drilled ninety bushels on fifty acres, on land that was better than my own, by at least one heavy dressing of marl. He reaped twelve hundred and twenty bushels. The mere saving in seed, when wheat is sold as it was last year, at $2 15 per bushel, is something; but when you add to this an increase of one-fifth in the entire crop, as Dr. Noble's experiments prove, *the drill becomes an important acquisition.* Besides, it looks more systematic and farmer-like—where will you find, throughout the whole Union, such improvement making in wheat culture, as in Newcastle county, Delaware? We have some three hundred thousand acres of land in this county. If it were divided into farms of one hundred acres each, and each farm possessing a drill, the improvement would be great in increased production, as well as in the saving of seed. The culture of wheat will extend—for let who will be President, the *loom* must come to the *plough.*

My dear sir, we want a larger share of practical farmers in Congress. Neither the committee on *public lands* or that on *agriculture* have ever given to them the attention required by their importance, nor will they, until the practical farmer, the hard-fisted interested man himself is sent there to defend his calling. No man should ever be sent to Congress, (nor ever shall by my nomination,) who has not shown some tact at attending to the *real business of the nation.* The majority of those from the learned professions, as soon as they get to Washington, manœuvre in every way to prolong their stay. If in favor with the powers that be, they besiege the White-house for a fat office for themselves, or for some or all of their kin; they entirely lose sight of the purpose for which they were sent there, *i. e.*, to legislate for the good of the whole nation, and particularly for that of their own constituency. Delaware has sent several delegates, whose names it is not necessary to repeat, who all abandoned the State as soon as we dropped them as politicians. These were all professional men, not interested like ourselves in the soil, and they all took care to make their principles chime with their own interests, caring only for *our votes!* In fifty years of legislation, to my knowledge, the price of grain has not improved. I remember going, in 1798, with my widowed mother to sell her crop. She got four shilling currency for corn, and ten shilling currency for wheat.

The committee on public lands have never yet discovered, that if they would establish looms in the valley of the Mississippi, to use up all the wool and cotton that are now, or to be hereafter grown there, the government lands in their charge would become as valuable as are the lands about Lowell, or at least those on the Brandywine; instead of which, of some twenty millions of acres of lands in market, but two millions are sold at the low price of $1 25 per acre; a large proportion of which again revert to the States in which they lie, being sold for taxes. Much of the public land, too, is "squatted" on by unprincipled men, and the government has not the nerve, if they have the ability, to remove them. Bowie knives are too sharp. The same culpable neglect of duty is chargeable on the *agricultural committee.* They have never made any report on the general agri-

culture of the country. They have never attempted to explain the cause of the frequent revulsions in the value of produce and lands.* What a glorious chance for distinction would a practical man find in drawing up either of these reports!

As an evidence of the darkness in which the anti-loom, and anti-anvil party are kept, I will state, that a week or two since, I sent an article to a leading paper of our own State, showing, that the building of a locomotive, at Newcastle, that cost $10,000, was of more advantage to the vicinity, by the increased demand for provisions to be consumed by the operatives engaged upon it, than was the commerce of France and Russia, in the year 1841. In that year, France and Russia together took but six thousand seven hundred bushels of wheat, and sixty-seven bushels of potatoes, although, as an inducement, we took from France alone $16,000,000, and from Russia $603,570 worth of goods, duty free. The paper referred to, for reasons best known to its editor, refused to publish.

[Farmers must expect their business to be neglected, and their interests to be abused, as long as they themselves manifest neither sense of wrong nor impatience at the neglect of their representatives. Even agricultural societies dare not whisper complaint, and thus things go on from bad to worse, as they always will, as long as men suffer themselves to be sheared like so many sheep, by their party leaders for party uses. Sloth, ignorance, and pusillanimity never yet saved any man or class of men from being ridden and ruined! —*Edits. P., L., & A.*]

BOOK KNOWLEDGE OF FARMERS:

DERIDED BY WHOM?

With a man of any reflection and honest care for progress in all the arts and employments of useful industry, there are few things more trying to his patience than to hear men, sometimes even gentlemen, who have some pretensions to education, and who therefore ought to know better, denouncing book knowledge, as affording any guide in practical husbandry. Now, to all such, and especially to practical men who succeed well in their business, and who have always something useful to impart, as the result of their own personal experience, does it not suffice to say—"I am obliged to you for what you have told me; your integrity assures me that it is true, and your success convinces me that yours is the right rotation, and yours the proper process, since I see that while you gather heavy crops, your land is steadily improving; but now, my friend, let me ask you one question further. What you have imparted is calculated to benefit me personally, and unless communicated again by me to others, with me its benefits will rest. Now, suppose, instead of the slow and unsocial process of waiting to be interrogated, and making it known, to one by one, as accident may present opportunities, you allow me to have recourse to the *magical power of types*, which will spread the knowledge of your profitable experience, gained by much thought and labor, far and wide throughout the land, that thousands may enjoy the advantages which otherwise I only shall reap from your kind and useful communication. Will not that be more beneficial to society, and is it not a benevolent and a Christian duty not to hide our lights under a bushel?" Doubtless such a man, if not a misanthropic churl or fool, would say Yes.

* Our correspondent is impatient. He ought to remember that these patriotic people-loving committees, have only been in a state of incubation for eight months. Let us wait another, and see what the regular period of *time* will bring forth.—*Edits. P., L., & A.*

Yet the moment, by means of types, such knowledge is *committed to paper*, it becomes the (by fools only derided) *book knowledge*. Such as follows:

Experiments with Manures on Potatoes and Turnips. By Lord BLANTYRE. (Communicated to the Philosophical Society of Glasgow by Dr. R. D. Thomson.)

EXPERIMENT I.—On Potatoes—Cow Park of Porton Farm—Soil poor and light—had been subsoiled previous autumn, after being drained and ploughed for oats from old grass in 1842. One drill, each plot for experiment with each different rate of manure being about one-thirtieth of an acre.

	Bolls.	Pecks.	
No 1.—Dung at the rate of 30 tons per acre	47	10	per acre.
2.—Nothing	10	2	
3.—3 cwt. Guano per acre	21	1	
4.—4 cwt.	25	12	
5.—6½ cwt.	34	6	
6.—7½ cwt.	31	4	
7.—8 cwt.	34	6	
8.—Dung at the rate of 30 tons per acre	43	12	

The boll is the Renfrewshire boll of five cwt. The wheat of this year (1844) appears inferior on the portion of the field where the above experiments with guano were tried.

EXPERIMENT II.—On yellow turnips—South-west field of Porton—Soil light. This field was not in very poor order, from having been in potatoes, dunged in 1841, wheat and barley in 1842. The other parts of the field not experimented on were dressed with bones, 30 bushels per acre, with 5 tons of ash dung. The crop was good.

	Tons.	Cwts.	Qrs.	
No 1.—Bones and dung as above, (30 bushels bones, 5 tons dung,)	gave 23	17	0	per acre.
2.—3 cwt. guano	26	2	2	
3.—4 cwt. "	27	6	2	
4.—5 cwt. "	28	16	2	
5.—6 cwt. "	29	8	0	
6.—7 cwt. "	31	9	0	
7.—8 cwt. "	27	6	2	
8.—9 cwt. "	28	16	2	
9.—10 cwt. "	31	0	0	
10.—Calcined bones, 30 bush. per acre	25	8	0	
11.— " 45 "	24	12	0	
12.—Animal charcoal, 30 "	25	0	0	
13.— " 45 "	25	8	0	

The calcined bones were the riddlings of bones used in a china manufactory. The animal charcoal was got from some of the sugar refiners, called exhausted animal charcoal.—*From Proceedings of the Philosophical Society of Glasgow*, 1844, 1845.

WASTE OF FOOD IN FATTING CATTLE, &c.

So trifling is the interest that we take in the present rage for exhibitions of fat cattle, that we might be supposed to be disqualified, by this very assertion, to offer observations on the subject; but it is because but little judgment is shown, and so much wasteful error is committed, that we would draw attention to the evil, although we may acknowledge ourselves disqualified to enter the lists with breeders and fatters of kine and swine.

We have for some years past been so much disgusted with the rank, melting, oily state of the flesh of "show beasts," that it never is allowed to come to our table during the mania which pervades society about Christmas time, and while the Baker Street Bazaar extravaganza in London, is being exhibited to the gaping public.

Waste of food is essentially wrong; it therefore becomes a duty for all those who look on and grieve over the folly of "fatters," to point it out to those owners of stock whose intellects are too obtuse to discover for them-

selves the monstrous and unqualified mischief they are committing. It is a trite axiom, "Enough is as good as a feast;" yet, in the very face of a truism, in which so much is conveyed, our magnates of the land, our dilettante breeders and farmers, persist in gorging the creatures intended for our sustenance, to the very verge of that state in which they become unfit for food.

"There is but one step from the sublime to the ridiculous;" and of a truth a beast stuffed to repletion, and wearying under a cumbrous load of bloated fatness, has taken that step—that last step in its "ill regulated life," and is henceforth a scandal to its feeders, and a thing to be eschewed by all who have the fears of indigestion before them. One of the causes of the increase of illness during the Christmas consumption of show and prize animals, is doubtless to be attributed to the undue quantity of fat in a rank, unnatural state, which is at that season especially taken into the stomachs of the fond public. Chemistry, with its glorious powers of investigation, has shown the nature of fat, and its operation on the human frame; yet, in the face of its incontrovertible truths, this silly public crowds to the bestial shows in gaping spurious delight, and gloats over future feasts, of a nature so rank that the gorge of an Esquimaux would rise at them.

Cattle-shows were instituted, as every one is aware, ostensibly to submit the finest specimens of domesticated animals to the view of judges to improve our breeds of stock, and to excite emulation. The origin of all institutions is good—alloy is introduced by degrees; and in the course of time the cupidity and other bad passions of man supervene, and excellence becomes merged in corruption.* We unhesitatingly assert, that cattle-shows, in their present degenerated condition, have arrived at this state; and ought to be, if not abolished, so altered and remodelled that an entirely new order of things should be instituted.

That man must be a sorry physiologist who can suppose that fat constitutes health; that the genus alderman is a specimen of physical vigor; that the flesh (muscle) of an over-fatted animal, (however the coarse feeder may doat over the marbling of a prize sirloin,) can be in fit state for human food. Excess of fat is disease. The present aim of the race of fatters appears to be to produce the greatest quantity of tallow, the largest amount of dripping, and to establish themselves the kitchen-maids' best friends.

They who undertake the difficult and onerous duty of preparing stock for the food of man, ought to be able to bring to the task powers of mind of no common order. Any one can gorge a creature, but few can calculate the exact proportion of food at each meal to lay the largest portion of healthy flesh upon the bones of animals *short of repletion*, which is a state that should never be attained by man or beast; by the former, because his mental and bodily vigor would suffer; and by the cattle in his byre, because their comfort would be compromised and their value lessened.†

* This happens in more countries than one.—Ed.

† With the exception of the Smithfield Club, we believe no agricultural society now bestows premiums for, and therefore encourages the exhibition of over-fed oxen. The Highland and Agricultural Society relinquished the practice many years ago; and now that the capabilities of our native breeds of cattle and sheep to become fat, absolutely and comparatively, have been proved to demonstration, there seems no use of *wasting time and food merely to ascertain to what degree particular animals may be overloaded with superabundant fat.* The objections to over-fattening suggest a comparison of the fitness of byres and hammels, that is, confined houses, and small open courts with sheds, for fatting oxen in. In byres the animals must take the food as it is given them, in quantity and in time, and when under constraint it is quite possible for them to feel hunger at one time and be filled to repletion at another; while in hammels, the animals being free to choose both their food and the time when it should be eaten, eat and rest as it suits their inclination, and no animal that has its food at command will eat to repletion.—Ed.

A NOVEL PROPOSITION BY DR. EMERSON,

TO THE PHILADELPHIA SOCIETY FOR PROMOTING AGRICULTURE; WITH SUGGESTIONS GROWING OUT OF IT—*Currente Calamo.*

At the last June meeting of the Philadelphia Agricultural Society, a proposition, as useful as it was singular, was submitted by *Dr. Emerson*, the learned editor of the Farmer's Cyclopedia, to have a committee appointed to confer with the seedsmen of Philadelphia, and otherwise to inquire and report *the best and most practicable system for an early and effectual importation and trial, in the United States, of whatever is discovered and brought into cultivation and use in Europe, with the promise of economy and benefit to agriculture and horticulture, as soon as possible after the discovery, trial, and announcement of them abroad.*

At first view it might be supposed, that this, too, is one of the things which might safely be left, as indolence and procrastination would leave every thing, to take care of itself—under the common impression that the vigilance of self-interest, and the competition and benign effects of "*free trade*," will take care that no time be lost in securing for the country whatever it is the interest of American agriculturists and horticulturists to possess. Now, plausible as this *laissez nous faire*, this let us alone theory may be; nothing in practice can be more illusory. Of the truth of this, no annals abound in so many proofs, as those of the two kindred occupations, farming and gardening, to which we have referred. Paradoxical as it may seem, the very persons who are most deeply concerned, and whose peculiar employment it is to look after all that is new and promising in their line, are often the last, if not to discover—still they are the last to give *the order for importation and trial.* Vigilance and activity are virtues that are certainly not exclusively dug up and appropriated to themselves, by those who dig their living out of the ground. Generally speaking, they are rather of the *talking* breed—they have, for the most part, "*a great mind*" to do this, and to try that, but, alas! they ultimately fall into, and swell that great class that belongs to every country, and especially to *warm ones*, to the *laissez-nous-faire* school.

We might string together a long list of such practicable cases of doing good to agriculture and horticulture, as Dr. Emerson seems to have in view, which fall within our notice, in a somewhat wide range of reading in that direction, and which are often overlooked for a long series of years, unless they happen to attract the notice of some public-spirited, enterprising citizen, very apt *not* to belong strictly to either of those two departments of practical industry—as, for example, we might instance, and will hereafter, or in another place, give a full account of "*a variety of Italian rye grass*," lately brought into vogue in England, and which, *last year*, yielded on good authority, for soiling purposes, having been top-dressed with liquid manure, "nine or ten crops of excellent green food, between March and December," being earlier than either lucerne or common rye. How long before the practical man will send for that? Perhaps, the vigilance of self-interest, and that all-sufficient alacrity which we are told is the invariable accompaniment of perfectly "free trade," may have already secured for us, and if so, we should like to be informed where can be had some of the seed of a *Gigantic German Green.* There was growing, (as we are told in the Journal of agriculture of the Highland Agricultural Society,) in 1842, in the garden of Mr. John Murray, Easter Newport, Fife, a plant of German greens, of extraordinary dimensions. It was planted about four years ago, in the ordi-

nary way, in a corner of a plot, and at the time above specified, had attained the following size. It covered an oblong piece of ground, twenty-seven feet in circumference. It sent forth seven main branches, which supported other sixty-one branches, five of which bore seed in 1842, and in September of that year, the entire plant was in a healthy, growing condition.

The 1	branch	bore	11	stems,	which	measured 9 feet 9	inches in length.
2	—	8	—	—	7	— 3	—
3	—	13	—	—	7	— 6	—
4	—	15	—	—	10	— 0	—
5	—	3	—	—	7	— 2	—
6	—	10	—	—	6	— 0	—
7	—	1	—	—	3	— 0	—

We might name also, the "*Chevalier barley*," that in Scotland, in 1845, yielded sixty bushels to the acre, and weighed fifty-seven pounds eight ounces to the bushel. Has any barley grower of Glo'ster county, in Virginia, or western New York, or elsewhere, imported that?

The average produce per acre of barley in New York, in 1845, was but sixteen bushels. The State is interested in its quality, since its quantity is more than three millions of bushels a year. Yet, has any one ever heard of an attempt by the American Institute, so liberally patronised by the State, to import that, or any other improved grain, seed, or implement? But can any duty be more appropriate for agricultural associations than that of vigilance in search of all such means of meliorating the productions of the plough and the spade?

We might again name the *Tussac grass*, sent to Lord Stanley, in 1844, from Governor Moody, of the Falkland Islands, who says of it:—"Under our present imperfect system, allowing the cattle to roam and graze at will, pulling out, wasting, and trampling as much as they eat, the rough irregular patches of Tussac on 'Long Island,' amounting together to about one hundred and fifty acres, keep in good fat condition for six months, (the cattle are kept on Long Island, only during the winter months,) two hundred and fifty cattle, and seventy horses. Under proper management, it is my opinion, that the same quantity of land would be found to maintain three times that number throughout the year. The grass rises *high above the snow*, is fresh and green all the winter, and, from its height, completely shelters the horses and cattle lying among it."

Governor Moody, perhaps, meant by "proper management," either confining the cattle and horses to small spaces at a time, or that the grass should be cut and *soiled*. In either case, his supposition is, that this grass which comes out in winter, "high above the snow," might carry more than *four head of cattle and horses to the acre*. Now, is it not befitting and proper, that the seed of such grass should be imported, and tried at once, in the reasonable hope that it might prove an invaluable acquisition to the sea-board salt water districts of the United States? Yet is it likely to be done by your practical farmer or your seedsman, under the all-improving influence of free trade? Why has not some disciple of the *laissez-nous-faire* school ordered a thimble full of the seed, at least, for that would do for an experiment.

We shall say nothing here about new implements and machinery, of which we have occasional notice, for we have already extended these remarks suggested by Dr. Emerson's proposition, beyond the limited dog-days' patience of most readers; but may it not be, that there is something peculiar in the kind of cucumber, mentioned in the following, which we find in the London Gardener's Chronicle, that might remunerate the very little trouble that would ensue, if for such cases we had some systematic arrangement for importation. It is to such cases as these, that we may presume Dr. Emerson referred:

Expeditious Culture of the Manchester Hero Cucumber.—From two seeds sent me under this name. I grew two plants, and on the 29th of March, I made a bed and planted them out in a small two-light pit, having metallic lights. On the 19th of April, I cut three fine cucumbers; one 16 inches long, another 14, and one 13. On the 26th of April, I cut one 18 inches long; on the 27th, do., one 13 inches long; and on the 29th, do., seven cucumbers, in order to strengthen the plants, measuring altogether 4 feet 2 inches. On May the 2d, I cut one fruit 12 inches long, and one 14 inches. The plants were turned out of 5-inch pots; they showed fruit at the time, and swelled at the length of 3 or 4 inches. I cut them off, thinking they would weaken the plants. The pit is 8 feet by 4½, and close boarded 3 feet from the lights, to prevent steam from entering. I placed rough boards, about 4 inches above the close boards, and on the rough boards, I put about 15 inches of dung; I then soiled the bed, and turned out the plants without waiting for the soil to get warm. The pit is worked by linings, and the soil was warm by the morning; the pit stands on piers about 3½ feet high. I once gained a first prize for cucumbers, in the beginning of April, and in a short time after, I threw the plants away, and planted out melons, which gained a first prize on the 30th of June, at Cirencester. I adopted the same plan with my cucumbers, throwing away plants that had been growing all the winter; I then took the soil and dung out of the pit, and put in fresh, planted out the plants, and the above is the result. I have used the pit for nearly twenty years, and have found it answer well in every respect; it is also an excellent place for striking cuttings in, plunged in sawdust or coal-ashes, near the glass.—*Thomas Pollington, Eradwell-grove, Oxfordshire, May 5.*

After all, it is quite probable that some of our well-disposed and intelligent seedsmen would willingly give orders through their agents, for whatever it might be supposed would be an acquisition to our horticulture; and only wait suitable suggestion and understanding on the subject, properly sanctioned, such as would probably grow out of Dr. Emerson's proposition.

But we must not close these remarks, without protesting in our own justification, that we mean no disparagement, by any thing we have said, of "practical men" in any department of industry. What would become of the world and its concerns, without such men—we only mean to contend that they do not lead the way always when acquisitions are to be made that demand inquiry, hazard, trouble, expense, and sacrifice. They are the only safe depositories of good things, after *they are found*, but are not apt to be the first to go out of their way to find them? Let us see.

ON THE CLAIMS OF THE "PRACTICAL MAN,"

TO BE REGARDED AS THE FIRST PROMOTER OF IMPROVEMENT IN AGRICULTURE AND HORTICULTURE.

Let us look at the few cases, such as most readily occur, to see how far great improvements have been effected and valuable importations of rare fertilizers, animals, fruits, &c. imported, and the knowledge and use of them diffused, by your exclusively hard-fisted, money-making practical men—for some men, wise beyond our own day and generation, would teach us to despise the services of all others. How long, for instance, should we have been comparatively ignorant of the virtues of that great universal fertilizer, *plaster of Paris*, had it not been for the inquiries and writings of Judge Peters, who was, as we are told, among the worst of practical farmers. A quarter of a century elapsed, after the senior Editor of the Plough, the Loom, and the Anvil, distributed and told, from Ulloa and Humboldt, all about the virtues and uses of *Guano*, without another dust of its being imported, until, within the last four years, when, with his indomitable energy in doing good things, Mr. *George Law*, of Baltimore, ensured success to the enterprise of the importers of the first cargo into Baltimore and New York.

Yet Mr. Skinner and Mr. Law have personally and pecuniarily little or no connection with practical agriculture.

And again: How long should we have remained ignorant or doubtful of the superior qualities, the fine shapes, and the early maturity of the improved short-horned cattle, had it not been for the perseverance of *Doctor Mease*, in calling attention to the subject, by proofs from English agricultural annals, and the yet more tangible and convincing evidence adduced by Colonel Powell—a gentleman of taste and fortune, not depending upon practical farming, and who, on personal inspection of the most celebrated herds of England, imported at great cost many of the finest specimens to be had there, and thus diffused their blood over the whole country?

When would the beauty and the excellence of the same breed have been displayed and acknowledged in Maryland, had it not been for the importation of Champion, and Shepherdess, and White Rose, into that State in 1822, by Mr. *Skinner*, merely to witness himself, and to demonstrate their excellence, which had been vehemently questioned by the largest if not the best practical farmer in Maryland; who, nevertheless, in twenty minutes after he saw them, gave $1500 for the three—about what they had cost; the agricultural society, on the motion of the late sagacious and well-known George Calvert, of Riversdale, voting three beautiful and costly pieces of plate to the importer, as a compliment for the service he had rendered in exhibiting living and incontestable proof of the high point to which the art of breeding had been carried in mother England—and this was all more than a quarter of a century after the public exhibition of the famous Durham ox that was computed to give 1400 pounds of net beef at three years old.

Was it, again, to the unfailing sharp-sightedness of individual interest—to the patriotic instinct of the practical man—which so many would have us believe, if left alone, would do all the good that need be done in the world—that we owe the importation and use of the pure and beautiful North Devon cattle, sent by the Earl of Leicester to the late patriotic merchant-citizen W. Patterson of Baltimore? or was it not rather to the winning manners of his magnificent daughter, the Marchioness of Wellesley, through whom they were presented to the father by the great Norfolk farmer, always ready, as he was, to evince his partiality for our country?

Was it to the enterprise or even the suggestion of your plain anti-book knowledge practical farmer, that was due the importation of the famous *Tuscany breed of cattle*—so patient of heat and so active in the yoke; and whose blood is yet discernible in their descendants on the estate of the late John Middleton of South Carolina? or was it not rather to the public spirit of the gallant Commodore Bainbridge, and his friend, that quiet practitioner of all the social and neighborly virtues, Purser S. Hambleton, of Talbot county, who jointly brought them to the United States?

And by whom was the country made authentically acquainted with their peculiar excellence for the yoke? Was the information the result of the inquiries and active patriotism of one of your money-making practical men, who are cracked up to us on all occasions for their instinctive sagacity and usefulness, independent of all book-knowledge? or was it not rather by the following extract of a letter from the gallant captor of the Frolic—Commodore Jacob Jones, that we were made acquainted with their great activity in the yoke and their constitutional adaptedness to hot regions? The letter was in reply to one from Mr. Skinner, the senior editor of "the Plough, the Loom, and the Anvil"—who had been appointed by the Albemarle Agricultural Society, under the presidency of the pure and patriotic Madison, to represent that society as its agent for the importation of a pair of Andalusian horses. Look, reader, at its *date*, and see how zealously and how long we

have all been laboring to bring up agriculture to greater productiveness and perfection—and, alas! to how little purpose!—because the tendency of our policy and legislation has been to keep us in colonial vassalage to the capitalists and the policy of England, and to scatter instead of concentrating our own population—to produce dispersion instead of the union of all—of the capital and the energies of all—for the benefit of all; but this aside—let us proceed.

United States ship Constitution, Gibraltar, September 16, 1822.

The cattle that I have seen in Spain, appear to be nothing superior to ours; nor have I seen anywhere on the coasts of the Mediterranean any that appear better than those in America; except a race of white cattle at Naples, used for the draught. I was informed by a gentleman, who, in supplying the government with timber, had used thirty yoke of them for two years, that during that time, they had constantly travelled from twenty to twenty-five miles a day, excepting Sundays and the holidays—the place from whence he drew the timber being from forty to fifty miles distant from Naples. He said they were the offspring of the Spanish Bull and Hungarian Cow, or the Hungarian Bull and Spanish Cow. They are generally fifteen hands high, their bodies long, thin and deep—legs long—a small light head, a sharp muzzle, resembling the deer—color entirely white, except a black nose, ears, and the tuft of the tail. They are most frequently worked in the thills of a cart, and are spirited and walk as quick as a horse, and appeared not to suffer from heat more than a horse.

Let us now turn from cattle to the dairy. Is it to the practical dairy-man that we must refer for the best dissertation to be found, on the preparation of the famous *Parmesan cheese?* or is it not rather to that non-money making book farmer, the author of our Declaration of Independence, (never yet fulfilled,) who while Minister to France, thought his time not misapplied in visiting the most celebrated cheeseries in Parma; there to watch and note the whole process from sun to sun? and do we not owe to the same inquisitive temper and fruitful pen, the most philosophical exposition of the true mechanical principles to be followed in the construction of the most important part of the most important implement of man's invention, (the *mould-board of the plough*,) the printers' types excepted?

Let us now turn to *fruit culture*, and the meliorating love of *trees, and vegetables, and flowers;* with which, as to give it a more romantic finish, Byron invests the character of his great Pirate—Lambro.

A taste seen in the choice of his abode,
A love of music and of scenes sublime,
A pleasure in the stream that flow'd
Past him in crystal, and a *joy in flowers*,
Bedew'd his spirit in his calmer hours.

Was it a practical nursery-man who planted the ivy that creeps over and clings to the venerable towers of Lagrange, for ever consecrated as the residence of the pure and patriotic Lafayette? Not at all! For ages to come will that type of true friendship, which clings to the object of its attachment even in its ruins, associate with its history the name of Charles James Fox, (the illustrious rival of Pitt,) who planted it. And again, one of our best vegetables and one of our choicest flowers were brought from South America, by Mr. Poinsett, much better known for literary taste, travels, and scholarship, than for his practical knowledge as a Planter.

In very truth, if the truth must be told, it ought to be allowed that your exclusively money-making and most successful practical men are not very apt to entertain any decided penchant for the literature and refinements of their profession, or much of that sensibility to the beauties of nature which invests the simplest flower or the humblest insect with something of interest, and that can hallow even an old tree with ordinary associations—such a tree for instance as the old poplar on St. John's College-green at Annapolis. It was not of a practical farmer, but of Passienus Crispus, a famous orator, who was twice consul of Rome, and afterwards married the Empress Agrippina,

of whom we read that he was so much attached to a beech tree in a grove near the city of Rome, and carried his enthusiasm to such a pitch, that he not only reposed under it but sprinkled it plentifully with wine, and would even embrace it.

It was not the practical Farmer, but the Poet, who thus inculcates the practice of the beautiful and conservative art of grafting.

"——————— graft the tender shoot,
"Thy children's children shall enjoy the fruit."
VIRGIL.

It was Catharine, Empress of Russia, who so far encouraged the fruit culture as to send every year to England for the "Pippin d'Or," and that she might have them in the greatest perfection, ordered each apple to be separately enveloped in silver paper, before they were shipped.

The Horse Chestnut, so judiciously recommended by Mr. Cresson to be planted around the Pennsylvania Hospital, was not introduced in Europe, whence we derive it, by a professional nursery-man, but by a man of letters, Clusius, a botanist, who derived it not from a nursery-man, but from the Imperial ambassador of the Porte, together with a considerable variety of trees, new to Europe. The oldest trees of that family, from the leaves whereof the first of mankind "made themselves aprons"—that are now growing in England, are said to have been planted by Cardinal Pole, who brought them from Italy during the reign of Henry the Eighth.

The Green-gage Plum, properly the *Reine Claude*, was introduced into France, not by a practical gardener, but by Queen Claude, wife of Francis the First of that country:—and thus we might go on with an endless list of fruits and vegetables, showing how they have been first transferred from one country to another, by men of science—ambassadors, divines, professional men, and cultivated navigators; and not only not generally, but not even at the suggestion of *practical men*—but by your much-derided *book men!* They have been such men as Doctor Muse, and Doctor Thompson, and Doctor Bain, and Doctor Darlington, and Doctor Brackenborough, and Doctor Birkhead, and Doctor Wilkins, and Doctor Emerson, and Doctor Bachman of Charleston, and Doctor Cartwright of Natchez; and men whose minds have been enlarged and refined by cultivation, to whom the world owes the promotion of free commerce, and wide-spread cultivation and enjoyments of the fruits of a refined horticulture, and even many mechanical inventions.

Having referred to Mr. CRESSON in connection with the Horse Chestnut tree, we may take the further liberty to say, by a letter which does him honor, in a late number of the Colonization Herald, that he has prevailed with twenty of his friends to subscribe $30 each, for planting entirely around the Pennsylvania Hospital, outside of the wall, a row of shade trees, in anticipation of the final decay of the noble old sycamores now there, &c., and which came from the estate of his great-grandfather nearly a century ago. Now, without having been long enough in Philadelphia to speak from personal knowledge, we will venture to say that the list of these amiable right-hearted contributors does not consist of your money-making practical farmers, worshippers of the almighty dollar, with whom on all appeals to their better feelings, the first, and the last, and the only question is too apt to be—"*what shall I make by it?*" Furthermore, we will venture, without the pleasure of knowing one of them, that they are not *men of blood!* men who think it wise in a republican people to bestow all their honors upon, and to pay eighty per cent. of their taxes for supporting military men, and warlike and war-making establishments, *as do the people of the United States.* Here is a list of the gentlemen who gave $30 each for *planting shade trees*, that

may perchance shelter the sick and aged and way-worn from the scorching rays of a noon-day mid-summer sun, and greatly serve to beautify that part of the city; but which in all probability will never *put a dollar in the pockets of the contributors or anybody else's pocket.* We choose to record their names in our fleeting annals, because it is almost an *idiosyncracy of our constitution*, to do honor, in our poor ineffectual way, to men of such benevolent and refined, though it may be *non-money-making* tastes.

The subscribers agree to pay the sums affixed to their respective names, [$30 each,] for the purpose of planting around the Pennsylvania Hospital a belt of forest trees to encompass the entire square. Such a promenade will secure to our fellow-citizens healthful recreation, while it promotes the beauty of our metropolis.

Elliott Cresson,	David Jayne,	Jacob T. Bunting,
William R. Lejee,	R. W. Sykes,	John Siter,
John Farnum,	M. W. Baldwin,	John Towne,
W. Chancellor,	Caleb Jones,	Samuel Rhoads,
John B. Meyers,	F. Fraley,	Wm. E. Hacker,
James Gibson,	Adam Eckfeldt,	Thomas P. Cope.
C. E. Spangler,	Robert F. Walsh,	

Philadelphia, May 21, 1847.

Though ready at all times, then, to do justice to practical men, without whom the guns could not be worked in battle, nor the sails be reefed in a storm, they are not always the most skilful to stand at the helm, nor the most intrepid to go aloft. A man may heave the lead, that cannot by a long shot tell you the latitude and longitude of the ship, and so it is, that according to our reading and observation, it has happened as well in other fields as in fields of agriculture and horticulture, as well in mechanics as in physics, the most valuable discoveries and importations have been made by men whose minds have been relieved of the yoke of habit and of prejudice, and animated by cultivation and travel, and by extensive intercourse with books and with the world.

WHEAT,

ITS CULTURE AND MANAGEMENT.

Could any thing new be said on this subject so important to so many people, now would be the time; but the farmer would be much more obliged, by being told where he is to find a *remunerating market*, and how such a market is to be rendered steady and reliable, from year to year, than to have suggestions for increasing his crop.

As to the markets, in the new view we have taken, of what our duty and the interest of the farmer demands, we shall throw what light we can on that subject; and as we began, so we repeat, that the farmer should promote a policy that will bring the consumer to the side of the producer—one that will bring the loom and the anvil, the saw and the lapstone, nearer and yet nearer to the plough.

In a practical point of view, as respects this noble grain, the question is not settled, how far and under what circumstances the very first operation is to be accomplished—by the *drill* or by broad-casting; there are warm advocates for each, in comparison with the other, in England. There, however, many circumstances affect the question that do not apply in this country. There, we apprehend the crop is liable to be impaired by a stronger growth of weeds than with us, and this results either from the superior strength of the land, or from their lands being infested with various kinds of weeds that we have not; and again, our dryer summers may be fatal to weeds that are almost indestructible in their moister climate.

Drill husbandry of grain, in England, is always spoken of in connection with the use of the *hoe*, horse-hoe, or hand-hoe, or frequently both. If we had room we would give a list of the weeds injurious to crops in England, that the farmer might judge how far we are liable to, and how far exempt from the same pests. One of them, described by Holdich in his pamphlet on "The Weeds of Agriculture," we take to be the vile "*coco grass*," so much and so deservedly dreaded and hated by the sugar and cotton-planter; we give its portrait, that our friends on the Mississippi may tell us if they recognise it as the same.

"Tall, oat-like, soft grass, (*Holcus avenaceus.*) This is the knotted-rooted couch-grass, which though admissible in pastures, is a sad plague in corn. [small grain.] It grows in tufts, the stems rising as high as the grain, and the roots, consisting of strings of round tubers, by which the plant propagates itself, as every one of which, if broken off by the plough or harrow, becomes a new plant. The best way of extirpating this weed, is by digging up the tufts of roots out of the stubble, making a pile of, and consuming them with fire." This remedy would seem to be almost as troublesome and hopeless, as the Frenchman's prescription for getting rid of fleas.

In the United States it is evident that labor is too expensive to admit the culture of wheat with the hand-hoe; but is it so clear, that something like Davis's shovel-plough might not be profitably employed in wheat culture? "We only ask for information."

It would seem to be conclusive, on the testimony of Major Jones of Wheatland, Doctor Noble, and others, and there need be no better, on the score of judgment and candor, that the experiments in drilling wheat in Delaware have been attended with decided advantages; and besides, it should weigh heavily with every farmer, mindful as every farmer should be of his professional character, that, as Major Jones says, *it looks* "*more farmer-like.*"

It will be seen, however, by an experiment lately in England, that the same quantity ($2\frac{1}{2}$ bushels to the acre) sowed broad-cast, yielded over that which was drilled at 9 inches, a superior crop in quantity and quality, both of grain and straw.

Not knowing what better appropriation we could make of our space at this season, we shall give as much as we can find room for, which may appear to have any chance of being new; for we confess to a profound dread of over-doseing—we might say, over-dozing our readers with what has been oft-times repeated, in substance, though it may be in different words, as baits are variously gilded to catch gudgeons.

My Dear Sir,—In reply to your request that I would communicate my views relative to the drilling wheat, I shall limit myself to a few observations, the subject having been amply treated in the agricultural periodicals, and standard works, with which you have been instrumental in filling the book-cases of our most intelligent farmers. The practice of sowing wheat with drill machines has been so long and extensively practised in England, that the results of experience there, would seem conclusive upon the subject. Still some English farmers are to be found, who think that more wheat can be raised by the old broad-cast method. I would particularly call your attention to the impropriety of making European experience in farming, too strict a text of what is most advantageous for the United States. The sowing of wheat in rows about nine inches apart, admits of cultivation by the harrow, and especially of hand-weeding, a very important consideration, where the frost is not so intense as to destroy almost every thing but the wheat itself. Here, then, is an advantage gained by the English farmer, over what we might expect in the wheat-growing parts of our own country. The same intense frost which kills most American weeds, contributes to crack the ground and denude the roots of the wheat, often doing extensive injury. It is a common opinion among farmers, that wheat does better when sown on ground left rough and cloddy, than when the earth has been most carefully pulverized by means of frequent harrowing and rollings. I ascribe the advan-

tage gained by sowing on rough ground, to the pulverization of the clods during successive freezings and thawing, which thus contribute to cover the roots, that would in smoother ground, remain exposed until destroyed. Now, one great advantage derived in the United States from the practice of drilling wheat, is from placing the young growth in a hollow or furrow. This not only serves to guard the wheat in some degree from the frost, but where the roots become exposed, the earth crumbling from the sides soon covers and protects them. Drilling is extensively practised by many of the best farmers in the flourishing counties of Lancaster, Chester, Pennsylvania, as well as in Delaware. Its rapid extension is pretty good evidence that some important advantages are gained from it. In England, the higher price of grain makes the saving of the seed by drilling, a primary consideration. But in the United States, the saving of wheat is a secondary object, and not of itself sufficient to compensate, if other advantages are not added.

There is one important advantage to be obtained through the adoption of English Drill Husbandry, to which I have not yet adverted, and that is, the facility afforded of applying concentrated manures at the same time of sowing the grain, with which it is covered in. A comparatively small amount of manure, such as finely ground bones, guano, poudrette, etc., covered in with the seed, can be made to produce the effect of heavy dressings, a most important consideration in the economy of the farm. None of our drill-makers, so far as I know, have yet adapted manure chests to their machines. We hope to see this complaint speedily removed, and it would afford us very great satisfaction to see a fine drill, like that of the Messrs. Pennocks, for example, at the next exhibition of the Philadelphia Agricultural Society, with a well-adapted manure chest. Such a machine is an important desideratum for our farmers, who are now learning the proper value of concentrated fertilizers. I remain yours, very truly,

Philadelphia, July 1, 1848. G. E.

Doyle, in his Cyclopedia, says.

Wheat is sown on naked fallows (manured), (see *Fallowing*,) or after manured fallow crops, such as potatoes, turnips, or beans, or on clover leys. The different modes of sowing, whether in drills or broad-cast, may be thus described: If in drills, the ridges should be of such a corresponding breadth with that of the drill machine,* as to leave no surplus space after the turnings, two or more times according to the breadth of the ridge, which, for this grain, should not exceed twelve feet.

The seed being deposited from the hoppers, is covered by a double or single turn of light harrows drawn lengthways. If there be no drill machine, a small common plough, divested of its mould-board, answers the purpose, and the seed may be sown broad-cast from the hand; the harrow moving lengthways, as in the other case, throws the earth which has been ribbed up by the plough back again, and covers the grain which comes up in parallel rows.

By the drill machine, the intervals between the rows of wheat can be easily made at nine inches, which is the usual distance—by the common implement, they cannot well be made narrower than twelve or fourteen inches; and this, besides the loss of horse-labor, is a serious objection to those who prefer the narrow drill. But many excellent farmers are of opinion that even a wider interval than twelve or fourteen inches is profitable, as this allows the horse-hoe to work effectually between the drills, admits of deeper pulverization, more horizontal expansion to the fibres, and greater tillering, besides affording more circulation of air.

Fallowing is, no doubt, the best preparation for wheat; but it is not an economical mode, and will not succeed without some animal manure or calcareous matter. If the soil be perfectly drained, or naturally absorbent, wheat will bear a great deal of severe weather in winter; nor will any frost materially injure it, particularly if it be protected by snow; but the cold winds in spring, when of long continuance, are more or less injurious, and the more so if rolling be neglected.

The hand-hoe can be used freely between the rows at nine inches; it serves to cut away weeds, and is in some degree conducive to the tillering of the plants; but it does not cut deep enough to give that extension of movement which the horse-hoe affords to the fibres—we, therefore, on the whole, prefer twelve-inch rows and the small horse-hoe.

*Cook's improved drill machine is the best, and of most general application. The Norfolk drill is larger in its scale, and constructed to sow a breadth of nine feet at once. According to the breadth required between the rows, will be the number of drills sown by this machine, the hoppers of which should be movable and easily adjusted, so as to have the rows at seven, nine, ten, or twelve inches apart.

Pennocks' improved drill is considered superior to any English drill for sowing wheat; its cost is $100.

It is deemed proper to give here the particulars of an experiment in broad-casting and drilling, which we find in the Quarterly Journal of Agriculture; and once for all we would estop the stale objections to reference to English authority, on the ground of difference of climate, by observing, that we hope our readers have generally too much good common sense, (for that is all that is needed,) not to be able to allow for that circumstance. But the *principles* of every science are the same everywhere; and would it not betray the height of ignorance and absurdity, to conclude that because, in England, there is more moisture and less frost than in the same latitude in this country, therefore there can be no analogy in any particulars, nor any application of rules and principles, that, in the nature of things, are fixed, eternal, and of universal applicability? We have too much respect for our patrons, to suppose them destitute of the common powers of discrimination.

The following is the result of some experiments which I made last year, in order to ascertain the relative merits of thin and thick sowing wheat, drilling, dibbling, and by broad-cast. They were conducted with great care upon five acres of level land of uniform quality, being a good deep loam on a chalk subsoil, following a clover ley folded by sheep. The land was ploughed about five inches deep, as it was not thought desirable to bury the sheep-dressing below that depth. The seed was put into the ground about the 7th of December, 1843, and the wheat was hoed in the spring of 1844, except the acre sown by broad-cast, which was harrowed instead of being hoed. The plants in Nos. 2 and 3 (thin sowings) were by much the strongest, and looked the best throughout the season, until the approach of harvest, when it became evident that the quality of the grain and straw was inferior, more particularly on No. 2, which appeared to have suffered a little from mildew.

Samples of the different lots were submitted to an eminent miller, and the value of each determined by him; the straw was valued at the market price.

Account of Experiments on the relative Merits of Thin and Thick Sowing, Drilling, Dibbling, and Broad-cast, conducted on Eastwick Farm, in the County of Surrey.*

No.	Quantity of Seed used per Imp. acre.	System pursued.	Grain produced.	Weight per Bushel.	Straw produced	Value of Grain.	Value of Straw.	Total Value of the Produce per Acre.
			bush.	Lbs.	Trusses			£ s. d.
1	2½ bush'ls	Drilled 9 inches apart	Head . 34 Tail . 3 37	64½	70	Head at 7s. £ s. d. per bush. 11 18 0 Tail at 6s. 0 18 0 12 16 0	At 36s. per load 3l. 10s.	Grain . 12 16 0 Straw . 3 10 0 16 6 0
2	1 bushel	Drilled 12 inches apart	Head . 22 Tail . 3 25	62½	51	Head at 6s. 6d. per bush. Tail at 5s. 6d. " 7l. 19s. 6d.	At 30s. per load	Grain . 7 19 6 Straw . 2 2 6 10 2 0
3	1 bushel	Dibbled 12 inches apart	Head . 28 Tail . 3 31	63¾	63	Head at 6s. 9d. per bush. Tail at 5s. 9d. "	At 33s. per load	Grain . 10 6 3 Straw . 2 17 9 13 4 0
4	1 bush. and 3 pecks	Dibbled 9 inches apart	Head . 34 Tail . 3 37	64	72	Head at 6s. 9d. per bush. Tail at 5s. 9d. "	At 33s. per load	Grain . 12 6 9 Straw . 3 6 0 15 12 0
5	2½ bush'ls	Sown broad-cast.	Head . 37 Tail . 3 40	65	84	Head at 7s. per bush. Tail at 6s. "	At 36s. per load	Grain . 13 17 0 Straw . 4 4 0 18 1 0

The results of these experiments are very remarkably in favor of thick sowing, and particularly of the old broad-cast system; and if not conclusive against the doctrine of thin sowing, so strongly, and, I may add, so ably advocated in the present day, should at least induce caution on the part of farmers before they depart from the practice of their forefathers. Indeed, it is difficult to believe that so great an advantage as the saving of a bushel or a bushel and a half of seed per acre can have been overlooked for so many generations. It seems more reasonable to suppose, that long practical experience has taught the farmer the more prudent course of a liberal supply of seed. It may, however, be contended, that had the ploughing been deeper, and the seed put earlier into the ground, the result would have been different: this is not improbable, and it is pos-

sible the deficiencies in the quality and quantity of thin-sown wheat and straw might have been less observable, but the large differences which my experiment indicates could hardly, I think, have been made up. I have this year repeated the trial of thin-sowing, having drilled one acre on the 26th of October last. (the land having been *deeply* ploughed,) with one bushel of seed, the rest of the field having two bushels per acre. The result I shall be happy to communicate if desired.

We must conclude all we have room to say about wheat, with the following extracts from a prize essay on its management by Edward Roberts, (not our friend Edward P. Roberts, nor, we will venture to say, by a better man,) postponing for the present what may be as well said hereafter, on the TREATMENT OF CROPS IN SPRING—THE TIME OF CUTTING, AND ON THRESHING AND DRESSING. Before another season, we hope to have more extended and satisfactory accounts of Hussey's, and other *mowing machines*.

P. S.—These extracts must be postponed, for want of room, to our next number.

EXAMPLES OF HONORABLE ZEAL

IN THE PURSUIT OF AGRICULTURAL KNOWLEDGE BY YOUNG AMERICANS.

WITH well-constituted minds, what impression so agreeable as that which accompanies a consciousness of increase of our stores of useful knowledge? Such as results from the perusal of a truly original essay or address, like one we have lately read, by the Hon. Mr. Marsh, in Congress, from Vermont, delivered before an Agricultural Society of that State; and which, as well for its philosophy as its rare scholarship, we shall be glad to preserve in our columns. Such, too, is the satisfaction one derives from new and powerful books, like Carey's Past, Present, and Future, that makes us feel as we pass from page to page, that something *sticks*, to make us a little wiser, and, perhaps, a little better; for is it not true, that knowledge is *virtue* as well as power?

In perusing the following paper from one of our young countrymen, laudably pursuing agricultural studies abroad, the pleasure it affords results, perhaps, not more from the valuable suggestions it contains, practically instructive and important as these are, than from the fact it discloses that some progress is actually making in agricultural literature in the United States, too; and that some of our most promising young men are seeking honor and fame, by qualifying themselves to apply to the cultivation of the soil those sciences, which are as necessary and as embellishing to agriculture, as to any other pursuit under the sun.

But here again, let every reader, at all mindful of the rights and interests of agriculture, note the difference in the action of the government, (and that, too, under the sanction of the so-called *representatives of the landed interest*,) in its treatment of those whose ambition and pursuit it is, to multiply the comforts of life, and those whose profession it is to *destroy it!* Our government, in its practical operation, under all parties, labors under no want either of power or inclination, to send our *military* young men abroad, to pay all their expenses, and to place them in all respects under the most favorable auspices for studying, at the best and most expensive schools, the *art of war!* In Congress, we see almost every day, thousands on thousands voted away, for *military* surveys, and maps, and roads, and expeditions, even to the "Dead Sea"—when no other place or pretext can be found; but not a dollar can it give for *agricultural surveys, or for the support of agricultural schools*, or for young men to go, like Mr. Norton, of Connecticut, and

Mr. Summer, of Carolina, to study, under able professors, and in the best appointed laboratories abroad, the application of the appropriate sciences, to the more civilizing, fruitful, and beneficent art of terraculture. Nor is one whisper of remonstrance or expostulation heard from *committees appointed to watch over the rights of the planter and the farmer;* and they themselves submit without a murmur, and as patiently as sheep to be shorn, while the government, under all administrations and parties, takes *eighty per cent. of the taxes they pay, to support its military establishments in time of peace!*

P. S. Will some one give us the *names* of the members of the agricultural committees in Congress, that we may hold them up to the admiration of the country, and the gratitude of posterity, for their extreme vigilance and energy—for the wide range of their inquiries, and the profoundness of their reports, on the condition and wants of the plough; and how the landed interest is, or might be affected, *for good or for evil, by existing or by needed legislation?* Surely, the marks of their service will endure as long as writings on the sand-beach at low water-mark.

From the South Carolinian.

SUGGESTIONS AS TO THE SUCCESSIVE CULTIVATION OF COTTON AND INDIAN CORN—ROTATION OF CROPS, ETC.

BY THOMAS J. SUMMER.

My attention was directed to the necessity of a correct understanding respecting the constituents of these two important crops, by the planters of South Carolina, from reading Boussingault's Analysis of Indian Corn, and I hope to show scientific causes, sufficient to render this necessity apparent to interested readers. I will commence by merely calling their attention to the amount of phosphoric acid abstracted from an acre of fertile land, in producing one bale of cotton. We take it for granted, that an acre will yield one bale of cotton, which will give 875 pounds of cotton seed, which, according to my analysis, recently finished, and sent you by last steamer, will yield 35 pounds of ashes; these 35 pounds of ashes contain 12 pounds of phosphoric acid, 10 of potash and common salt, while the remaining parts are composed of lime, magnesia, &c. The most common application of cotton seed as manure, has been on the small grain crops, for which they are admirably adapted—containing as they do all the constituents necessary for the nourishment of these crops. It seldom occurs that wheat is planted after cotton, consequently, the soil which produced the cotton seed does not receive them again, and we have 12 pounds of phosphoric acid, taken directly from this soil, which will, probably, not be sown in wheat, till the following season, when, perchance, it may receive the seed grown upon it. It is customary after cotton, to cultivate a crop of Indian corn, which is followed by small grain, in what has heretofore been the planter's system of rotation. We see thus two crops, which are the most powerful exhausters, taken from the soil, before we return, directly, any of the constituents taken away in the form of cotton seed. To show, conclusively, the injudicious and impoverishing practice of cultivating cotton and Indian corn, as successive crops, I will cite the analysis of M. Boussingault, who says, that 100 pounds of the ashes of the grain of Indian corn, contain 50 pounds of phosphoric acid. Now, suppose that one acre planted in this crop will yield 30 bushels—which will be equivalent to 1350 pounds of corn. If these 1350 pounds of grain be reduced to ashes, we have a fraction over 97 pounds, which contain 50 pounds of phosphoric acid, and 30 pounds of soda and potash—making for the production of the two crops of cotton and corn, the enormous amount of 62 pounds of phosphoric acid, and 40 pounds of common salt and potash. Then, suppose, the third year, we sow wheat after corn. This crop requires about the same constituents as does the cotton crop. If we return to the soil the usual quantity of cotton seed devoted to this crop, we give it back only one-fifth part of the phosphoric acid, &c., which was taken from it in cultivating the two preceding crops. When such are the facts, what reliance can be placed in the generally received and popular practice of cultivating corn immediately after cotton? How long has it been argued, that such a system of rotation was beneficial to the soil? The reverse is the fact, for, in harvesting 1350 pounds of corn, we take a fraction over *four times* as much phosphoric acid, than we do in producing one bale of cotton. The three crops most extensively cultivated in South Carolina, are those which consume the most valuable constituents of the earth in their production, and our planters should at once be awakened to the necessity of remedying the evils, resulting from incorrect sys-

tems of culture, before it is too late. The first step, is to adopt a better system of manuring, and by the institution of economy in saving, preserve to the crops much that is lost to them, by reason of the non-application, or the more general want of knowledge, respecting the availability of many substances found on the farm.

As the greatest quantity of these constituents are found in animal bones, the easiest method of restoring them would be to carefully collect all these, and make them subservient to the wants of these crops by converting them into powder or ashes. Bones contain an immense amount of phosphoric acid. My far-famed preceptor, that world renowned chemist, LIEBIG, says, that *a single pound of bone-dust* contains as much phosphoric acid, as *one hundred pounds of wheat.* From this we can easily perceive, that there are bones wasted on every farm in the State, sufficient to manure the entire wheat crop. This, to many, will doubtless appear strange, but it is nevertheless true, and if we do not arouse ourselves to a better system of farming, we will find our State, in less than fifty years, in a more deplorable state of impoverishment than were the outworn lands of our sister State of Virginia, before the industrious farmers, who are now working such miracles on them, took hold of them for improvement. The first colonists of Virginia found a soil similar to our own. Abundant harvests of wheat, corn and tobacco, were obtained from one and the same field, for near a century, without the aid of manure. But nature, exhausted, at last refused to repay the laborious toil of the husbandman, and whole districts were suddenly converted into arid and unfruitful pasture lands, which, without manure, will now produce neither wheat nor tobacco, and the desolation of which is only heightened by the miserable herds and flocks, which find a scanty summer subsistence on these bleak wastes. This is not strange, when we state, that in the production of the standard crops, in the space of *one hundred years*, there was removed from *every acre*, fully 12,000 pounds of alkali in leaves, grain, and straw. It necessarily became unfruitful, because that small portion, which, during each succeeding year, was rendered soluble, was not sufficient to satisfy the natural demands of the plants. With such an example, why shall not South Carolina make the attempt to preserve her already impoverished fields from a similar fate? We possess over her many advantages, and still in many parts, aided by science and industry, she is renewing the bare bosom of mother earth, by a deep covering of mellow artificial soil, which sustains the rich gifts of Ceres. We possess, as a peculiar advantage over the Virginian farmer, a larger amount of forest to supply leaves and litter, to be converted by a little pains-taking into good manure; and, secondly, the amount of the constituents of the soil, exported in our cotton, does not come in the same fearful ratio, as they do in the Virginia products—small grain and tobacco. This is truly an important advantage: as we consume the cotton seed and small grain on our farms, very little is exported, and consequently, these self-same constituents are obtained again, in the voidure of such animals as are sustained on them, and their constituents are re-delivered to the soil, in the shape of manure, in as large quantities as they were originally taken from it, and when combined with vegetable substances, in the shape of composts, even in larger quantities, the application of which, results in the speedy and certain improvement of the land. But, to all these means, the farmer in South Carolina—where extent of acres is not measured by price—has a third means of remedying the evil of an improper succession of crops. This is fully demonstrated by LIEBIG, in the example which he cites in his Agricultural Chemistry, of the condition of the country around Naples, which is famed for its fruitful corn land. The humblest villages are situated from eighteen to twenty-four miles distant from each other, and between them there are no roads, and, consequently, no means for transporting manure to any distance from the residences of the laborers. Now, corn has been grown on these lands for thousands of years, without any portion of the constituents which have been annually removed from the soil being artificially restored to it. The method of culture, however, satisfactorily explains the cause of this wonderful and permanent fertility—and though the system appears a very bad one in the eyes of our agriculturists, it is, nevertheless, the very best that could be adopted. A field is only placed under tillage once in three years, and in the intervening two years furnishes a sparse pasturage for cattle and sheep. The soil undergoes no actual change in these two years, during which it thus lies fallow, farther than being exposed to the influence of the atmosphere, a fresh portion of the alkalis contained in it are again set free, and rendered soluble. The amount of constituents in two years, thus placed by nature at the disposal of the crop of one season, being generally greater than the crop demands, this patient system of rotation without alternation has preserved the fertility of the soil. It may appear to those who do not reflect, that the droppings of the animals pastured on the land might have an improving effect, but this is not the fact, for they yield the soil nothing which they did not drain from it. The grass and weeds, upon which they live, spring from the soil, and that which they return in voidings, must, according to the laws sustaining animated nature, be less in quantity than the amount originally derived by them. The fields, therefore, under this system of

grazing, can gain nothing; on the contrary, the soil must have lost some of its constituents. Experience, as in Virginia, has shown that wheat should not follow wheat, or tobacco a crop of tobacco; for these are crops which speedily exhaust the constituents of the soil. If we take these constituents from the soil, we should return them before we again tax it to ruinous production, by artificial manuring, with such manures as would most readily and cheaply effect the object, or, if this cannot be done, why, there is still a sufficiency of land unoccupied, untilled, and lying waste on every plantation to allow it to lie, at least, one year fallow. Why do not our planters do these things, and preserve the rising generation from raising the cry of "Westward Ho!" A country like South Carolina, possessing a climate suited to nearly all the cultivated crops, deserves to be fostered and improved. The present age must make the beginning, else we will entail the horrid curse of national poverty upon those who follow us. With the proper energies, and the application of the proper principles to her agriculture, we can make her the garden spot of the world—and such she should be. When I return home, I intend to devote myself to analysing every cultivated crop of South Carolina, and will feel sufficiently rewarded, if my labors only produce the result of stimulating *the beginning* of a reformation in the agriculture of my native and beloved State.

University of Giessen, Germany, April 16, 1848.

HORSEOLOGY.

SADDLES—*the importance of a good one—antiquity of—first woman's-saddle—hunting saddle described.* SPUR—*the use of by the ancients, and as used at present—preferable to the whip in racing.*—By Nimrod.

SADDLES and bridles form no unimportant feature in the equestrian art, as well as in the establishment of a sportsman. Nothing sets off the appearance of a horse and his rider more than a good saddle and bridle, nor does any thing contribute more to the comfort and safety of the latter than a well-made roomy saddle, with spring bars for the stirrup-leathers; stirrups rather heavy than otherwise, and sufficiently large for the feet. Some persons, not contented with the spring bars, require spring stirrups as well; but, in our opinion, no man can hang in a common stirrup, provided he do not wear thick boots nor use small stirrup-irons. Of the various sorts of bridles, the snaffle is most in use on the turf, and the curb for military horses, hunters, roadsters, and coach-horses. Not one hunter in twenty has a mouth good enough for a snaffle only; although there are a few horses in every hunt that will not face the curb. Some, however, go very well on the snaffle up to a certain period of a run, when all at once they require the assistance of the curb. Such horses should be ridden with a double bridle, so that the rider may have recourse to the curb-bit, when wanting.

There is often great nicety required in fitting a horse with a bridle, if irritable in his temper, or a very hard puller. If the former, he must have a bit of just sufficient severity to control him, and not any thing more. The one called the "Pelham," is well adapted to horses of this description, as it partakes of the double properties of snaffle and curb. With very hard pulling horses, the curb to a severe bit must be used; but the evil of this is, that, after a certain time, the mouth, thus acted upon, becomes "dead," as the term is, and the horse is unpleasant to ride and difficult to turn. To remedy this, three players should be attached to the port of the bit, which by hanging loosely over the tongue, keep the mouth alive. A bridle of this description, very long in the cheek, is known in the hunting world as the "Clipper bit," being the one in which that celebrated horseman, Mr. Lindow, rode a horse called the Clipper several years over Leicestershire, in which far-famed county he was supposed to be the best hunter going. If a horse rushes at his fences, a moderately tight nose-band is useful, as also to prevent his opening his mouth, and snatching at his rider's hand. The less a horse opens his mouth in his work the better, as it tends to make it dry; whereas it cannot be too moist for his own good. Bits very high in the port are of

course the most severe, owing to the increased purchase; but with every description of bits, care should be taken that they are sufficiently wide for the mouth, so as not to press against the horse's cheeks, and that the head-stall is sufficiently long to let the bit drop well into the mouth.

As we read in the 22d chapter of Genesis, 3d verse, that "Abraham rose up early in the morning, and *saddled* his ass," saddles of some sort must have been used in very early days; but few things appear more extraordinary to those persons who look into ancient history, than the fact of saddles *with stirrups* being a comparatively modern invention. Although a French translator* of Xenophon, by an oversight, makes a governor of Armenia hold the stirrup of the Persian king when he mounted his horse,—"Il lui tenoit *l'etrier* lorsqu'il montoit à cheval," it is well known that the ancients had no stirrups, but that men of rank among them were accompanied by a person whose office it was to lift them into the saddle, whom the Greeks called ἀναβολεύς, and the Romans *strator*. There is no mention of stirrups in any Greek or Latin authors, no figure to be seen in any statue or monument, nor any word expressive of them to be met with in classical antiquity. In the celebrated equestrian statues of Trajan and Antoninus, the legs of the rider hang down without any support, whereas, had stirrups been used at that time, the artist would not have omitted them. Neither are they spoken of by Xenophon in his two books upon horsemanship, in which he gives directions for mounting; nor by Julius Pollux in his *Lexicon*, where all the other articles belonging to horse-furniture are spoken of. The Roman youth, indeed, were taught to vault into their saddles,

"Corpora saltu
Subjiciunt in equos;" †

and in their public ways, stones were erected, as in Greece also, for such as were incapable of doing so. As another substitute for stirrups, horses in some countries were taught to bend the knee, after the manner of beasts of burden of the East;‡ and in others, portable stools were used to assist persons in mounting. This gave birth to the barbarous practice of making captured princes and generals stoop down, that the conqueror might mount his horse from their backs; and in this ignominious manner was the Roman Emperor Valerian treated by the Persian king Sapor, who outraged humanity by his cruelty. The earliest indisputable mention of stirrups is by Eustathius, (the commentator of Homer,) about six hundred years back, who uses the word *stabia*.

Although the history of the saddle has not exercised the learned world so much as the antiquity of the stirrup, a good deal has been written and said about it. Like all other inventions, it appears to have been suggested by the necessity of making the rider sit easily upon his horse, and some kind of covering, consisting of cloth or leather, (skins or hides, perhaps,) was placed on the animal's back. These coverings, however, became afterwards extremely costly;§ they were made to hang down on each side of the horse, and were distinguished among the Greeks and Romans by various names. After they became common, however, it was esteemed more manly to ride without them; and thus we find Varro boasting of having ridden bare-backed when young. Xenophon also reproaches the Persians with having placed

* D'Ablancourt.

† Virgil, *Æneid* xii. 287.

‡ See Silicus Italicus, lib. x. 465,—

"Inde Inclinatus collum, submissus et armos
De more, inflexis præbebat scandere terga
Cruribus."

§ See Virgil, *Æneid* vii. 276; viii. 552; Ovid, *Metam.*, lib. viii. 33. Also Livy, lib. xxxi cap. 7, who speaks of a man who dressed his horse more elegantly than his wife.

as much clothes under their seats, on their horses' backs, as they had on their beds. It is certain that no coverings to the horses' backs were for a long time used in war; and, according to Cæsar, the old German soldiers despised the cavalry of his country for having recourse to such luxuries. In the time of Alexander Severus, the Roman soldiers rode upon very costly coverings, excepting at reviews, when they were dispensed with, to show the condition of their horses. But we should imagine we must look to later times for the costly trappings of the horse. In his description of the city of Constantinople, the author of the *Letters of the Turkish Spy* says, "the next thing worthy of observation is the Serayan, or house of equipages, where are all sorts of trappings for horses, especially saddles of immense cost and admirable workmanship. There cannot be a more agreeable sight, to such as take pleasure in horses and riding, than to see four thousand men here daily at work in their shops, each striving to excel the rest in the curiosity of his artifice. You shall see one busy in spangling a saddle with great Oriental pearls and unions intermixed, for some Arabian horse, belonging, perhaps, to the Vizier Azem; another fitting a curb or bit of the purest gold to a bridle of the most precious Russian leather. Some adorn their trappings with choice Phrygian work; others with diamonds, rubies, and the most costly jewels of the east."

But to return to the history of the saddle, its invention, and general use, the latter a point very difficult to be ascertained. The word *ephippium*, by which the ancient Romans expressed it, being merely derived from the Greek words ἐπὶ, *upon*, and ἵππος, *a horse*, leads us to conclude that, by degrees, the covering spoken of was converted into a saddle. The Greek word ἔδρα, used by ancient authors, is believed to have been to express a saddle, and is more than once used by Xenophon, in his *De Re Equestri;* and Vegetius, who wrote on the veterinary art nearly 400 years B. C., speaks of the saddle-tree. Perhaps the clearest proof of the use of any thing approaching to the form of the modern saddle, is the order of Theodosius, (see his Code,) in the year 385, by which such persons as rode post-horses in their journeys were forbidden to use those which weighed more than sixty pounds; if heavier, they were ordered to be cut to pieces. What would the people of those times have thought if they could have seen one of our Newmarket racing saddles, weighing under four pounds, but giving the rider a very comfortable seat? The order here alluded to, doubtless applied to something resembling a saddle, although of rude workmanship, as its weight bespeaks. Every traveller, we may conclude, was provided with his own saddle; and about this time the Latin word *sella* more frequently occurs. In the fifth century, again, we find articles bearing something of this stamp, and made so extravagantly magnificent as to call forth a prohibition by the Emperor Leo I., against any one ornamenting them with pearls or precious stones. The saddle-tree is also mentioned by Sidonius Apollinaris, a Christian writer, who was born, A. D. 430; and in the sixth century, the saddles of the cavalry, according to Mauritius, who wrote on the military art, had large coverings of fur; and about this period the Greek word σελα (*sella*) is used. It is considered probable, however, that the merit of the invention of saddles may be due to Persia, not merely from the circumstance of Xenophon's mentioning the people of that country as being the first to render the seat on the horse more convenient and easy, by placing more covering on their backs than was common in other parts, but also because the horses of Persia were made choice of for saddle-horses in preference to any others. That the word saddle is derived from the Latin word *sedeo*, to sit, may fairly be presumed. That the proper saddle itself, however, was unknown in England until the reign of Henry VII., we have good reason to believe; and in Ireland, from

the absence of any representation of it on their coins, it may be conjectured, not till many years subsequent to that period. The woman's saddle, called by us the side-saddle, first appeared in Richard the Second's time, when his queen rode upon one; but from the pictures of men and women's saddles used in England's early days, we find they were miserable apologies for our modern saddles. Indeed, at the present time, Great Britain is the only country in which proper saddles are made. Hunting saddles should have their pannels well beaten and brushed to prevent sore backs; and no sportsman, even if light, should use a short saddle—*i. e.*, under sixteen inches from pummel to cantle.

The antiquity of the spur does not appear to have much excited curiosity; but the use of this instrument was known in the very earliest age of which we have any satisfactory history. At least we may presume that it was so, from the Hebrew word signifying horseman, (*Pavash,*) appearing to be derived from a Hebrew root signifying to *prick* or *spur.* So at least says Buxtorff; and he adds, that the horseman, or spurrer, was so called on this account: *Eques quod equum calcaribus pungat;* and he quotes Eben Ezra in confirmation of his opinion: *A calcaribus quæ sunt in pedibus ejus.* Spurs occur but seldom on seals, or other antiques, in the eleventh century, but in the thirteenth they are more frequent. As it is necessary that a horse should obey the leg as well as the hand, all military and parade horses are ridden in spurs; and, as we have already said, they are very useful to the sportsman in riding across a country, particularly in the act of opening gates; also all race-horses that will bear them are ridden with them, because, should punishment be wanting in a race, it is more easily inflicted by the heel than by the hand; add to which, these horses not only require the jockey's two hands at the same time, but are apt to swerve, or shut up, if struck severely by the whip.

PONY—*remarkable improvement upon by attention—its exemption from lameness in the feet—its great powers of endurance.*

A horse is called a pony when under the height of thirteen hands, four inches to the hand. It is difficult to account for this diminutive breed, unless we believe it to have been imported from countries farther north than Great Britain, which appears probable from the fact of ponies being found in greater abundance in Scotland and Wales than in any other part of the island; the effect, no doubt, of climate. In Ireland they are very rare.

There is no animal that improves in form and character so much as the pony does from the effect of good grooming and high keep. A real Welsh mountain pony, in very good condition, especially if not castrated, is a perfect war-horse in miniature, uniting almost every good property his species possesses. As a proof of one essential quality, we can state upon authority, that the Earl of Oxford had a mare pony, got by the Clive Arabian, her dam by the same horse, out of a Welsh mare pony, which could beat any of his racers four miles at a feather weight. Ponies, too, have properties which should attract the notice of the hippopathologist, among the most prominent of which are the following: They are never lame in the feet, or become roarers. A broken-winded pony is a very rare sight, and they live to the extreme of old age, if not unfairly treated. They are also very little susceptible of disease, in comparison with other horses; while their powers of endurance stagger belief. A rare instance of the latter excellence is furnished by the pony, Sir Teddy, only twelve hands high, accompanying the royal mail from London to Exeter, and arriving in that city fifty-nine minutes before it—distance 172 miles, in twenty-three hours and twenty minutes! It may scarcely be necessary to state, that he carried no weight, being led between two horses all the way; nevertheless, it was a task that we think

no full-grown horse would have performed. A correct likeness of this pony was painted by the elder Marshall, of Newmarket. In 1784, a Shetland pony, eleven hands and a half high, carried a rider, weighing five stones, from Norwich to Yarmouth, and back, forty-four miles, in three hours and forty-five minutes. As a proof, also, of their powers in crossing a country, the fact may be stated of the late Sir Charles Turner riding a pony ten miles in forty-seven minutes, and taking thirty leaps in his course, for a wager of 1000 guineas with the late Duke of Queensberry, then Earl March. During the drawing of the Irish lottery, the expresses from Holyhead to London were chiefly conveyed by ponies, at the rate of nearly twenty miles in the hour.

The only bad use to which the pony is applied, is in what is called the "pony chaise," or phaeton. The carriage itself is dangerous, by reason of its extreme lightness and shortness, by which it is so easily overturned; and the lowness of the driver's seat prevents proper command over the animal drawing it. It is too often the case, also, that "the pony" is a pet, and for that reason pampered in the stable and not much worked. On the least alarm, then, such as any unusual noise, horses galloping past him, or—and there have been too many fatal instances from this cause—some part of the fore-carriage touching his hocks in descending a hill, away he goes, galloping and kicking until he has rid himself of his load. The safest way of using ponies in harness, is in pairs, in double harness, with the poll of the carriage raised at the futchels, to prevent their kicking over it in their play.

The personal appearance of a Racing Jockey.

Previously to describing the proper seat of the jockey, we will now endeavour to exhibit him in the most likely form to acquire that seat. In height he should be about five feet five inches. We are aware there are several excellent jockeys under this standard; but they do not look so well on their horses, neither can they be so firm in their seat from want of a better clip, which the firm grasp of a longer thigh gives them. He should be rather long in the fork for his height, with low shoulders, rather long arms, moderate length of neck, small head, and a very quick eye. He should be of a naturally spare habit, to save the expense to his constitution by wasting; but he should have as much muscle in his arms and thighs, as his diminutive form will admit of; in short, to ride some horses at such very light weights, he should be a little Hercules. But there must be nothing like rigidity in his frame. On the contrary, there should be a great degree of pliability about his arms, shoulders, and back-bone, to enable him to be in perfect unison with his horse. He should have very free use of his hands, so as to change his reins from one to the other in a race, and to whip with the left, as well as with the right, when occasion requires it; he should possess much command of temper; and, lastly, he should have the abstinence of a Brahmin.

HILL-SIDE PLOUGH AND PLOUGHING.

HONOR DUE TO IMPROVERS OF AGRICULTURAL MACHINERY.

Among the highest obligations of agriculture, are those which it owes to men eminent in other arts and sciences, though many of them have proved to be any thing but *money makers*, as practical farmers. The fact is that the minds of such men are generally so thirsty for *knowledge*, and so much absorbed in the pursuit of it—that filthy lucre is the last thing they think of. Such men too are apt to be the least esteemed and honored in countries like ours, where universal worship of the "almighty dollar" is the universal sentiment. Hence the discoverer of a great truth in mathematical or physical science, or the inventor of a great contrivance to save time and labor, in farming is looked on while alive as a great bugbear or bore; and when dead

is too apt to be stowed away in the memory of survivors and posterity, as so much useless old lumber is stowed away in a garret. Ask one half of the little great men of our own day, ay even practical farmers, who grow rich by a sort of instinct for accumulation,—ask them who was the inventor of the *hill-side plough*, or of the *revolving horse-rake*, and it is ten to one they cannot tell you the name of the authors of these everlasting benefactions to their own pursuit. Perfectly willing are such men to gather and consume the precious fruit, without the least sentiment of care or respect for him who planted the tree! Be it then a part of our duty, while we live, to denounce such derelictions on the part of those for whose character as a body, as well as for their success as individuals, we cannot repress an honest solicitude.

Ask these same men, and they can chronicle with exactness the names of the *heroes*, and the fields, in which men have gained distinction and victory in political and bloody wars. Be it then, we repeat, the more especially, the duty of Agricultural Editors, to hold up as worthy of infinitely higher honor, the names and the memory of such men as Thomas Mann Randolph and Pennock—the inventors, the one of the hill-side plough, and the other of the revolving horse-rake. Governor Randolph married the daughter of Mr. Jefferson, a lady of rare accomplishments; mother of Thomas Jefferson Randolph, of Albemarle, a very zealous and enlightened farmer, and of Mrs. Trist, the wife of our late successful and ill-used Minister to Mexico—who, if a little more contumacious, would have been sent home in irons, for concluding a treaty which, good or bad, was approved by the Executive and ratified by the Senate. But let us thank God that the flow of blood has been checked on any terms, and that now the sword *might* and *ought* to be turned into the pruning-hook and so for ever remain—for it is *only* as they affect the great pursuit, over which we are standing as one of the humblest of its sentinels, that we shall ever venture to refer or allude to political events. All wars are repugnant to, and inconsistent with that high degree of civilization, which belongs to the most improved state of the art of cultivation.

Monticello, March 6, 1816.

Dear Sir—I have to thank you for the copy of your discourse on agriculture which you have been so kind as to send me. I participate in all your love for the art. We are indebted to you for much of our knowledge as to the use of the plaster, which is become a principal article of our improvements, no soil profiting more from it than that of the country around this place. The return of peace will enable us now to resume its use. My son-in-law, Colonel Randolph, is perhaps the best farmer of the state; and by the introduction of the horizontal method of ploughing. instead of straight furrows, has really saved this hilly country. It was running off into the valleys with every rain; but by this process we now scarcely lose an ounce of our soil.

A rafter level traces a horizontal line around the curve of the hill or valley, at distances of 30 or 40 yards, which is followed by the plough; and by these guide-lines the ploughman finishes the interval by his eye, throwing the earth into beds of six feet wide, with large water furrows between them. When more rain falls than can be instantly absorbed, the horizontal furrows retain the surplus until it is all soaked up, scarcely a drop ever reaching the valley below. Some two or three years ago, I mentioned to Mr. Peale this method of ploughing, and I think he has informed me of his having since practised it with satisfaction. It is probable therefore you may have heard of it from him, if not through some other channel.

Mr. Randolph has contrived also, for our steepest hill-sides, a simple plough which throws the furrows always down-hill. It is made with two wings welded to the same bar, with their planes at a right-angle to each other. The point and the heel of the bar are formed into pivots, and the bar becomes an axis, by turning which, either wing may be laid on the ground, and the other then standing vertically, acts as a mould-board. The right-angle between them, however, is filled with a sloping piece of wood, leaving only a cutting margin of each wing naked, and aiding in the office of raising the sod gradually, while the declivity of the hill facilitates its falling over. The change of the position of the share at the end of each furrow is effected in a moment by withdrawing and replacing a pin. The little paper model enclosed may help out my description of the share.

Thomas Jefferson.

WHAT IS MESLIN, OR MESLING?

STORY ABOUT AN OLD BOOK.

Laugh not, reader at this question—for if you cannot answer it, it would ill become you to laugh; and if you can, it is more than a certain club of distinguished agriculturists could do, with whom we had the honor, and the great pleasure to dine, some time since, not a thousand miles from the "*Athens of America.*" Shall we tell you how the question arose? Well, to begin at the beginning, we had been for some years inquiring far and near, for an old work which had been respectfully mentioned, we believe by Mr. Webster, on the Field-Husbandry of New England. Lately again, being in Boston. and rummaging about in the "Antique Book Store," the proprietor said he had succeeded in finding it, and accordingly produced an old, smoke-dried volume of one hundred and sixty-six pages, for which he had the conscience to ask (and we were glad to pay even that to get it) $2, saying, he could as easily get $5 as $2, from any one who would give *any thing* for it. Feeling inwardly the truth of his remark, we seized the long looked-for tract, which beareth the following title and brief sketch of the author:—

Essays upon Field-Husbandry in New-England, as it is or may be ordered. By Jared Eliot, M. A. Eccles. v. 9. ¶ *Moreover, the profit of the Earth, is for all; the King himself is served by the Field.* Boston: Printed and Sold by *Edes* and *Gill*, in *Queen Street.* 1760.

The respectable author of this treatise, was the son of Rev. Joseph Eliot, of Guilford, (Conn.,) who was the second son of the celebrated *John Eliot*, of Roxbury, apostle to the *Indians. Jared Eliot* was Pastor of the church at Killingworths, (Conn.) He was born November 6, 1685; graduated at Yale College 1706; died 1763. His agricultural essays have passed through several editions.

Considering the circumstances, and the condition of our country at the time, more than a hundred years ago, that no agricultural societies had been formed, and no instruction attempted upon the great subject of Husbandry, to the author of this work may fairly be conceded claims to grateful and honorable remembrance far beyond such as are awarded to men of less usefulness and more pretensions. Some of the best habits of New England Husbandry may still be traced to the rules laid down, and the information imparted by the author. It may be said, that Tull and Eliot were, in their day and countries respectively, what Sinclair and Ruffin have been in more modern times; and what measure of honor is too great for men who distinguish themselves as benefactors of a pursuit, which the wisest men of ancient and of modern times have regarded as the first in rank, of all human employments?

Socrates makes this noble encomium on agriculture:—"It is," says he, "an employment the most worthy of the application of man, the most ancient and the most suitable to his nature; it is the common nurse of all persons, in every age and condition of life; it is the source of health, strength, plenty, riches, and of a thousand sober delights and honest pleasures; it is the mistress and school of sobriety, temperance, justice, religion, and in short, of all virtues, both civil and military."

To return to our author, and to the question, *what is mesling?*

We had read, in the morning, the following quaint passage: "I perswaded one of my Neighbours to make trial of this Method of sowing *Mesling* this last sowing season." Not knowing what mesling was, and supposing it to be some kind of grain or crop, we were honored that day with an invitation exactly to our taste, to meet some certain members of the ancient and honorable agricultural society of ———, who had been in the

habit, for many years, of dining together, at a certain place, on a given day of every month—with but one rule for the caterer of the day, and that is, to have on the table the *best leg of mutton* to be had that day in the market—and truly a noble leg of mutton it was. Nor was it washed down, as the reader would imagine would be the case in that land of "steady habits," with water alone! for if wit sparkled around, something else sparkled "on the board."

He, by the by, who lives some degrees nearer the equator, is deceived or deceives himself, if he believes that these "Yankees" are *always cool and calculating*. In their counting-houses or on 'change, they are *business men*—quick, but systematic—cool, but upright. For a matter of right and principle, stickling for the ninth part of a hair; but in matters of public spirit that require forecast to discern how the thing will work, and when approved, liberality and energy to carry it out, it is hard to say whether they have been best fitted by climate or education. Look at their churches, from the spires of which you can telegraph with a pocket-handkerchief from one to another, all over the country, east, west, north and south! Lock at their railroads, webbing the country in all directions; and their noble colleges and schools without number, all growing out of that sagacity which has taught them to facilitate the union of capital for the employment of labor, whereby labor is kept at home and rewarded, and capital is kept at home and accumulates, and men get rich at home, instead of flying to the frontiers to drive back the miserable savage and the howling wolf, while they take their place to subdue the wilderness or starve. Even their ice-ponds are melted into gold; but if they have ice to be melted, they have hearts as well; for if they know how to make, they know, too, *how to give!* Go to one of these rich "Yankees," and tell him, sir, we want to encourage a taste for horticulture, and to build a floral temple that shall do honor to our city, and he does not tell you to "call again, when the subscription comes down to $2," or a "single copy"—not he—but he just quietly opens his book, and fills up a check for a cool $1000, and turns again to his business; and when his affairs are despatched, he calls and *takes* the stranger to look at all that is worthy of regard around the city. Such is the disposition, and thus is acquired the ability, to be courteous and hospitable, where men encourage domestic industry, and make it the interest of the consumer to eat the food, and the manufacturer to fashion the raw material here in our own country; to place, in a word, the loom and the anvil, as we represent they should be, close to, and next to, and subordinate only to the plough. But we have forgotten—let us back to our leg of mutton dinner-party.

Suffice it to say, that to us it was a rare enjoyment to find ourselves in the midst of gentlemen—quiet, intelligent, hospitable, and habitually addicted to inquiries and tastes at once so virtuous and so useful. Agriculture and horticulture being the principal themes of conversation, we mentioned the good luck we had had in finding a copy of the "Essays," and took the opportunity of being relieved, as we hoped, of our doubts as to—*What is Mesling?** But, tell it not in Gath—publish it not on the housetops, what was our surprise to find, that we were not alone in our ignorance—for, not a member of the Agricultural Society of ———, present, could tell; various were the conjectures, but all were as wild and as wide of the mark as some of them were curious and laughable. All this may seem ridiculous to him

* In his edition of the Farmer's Cyclopedia, we now find, for we have just got command of our library, Dr. Emerson defines *Meslin* thus:—"A term applied in New England to the crop of peas and oats when sown together. *Meslin corn*, a term applied to wheat and rye produced in a state of mixture."

who knows all about it, as the most abstruse and *undivinable* thing seems plain enough when explained. Meslin or mesling, then, it will be seen from what follows, meant a *mixed crop* of different grains sowed together, and to be reaped together, and ground and fed together—and on reflection, we have no doubt the word is a corruption of the French word melânge—which means a medley or mixture. In the old French it was spelled meslange—hence, meslin or mesling. The custom which then prevailed in New England still prevails in the neighborhood of Lebanon, New York, where we remember Mr. Hall, the model farmer of the neighborhood, sowed oats and barley in the same field, to be gathered and ground together for his hogs. We are not aware that this practice has extended to the south, nor prepared to say, whether it might or might not be done to advantage; but in reading Mr. Colman's report, we came across the following, which at once revealed the meaning of *meslin*. We invite to it the attention of our friends when next they meet over their best leg of mutton to be had in ———, and *may we be there to partake of it*. The extract is given in full, to show the southern reader the New England estimate of the expense of *cultivating a crop of oats*—$10 50 per acre. On this, certain reflections suggest themselves. New England estimates approach much more nearly to *facts* than they do in the south—for example: when they say, ploughing an acre for oats—$2; sowing oats and dragging in, $1—they mean that for these operations they have to pay these sums down in cash, when the work is done; or what is the same thing, that for the same amount of labor they can command these amounts in money. In the south, such exact calculations are not practicable, and if practicable are rarely attempted. The possession of the force with which the work is to be done, and which is to be supported any how, whether employed or idle, renders such calculations any thing but habitual or exactly practicable; and might we not ask the oat-grower of the south or even of New York, what would become of him if he had to pay for them $10 25, or their equivalent, per acre? In New York, the average of oats is twenty-six bushels per acre, or less than $9 at 33⅓ cents per bushel per acre. And after all, it is well worthy of inquiry, whether, if they could make the exact calculation, and dare look the facts in the face, they do not actually cost them also $10 25 per acre in most of the states, while the crop does not net $8 per acre in the market; and whether it be not this wilful neglect of arithmetical calculation—this fear of looking the truth in the face, which is secretly and unceasingly gnawing like a worm at the root, and undermining the independence of old families, impoverishing the father, and driving away the son to the far west, as men naturally stand from under falling trees.* Rely on it, reader, it behoves you to ponder these questions, and to bethink yourself, whether it is not only where the moneyed and social institutions of a state have a tendency to keep people at home, and to promote increase and condensation of population; to draw together the plough, the loom, and the anvil—the miller, the tanner, the shoemaker, and the schoolmaster, the hatter, the carpenter, the wheelwright, the bricklayer, and the butcher; whether it be not in such states and such communities only, that farmers *can afford* to pay $10 50 for sowing and harvesting *an acre of oats*, for there only can they improve their lands to average

* Will some gentleman have the goodness to send us, if to be had, the address of Mr. Bruce, one of the largest slave-holders in Virginia, to an agricultural society in one of the lower counties, wherein he enters, as we have been told, upon a calculation to ascertain the real bonâ fide cost and profit of *slave* labor. When men begin to shy the truth, and avoid strict inquiry into their own condition, for fear of being led to unwelcome results, they may be assured that they are standing on a slippery foundation.

thirty-five bushels to the acre; then only can they command fifty cents a bushel for the grain, and $7 an acre for the straw on the spot!

Pease and Oats or Meslin.—The prevailing custom among the Deerfield farmers is to sow pease and oats together, so as that the crop shall be in the proportion of one quarter pease to three quarters of oats. The pea customarily sowed in these cases is a green pea from Canada, which ripens about the time of the oats, and for which, while growing, the oats act as supporters. Pease and oats are usually ground together as feed for their fatting cattle, and are deemed valuable, though not so good or so much relished as Indian meal without mixture.

I have only two estimates of the cost of cultivating oats, and these where they come in in the rotation the year after the corn.

Expense of cultivating an acre of Oats.

Ploughing,	2 00
Sowing oats and dragging,	1 00
3 bushels seed,	1 50
Gathering,	4 00
Threshing,	1 75
	$10 25

Return.

Straw, more than one ton,	7 00
35 bushels oats at 50 cents,	17 50
	$24 50
Balance in favor of the oats,	$14 25

Another farmer gives the following account of a mixed crop of wheat and oats in the proportion of half a bushel of wheat with two bushels of oats. This is thought to make an excellent feed for animals. Some of the human family have no absolute distaste for it.

Ploughing,	2 34
Seed, half bs. wheat, $1 00; seed, two bs. oats, $1 00,	2 00
Sowing and harrowing,	50
10 lbs. clover,	1 00
Cradling, $1 50; threshing by flail, $2 00,	3 50
	$9 34

Return.

Straw,	3 00
35 bushels at 75 cents,	26 25
	$29 25
Balance in favor of the crop,	$19 91

A New Carriage.—The Worcester Telegraph describes a new two-wheeled carriage, called a "Woosteree," recently invented and patented by Mr. Isaac Woodcock, of Worcester:—

"The advantages which it possesses over a common built carriage, consist in the compact combination of a chaise or buggy-body, with an axle, pair of shafts, and half-elliptic springs, so arranged that the entire weight of the body and its load is suspended to the axle, neither resting upon or fatiguing the horse, and so also that the motion of the body of the vehicle is kept perfectly steady, and is prevented from violent jerks or vibrations, however rough or uneven the road may be. It is also constructed so as to pass the weight *under* the axle, instead of *over*, as in the old way. Its balance on level ground, bears upon the horse in *ascending*, and relieves him of the weight in *descending* a hill."

Prolific Duck.—Mr. James Howard, farmer of Sollom, has a duck that lately sat upon twenty-one eggs, from which she brought out twenty ducklings, eighteen of which are now living. Seven days after she had hatched she commenced laying again. She is half-bred between the wild duck and the tame.

DESTRUCTION OF THE PINE FORESTS OF NORTH CAROLINA.

CAUSE OF AND REMEDY SUGGESTED, FOUNDED ON MUCH OBSERVATION AND EXPERIENCE.

We find the following in "*The County Shield*," published at Snow-Hill, Maryland. We unite in the confidence expressed by the Editor in the intelligence and *reliability* of the writer, but if Forests are not to be worked in May, June, July, and August, when can they be? Is it not in these months that the rosin is extracted?

The death of the trees is caused by boxing, chipping, bleeding or felling them in any part of the forest, where the injured tree can touch any of the uninfected, in the months of May, June, July, and August. In these months Pine Forests should never be worked in. At this period a most fatal insect called the "Fire Fly" is attracted by the fresh oozings or exudations, from the newly cut tree, and deposits a large quantity of eggs, which in time hatch out numerous and most destructive white worms with black heads, that soon commence their ravages, and never cease till they completely destroy the sap part of the tree, or until frost overtakes them, and puts an end to their labors.

The "fire fly" is very small, and can use its wings only with great difficulty. It flies slowly, and cannot go far, unless it is enabled to slip along slantingly, or if I may so express myself, on an "inclined plane." Therefore the only method of ridding a piece of woods of this insidious foe, is to fell all the trees that have been inoculated by it, [which are generally those in the immediate vicinity,] in such a manner that they will not touch any other tree that remains uninjured. Or, if there should be several acres of diseased trees, it is only necessary to cut those trees down, that are on the out-skirts of the diseased timber, or such as are bordering on, or near those that remain green and uninjured; but they must not be felled so as to touch the green uninjured tree,—to do which would be like throwing a fire-brand in a sedge field.

If this plan is pursued, the fly can be destroyed in a very short time, but if suffered to remain, they will soon increase and inoculate a whole forest. They seem to be generated by the fresh sap or juice of the pine, in the months named; as I have never seen them or heard of their being present, except at such times and places as are mentioned. The worm produced by them is very rapid and vigorous in its operations, and may be heard distinctly, whilst boring its way into the tree, upon which it has fastened itself,—this is however more particularly observable on the tree that has been felled for a few days. It is supposed these worms finally form a Chrysalis and reproduce the "fire fly."

I have had much experience in this matter in the course of my life, and am quite well satisfied that the recent destruction of turpentine trees in the Carolinas, proceeds from no other cause than the "fire fly." If you think these hasty suggestions will reach and benefit any who are suffering from this curse, you are welcome to publish them.

Yours, &c., PARKER SELBY.

Poplar Grove, near Snow-Hill, Maryland, June 28, 1848.

We are personally acquainted with the author of the above article, and know him to be a man of much intelligence, close observation and great experience. He is now in his 74th year, and any thing he would suggest upon such a subject would be practical, and would possess the merit of having been tried. The foregoing may be relied on in good faith, and we trust it may "reach and benefit" those who are suffering from the effects of the "fire fly."—*Ed. Shield.*

THE NEW YORK ANNUAL STATE FAIR,

UNDER the auspices of the State Agricultural Society, will take place at Buffalo, on the 5th, 6th and 7th days of September next, and the chances are that, in the number of people and of things exhibited for premium and for sale, it will exceed any of its predecessors.

We observe that Mr. Sherwood, who has been President of the society, and who is, therefore, *ex-officio* member of the executive committee; and Mr. Allen, who has been of the executive committee, and, being now the President of the society, will remain, *ex-officio*, member of the executive committee, both advertise large herds and flocks of cattle and sheep for sale at the Fair. Their position and judgment offer assurance of "good things."

We are not aware of the difference, but observe that Mr. Allen advertises "*about* 30 *thorough-bred short horns*," "*also* 30 *thorough-bred Durhams* of like description." True there may be cattle from the County of Durham, that are not "thorough-bred short horns," but we were not aware that any such had been imported.

The "improved short horn" we had taken to be the designation for the highest bred cattle of that race.

The exhibition will doubtless well repay the time required for the trip. The railroad will, it is presumed, carry to and fro all animals strictly and properly intended to be *exhibited for premium*, and all implements carried there for the same purpose; but all the friends of the society and the cause are bound in honor to prevent, as far as they can, all imposition from being practised in attempts to take advantages of the liberality of the company, to get things transported under pretence of exhibition for premium, which are really and truly designed to be exhibited for sale, without any chance of a prize, or any excellence to entitle them to one. All abuses of that sort have a tendency to bring about a forfeiture of the privilege, and to make the innocent suffer for those, if any, who would meanly take advantages.

P. S. It is to be hoped the society has dispensed with *oaths* to prove the truth of statements by competitors for crops. Could a more degrading stigma be cast on any class of people, or be sanctioned by higher authority? and besides, are not men as apt to make false statements about horses, and cattle, and sheep, as about crops! One would suppose that in a community of honorable men, such as any man would feel it safe to live in, the infamy that would follow a false or even equivocal statement, would be so inevitable and so everlasting, that as a matter of cold, mean, selfish calculation, to say nothing of the instinct of honor, no man would run "the hazard of the die."

CHESHIRE CHEESE.

For quantity and quality, Cheshire is said to go ahead of any county in England, in the production of cheese. The fame of it goes back at least to the reign of Henry I. in 1100, when the Countess Constance, though the wife of the king's cousin, kept a herd of milch cattle, and was celebrated for her cheese.

In our early numbers, we shall give an essay with all the details of Cheshire cheese-making, so full and satisfactory, that the Royal Agricultural Society awarded their prize to the author, Henry White, land-agent and surveyor. In the mean time, we take from it the following recipe—TO CURE THE MAW-SKINS, OR STOMACHS OF SUCKING CALVES, FOR MAKING RENNET.

Procure the skins fresh from the butcher the year previous to their being wanted; clean out the chyle matter, and every other apparent impurity; the inside is then turned outward on a table, and salted; the skins are then laid, one upon another, with a layer of salt between each, in a deep earthenware vessel, similar to a cream-mug; they are then covered over with salt, and have a lid of slate or flag placed on the top. They are taken out as wanted, about a month previous to being used, and the brine drained from them. They are then spread on a table, and fine salt is powdered on each side. In this state, they are rolled with a paste roller, distended with a splint of wood, and hung up to dry.

Cheese-making is another branch of husbandry which will inevitably make its way into the fine grazing regions in the mountain portions of Maryland, Virginia, the Carolinas, Tennessee, and Kentucky, to be again, in a measure, superseded by butter, when these mountains shall have been penetrated by railroads.

THE WATER OF SPRINGS AND RIVERS.

"ALL these waters," observes Professor Johnston, "contain a sensible, and in many of them large proportion of silica, in a state of solution; all, therefore, are capable of more or less fully supplying this food of plants. As a general rule it may be stated that the value of a water for the purposes of the irrigator, depend, first, upon the *quantity*, and, secondly, upon the *quality* of the solid matters it contains. As regards both these properties, the sewage waters of large towns combine them for the purposes of irrigation in the largest proportion." "The quality of irrigation water," remarks Mr. J. E. Dennison, when describing the valuable water meadows formed by the Duke of Portland, at Clipstone, (*Jour. R. A. S.*, vol. i., p. 362,) "is very important. Soft water is the best, mineral water, and water from peat mosses and bogs are found to be injurious. After strong rains, the washings of streets and sewers of the town of Mansfield, which discharge themselves into the Mann, give great additional efficacy to the water. It will sometimes deposit a sediment in one watering, of the thickness of a sheet of paper." "To place the agricultural value of the at present wasted sewer water in another point of view, I have ascertained," observed Mr. Smith of Deanston, (*Report Town's Comm., Par. paper* 11, p. 328,) "that the quantity of sewer water due to a town of 50,000 inhabitants, amounts to about 1,190,080,946 gallons per annum: which quantity will yield an annual application of 17,920 gallons to an extent of 66,410 acres. Taking a general view of the subject, we may assume a clear revenue from the sewer water* of all towns at £1 from each inhabitant."

IMPROVED STOCK.

WE know of no case in which a want of liberality and public spirit is so glaringly and universally evinced, as in the failure, by the agricultural community, to give any thing like fair support to those who have incurred great expenditure both of care and money, in importing and keeping the most improved breeds of domestic animals. This has been, we were going to say, shamefully exemplified, in what we have witnessed in regard to the improved short horn, as we will take some early opportunity to illustrate and dwell upon. Were this the result of experience, proving that race to be devoid of the merits ascribed to them, no one would have a right to complain—but that is not the fact. If it were, how does it happen that they command the prices they do in England, where their excellence in various important points has been maintained, as have the high prices they fetch, for half a century? Of this, too, we will give some recent proofs.

Of the improved short horns, the largest and best herd probably in this county, certainly on this side of the mountains, is that of Mr. Vail, near Troy, N. Y. To the fine animals, descended from, and connected with the best stock in England, already on his estate, he has lately added the choice animals which were reserved by Mr. Prentice for his own use, on the occasion of his large sale near Albany. Thus will Mr. Vail be enabled to answer the demands of those who desire to go at once to the fountain-head for what is

* Our attention was called last summer to a very remarkable instance of the quantity of extraneous matter contained in running water. The stream of a mill, which belonged to the then postmaster of New Market, Virginia, (since dead,) had, in a remarkably short time, deposited, in passing over the wheel, so much lime or marl, that the wheel was perfectly incrusted, and large flakes might be taken off which incased the arms of the wheel, as if it had been done with sheet-iron. It was his custom to let off the water from the pond, occasionally, and to cast out the sediment which had been left at the bottom of it, to fertilize adjacent fields.—Eds. P., L. & A.

pure. We hope to have an early opportunity of inspecting his herd, that we may be better enabled to answer the inquiries of the curious, and to fill the orders of persons wishing to buy. In the mean time we would earnestly recommend all persons having choice stock, and any thing else that is excellent of its kind, and that farmers are likely to need, to advertise it on the cover of the Plough, the Loom, and the Anvil. None other will be advertised, nor would any other justify the expense of advertising in this journal; and this not from any self-interest, for we have placed ourselves beyond that suspicion, having surrendered the use of the advertising sheets to the publishers of this work.

STATISTICS OF ENGLISH LAND, AND ITS PRODUCE.

THERE must often be occasion for those whose agricultural inquiries extend beyond their own horizon, to be familiar with, or, at least, to have the means at hand to refer to the facts stated below.

If, in all our states, farmers were as attentive as their representatives are unmindful of their true and substantial interests, in lieu of the hundreds of thousands expended for surveying far distant possessions for military ends, we should have surveys of all the resources that exist in, and that might be developed and applied to the old states.

The necessity for, and natural advantage of obtaining more accurate information upon the statistics of agriculture, is a rapidly spreading conviction. In the absence of more complete returns, we have collected the following tables, constructed from recent calculations and inquiries. From these we find that the number of square miles, acres, parishes, inhabited houses, population per square mile, and acres to each person, and the number of persons to a house, in England and Wales, are as follow: (*McCulloch's Brit. Em.*, vol. i. p. 401.)

	England.	Wales.
Square miles,	50,387	7,425
Statute acres,	32,247,680	4,752,000
Parishes,	9,942	838
Population,	14,995,138	911,603
Population per square mile,	297,599	122,774
Inhabited houses,	2,755,710	188,229
Acres to each person,	2,150	5,212
Persons to each house,	5,441	4,843

The extent of land in England and Wales, under the principal description of crops, the average produce per acre, total value, &c., are calculated to be as follow: (*Ibid.*, vol. i. p. 549.)

	Acres in crop.	Produce per Acre.	Total Produce.	Total Value.
		Qrs.	Qrs.	£.
Wheat	3,800,000	4	15,200,000	32,571,427
Barley	1,500,000	4¼	6,375,000	8,196,420
Oats and rye	2,500,000	5	12,500,000	10,714,286
Beans and peas	500,000	3¾	1,875,000	2,410,714
Potatoes, turnips, and rape	2,000,000	£7 per acre	..	23,100,000
Clover	1,300,000			
Fallow	1,500,000		..	..
Hops	50,000	£15 per acre	..	750,000
Gardens	150,000	£15 "	..	2,250,000
Total	13,300,000		35,950,000	79,992,857

The annual value of the produce of the grazing and wood-lands of England and Wales is thus estimated by Mr. McCulloch: (*Ibid.*, vol. i. p. 550.)

Cattle, 1,200,000,	at £12	0s.	each,	£14,400,000
Calves, 200,000	" 3	0	"	600,000
Sheep and lambs, 6,800,000	" 1	10	"	10,200,000
Wool, 360,000 pks.	at 12	0	"	4,320,000
Swine, 555,000	at 1	16	"	1,000,000
Horses, 200,000	" 15	0	"	3,000,000
Poultry, eggs, rabits, &c.				1,344,000
Meadow and grass				13,000,000
Dairy produce				12,000,000
Wood				1,750,000
				£61,614,000

The produce of pasture and wood-land he estimates at an average of £3, 12s. per acre.

THE POOR FARM BOY, HOW HE ROSE.

About forty years ago, somewhere in the woods near the line between Tennessee and Kentucky, in a log-cabin sixteen feet by eighteen, which was already occupied by a brood of ten or twelve children, was born a youngster, the hero of our sketch. In his infancy he was fed on corn and hominy, bear meat, and the flesh of such "wild varmints" as were caught in the woods. At twelve years of age he was put out to work with a neighbor as a farm-boy, and drove oxen, hoed corn, raised tobacco in the summer, cured it in the winter, till he was seventeen years old, when he took to making brick, to which he added the profession of a carpenter; and by these successive steps in mechanical arts he became able, by his unassisted skill, to raise a house from the stump, and complete it in all its parts, and to do it, too, in a manner that none of his competitors could surpass. His panel doors are to this day the wonder and admiration of the country in which they continue to swing on hinges. He never saw the inside of a school-house or church till after he was eighteen years old. By the assistance of an old neighbor, he learned to read and write, when a farm-boy. Having achieved these valuable acquisitions by the aid of another, all his other education has been the fruit of his own application and perseverance. At the age of twenty-two he conceived the idea of fitting himself for the practice of law. He at first procured an old copy of Blackstone, and having, after the close of his daily labors, by nightly studies over a pitch-knot fire in his log-cabin, mastered the contents of that compendium of common law, he pursued his researches into other elementary works. And having thus, by great diligence, acquired the rudiments of his profession, he met with an old lawyer who had quit the practice, or whose practice had quit him, with whom he made a bargain for his secretary library, for which he was to pay $120 in carpenter's work, and the chief part of the job to be done in payment of these old musty books was dressing and laying down a floor or floors, *three* dollars per square of ten feet. The library paid for, our hero dropped the adze, plain, and trowel, and we soon after hear of him as one of the most prominent members of the Mississippi bar, and an able statesman and orator. "I heard him one day," says one, "make two speeches in succession, of three hours in length each, to the same audience, and not a movement testified any weariness on the part of a single auditor, and during their delivery the assembly seemed swayed by the orator, as weeds before the wind."

That poor farming boy is at present at Washington, a member of Congress from Mississippi, and was a prominent member of the recent whig national convention at Philadelphia. His name is Patrick W. Tompkins. He is a self-made man, and his history shows what an humble boy can do when he determines to try.—*Saturday Rambler.*

BUSINESS AND RESOURCES OF SNOW-HILL, AND ITS VICINITY, IN MARYLAND.

ADVANTAGES OF STEAMBOAT COMMUNICATIONS.

We are glad to see, by the by, in "The County Shield," proper evidences of activity and thrift in that region, such as vessel-building, timber-getting, the establishment of steamboat and other lines of communication, with Baltimore, New York, &c.

"It is rumored," says that respectable journal, "that Captain John T. Turner, the former polite and popular commander of the steamers Osiris and Cambridge, is preparing a steamboat to run between this place and Baltimore. His enterprise would be handsomely sustained, and both himself and boat would be welcomed universally by our citizens. There is no better route for a steamboat than this, on the Chesapeake Bay, at the present time."

No one who has ever taken passage with Captain Turner, but can testify to the justice of the compliment paid him, and truly, what a difference it *does* make in comfort, to the passenger, (who can't help himself,) between the gentleman-like urbanity of *some* captains and hotel-keepers, their stewards and bar-keepers, and the coarse, vulgar, self-sufficient speech and deportment of some others, puffed up with the pride of a little "brief authority." How easy is it for the reader to instance for himself examples of the two characters. Of the former and the better, there need be none more exemplary than Captain T., and others we could name. We should, indeed, make not more than two or three exceptions on the Chesapeake Bay.

In respect of steamboats, they would ultimately prosper and do well, on many routes where they have never been tried, or where they have too soon given it up as a losing concern, if they could afford to persevere a little longer. This was the case with the first attempt at West River, now among the most profitable routes, and it took many an unrequited line by these three fingers to persuade them back to another trial. It is in the nature of things, that railroads and steamboats should *make business for themselves*, bringing a thousand things out of the ground that would otherwise never be produced, because they cannot bear long and distant transportation, by *slow conveyances!*

If the legislatures would compel railroads, before they grant them charters, (and under the penalty of forfeiture for non-compliance,) to stipulate to provide cars and depots, and all the requisite facilities for transportation of every species of agricultural and horticultural, and dairy, and poultry-yard produce, all the lands, for instance, along the Washington, and Annapolis, and Cumberland Railroads, would enjoy the same advantages that those do which are near the large cities. Thus it is with the railroads in the Eastern States, and thus it is that we see *ninety tons* of milk and strawberries going probably one hundred miles on the Erie Railroad, into New York. So too on the Albany and Boston road; a farmer has no hesitation nor difficulty in sending a lamb, or a pig, or a dozen eggs, or a pound of butter, for one hundred miles, fresh into the Boston market, and gets his return at one of the *very numerous* depots along the road, he remaining at home the while, improving his estate, which constitutes, in fact, a part of the suburbs of the city.

In this case of the proposed steamboat, for example, from Snow-Hill to Baltimore, as soon as it should be ascertained that one would be continued on the line, the travel would begin to turn from its old, into this new and more convenient channel, and what a change would soon begin, and ultimately be established, in all the courses of rural industry, to accommodate

themselves to the new facilities which such a quick transportation to large markets would afford? Bulky and perishable vegetables, and delicate fruits, and butter, and lamb, and veal, and a thousand other things not now cultivated or produced, and which would bring a better return to labor and capital, would take the place of the two or three old everlasting staples, which are now grown from the shores of the Chesapeake to the foot of the Rocky Mountains.

But to insure these new branches of productive industry to take root, and to realize the fruits of such new facilities, must be the work of *some time*, even of a few years. A new industry cannot spring up, like a mushroom, in one night; and hence again the necessity and the advantage of a *union* of means and capital, and of a public sentiment and course of legislation that shall *encourage*, instead of *forbidding* such associations, to create banks, and build factories, and railroads, and steamboats. The loss, for example, that a boat might sustain for a year or two, might be but illy borne by such a man as Captain Turner, or other one or two individuals, however public-spirited, when divided among a company would hardly be felt, until the very presence of this new facility would generate business for itself, and *ultimately prove profitable.*

Not only the travel which now takes other routes, would gradually turn itself into this new channel, but from the light warm soil of that region, the great and growing markets of Baltimore and Philadelphia would soon be supplied with fruits, vegetables, lamb, butter, veal, poultry, eggs, and very many other things not now produced, because they won't bear transportation by slow conveyances to distant markets, and thus it is that such regions, on navigable water, so blessed with genial climates and early vegetation, lose the advantages God and nature intended they should enjoy, if not improved with intelligent vigilance.

Could such a boat be kept for a year or two on the line, the good people of Worcester would soon begin to realise what it is the leading object of this journal to insist on, as the *first great element of agricultural and horticultural prosperity*, namely, *concentration;* or what is the same thing, bringing the consumers, with their machinery, the loom and the anvil, the lapstone and the hammer, the furnace and the crucible, the mill and the manufactory, near in point of time, and therefore virtually near in locality to the plough. The Snow-Hill country ought to drug the markets of Baltimore and Philadelphia with strawberries, and raspberries, and grapes, and tomatoes, and potatoes, and peas, and beets, and cucumbers, and eggs, and chickens, and melons, and all sorts of things, before they could be supplied from the immediate vicinity of those cities. But, alas, what salvation is there for people—ah, how lamentable to add, for the *farmers*, the *yeomanry*, the *bone and sinew*, and *salt* of the land, as they ought to be; who give up themselves and their precious time to be ridden by demagogues, who make them stalking-horses to climb on their shoulders into office? What but stagnation, if not going astern, for people who come together one-half at a time, for party purposes? Who do not turn their thoughts upon their own condition, and study how to improve it; and who rarely read for amusement or knowledge, any thing but the *party paper of their own state?* Has any farmer of Worcester county, for instance, ever inquired of his representative in Congress, of whatever *side*, (for while we really happen not to know which it is, ten to one that he "*belongs*" exclusively to one *side;*) has he ever asked him, for example, if he can tell how much, what proportion of the taxes indirectly levied on the people, (and for which he probably votes,) is appropriated for the support of the *military institutions* of this much-boasted model Republic? What would his representative say, if told

that the proportion, even in time of peace, has been, for many years, 80 per cent. of the whole expenses of government? Has the farmer of Worcester, or any other county in Maryland, inquired of his representative whether he has ever reflected on this question: How much of the food, consumed by the laborers employed in fabricating the forty millions we import from England, is the produce now, not of American, but of *foreign ploughs?* The produce of countries where, labor being unprotected, the people are as poor as we shall become, if we leave our trade with foreign countries to "regulate itself," while they regulate all against us, and every thing for themselves!! Has he ever asked his representative how much of the produce consumed by these foreign operatives, who make manufactures for our market, is produced by the labor of thousands of *white women*, serfs of Russia, who labor in the fields without shoe or stocking, glove or bonnet? Food that would be the growth of our own country, consumed by labor in our own country, were such goods manufactured in our own country, for which nature has provided every facility. Such inquiries would soon lead him to see how much more important than any possible crumb of public patronage, which he, or his, may happen to pick up around the tables of men in power, would be the establishment of a policy that should place, as we have arranged them, *the loom and the anvil, in juxta-position with the plough.*

Until the farmer and the planter make all these inquiries for themselves, let them not complain of hard times, or even make pretensions to self-respect and knowledge of their own rights. If our language is plain, we believe it to be true, as we know it to be sincere; and perhaps we ought not to conclude without adding, that it is equally applicable to other parts of our own native and beloved state, as well as to other states. What say you, Reader? for you must be the judge.

PRIZE ESSAYS.

The Royal Agricultural Society of England consists of seven thousand members. At its late meeting, the following schedule of the subjects, and respective amount of the prizes, was unanimously agreed to.

The reader will readily see what a degree of research such essays require, and how much valuable information they are calculated to bring forth.

"*Farming in Lancashire,*" for example, means a complete survey and report of the staples and course of husbandry, its domestic animals, implements, buildings, wages for labor, average products, &c., for that county, and so of others; making known all excellencies worthy of imitation, and as frankly exposing all defects. How many of our institutes might follow suit in measures like these, which go to develop mind and augment information, instead of *increasing fat*, or paying for the application of a few loads more of manure.

Farming of Lancashire,	£50
Farming of Sussex,	50
Farming of South Wales,	50
Laborers' Cottages, (Essay and Model,)	50
Laborers' Cottages, (second best Essay,)	20
Breeding and Management of Pigs,	20
Increasing the supply of Meat	50
Management of Barley,	15
Agricultural Buildings,	50
Breeds of Sheep for different localities,	20
Top-dressing soil with Marl, Clay, &c.,	15
	£390

The Council also agreed to offer £50 for the best Essay on the Destruction of the Wire-worm, to be sent in to the Secretary on or before the 1st of March, 1850.

Now all these essays, for some of which, as will be seen, as much as $250 are to be paid, we shall receive within two or three weeks after they are published. But say some, they are *English;* they don't suit us. Well, would it not be strange if nothing worthy of notice could be found in essays that describe the farm management of the most highly cultivated and productive parts of the civilized world, except—the acre of land mentioned lately by the correspondent of the National Intelligencer, which yielded eight hundred bushels of potatoes, and the Lord knows how many turnips and cabbages! But they grew under "the auspices" of the American Institute. Is it likely that there is nothing to be learned from an essay for which $100 is to be given, on Breeds of Sheep for different localities?

TO DESTROY THE WIRE-WORM.

S. Davidson, of Greece, Monroe county, N. Y., states, in the Genesee Farmer, that he successfully destroys the wire-worm, and other insects, by covering the ground two or three inches with straw, where it remains two or three weeks to settle. During this time the worms work on the surface, under the straw. On a dry day the straw is burned, destroying worms and eggs. This remedy was applied to a part of a field, "full of wire-worms." Where the fire went, there has been no appearance of wire-worms; on the rest of the field they continued abundant.

HORSEMANSHIP IN CHILI.

The Guachos are well known to be perfect riders. The idea of being thrown, let the horse do what it likes, never enters their head. Their criterion of a good rider is a man who can manage an untamed colt, or who, if his horse falls, alights on his own feet, or can perform other such exploits. I have heard of a man betting that he would throw his horse down twenty times, and that nineteen times he would not fall himself. I recollect seeing a Guacho riding a very stubborn horse, which three times successively reared so high as to fall backwards with great violence. The man judged with uncommon coolness the proper moment for slipping off—not an instant before or after the right time; and as soon as the horse got up, the man jumped on his back, and at last they started at a gallop. The Guacho never appears to exert any muscular force. I was one day watching a good rider, as we were galloping along at a rapid pace, and thought to myself, "surely, if the horse start, you appear so careless on your seat, you must fall." At this moment, a male ostrich sprang from its nest, beneath the horse's nose; the young colt bounded on one side like a stag, but as for the man, all that could be said was, that he started and took fright with his horse. In Chili and Peru, more pains are taken with the mouth of the horse than in La Plata, and this is evidently a consequence of the more intricate nature of the country. In Chili, a horse is not considered perfectly broken, till he can be brought up standing, in the midst of his full speed, on any particular spot, for instance, on a cloak thrown on the ground; or, again, he will charge a wall, and, rearing, scrape the surface with his hoofs. I have seen an animal bounding with spirit, yet merely reined by a forefinger and thumb, taken at full gallop across a court-yard, and then made to wheel round the post of a veranda with great speed, but at so equal a distance that the rider, with outstretched arm, all the while kept one finger rubbing the post. Then making a *demi-volte* in the air, with the other arm outstretched in a like manner, he wheeled round with astonishing force in an opposite direction.—*Darwin's Researches.*

STRUCTURE OF ICE-HOUSES ON LOW GROUNDS.

With much regret we learn the ice in the different ice-houses in town is nearly gone. In several it has all melted. We have heard it suggested, that a number of our citizens think of sending for a vessel load to Boston, or some one of the northern cities. We hope it may be done—for it is quite indispensable in the fall sickness.—*County Shield, Snow-Hill.*

We would recommend, not only our friends of Snow-Hill, but all those residing on the flats of tide-water, and the river bottoms of the west and south-west, to try the Chinese method of keeping ice, for it is not only founded upon sound philosophical principles, but it is less costly than any other.

ICE-HOUSES IN CHINA.

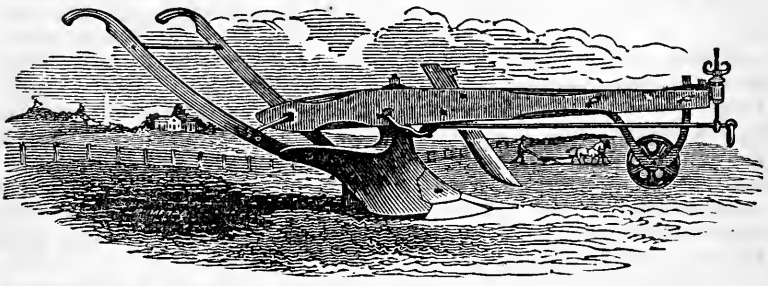
A short time before I left England, you published in the *Gardener's Chronicle*, a number of letters and plans for the construction of ice-houses, but, as far as I can remember, nothing at all resembling the Chinese one, which I shall now describe to you. On the left bank of the Ningpo river, proceeding upwards from the town and forts of Chinghai, and in various other parts in the north of China, I have met with these ice-houses. When I inspected them for the first time last winter, (1843,) their construction and situation differed so much from what I had been accustomed to consider the essentials of an ice-house at home, that I had great doubts of their efficiency; but at the present time, which is the end of August, 1844, many of these houses are yet full of ice, and seem to answer the end most admirably. You are probably aware, that the town of Ningpo is built in the midst of a level plain from twenty to thirty miles across. These ice-houses stand on the river sides, in the centre of this plain, completely exposed to the sun—a sun, too, very different in its effects from what we experience in England—clear, fierce, and burning—which would try the efficiency of our best English ice-houses, as well as it does the constitution of an Englishman in China.

The bottom of the ice-house is nearly on a level with the surrounding fields, and is generally about twenty yards long by fourteen broad. The walls, which are built of mud and stone, are very thick, twelve feet in height, and are, in fact, a kind of embankment rather than walls, having a door through them on one side, and a kind of sloping terrace on the other, by which the ice can be thrown into the house. On the top of the walls or embankment, a tall span roof is raised, constructed with bamboos thickly thatched with straw, giving the whole an appearance exactly resembling an English haystack. And this is the simple structure which keeps ice so well during the summer months, under the burning sun of China! The Chinaman, with his characteristic ingenuity, manages also to fill his ice-house in a most simple way, and at a very trifling expense. Around the house he has a small, flat, level field, which he takes care to overflow in winter before the cold weather comes. It then freezes and furnishes the necessary supply at the door. Again, in spring these same fields are ploughed up, and planted with rice; and any water which comes from the bottom of the ice-houses, is conveyed into them by a drain constructed for the purpose. Of course, here, as elsewhere, the ice is carefully covered up with a thick coating of straw when the house is filled. Thus, the Chinaman with little expense in building his ice-house, and an economical mode of filling it, manages to secure an abundant supply for preserving his fish during the hot summer months. This, I believe, is the only, or at least the principal purpose to which it is applied in this country, and never for cooling wine, water, or making ices, as we do in Europe.

THE GREAT IMPROVEMENT IN THE GREAT IMPLEMENT OF AGRICULTURE.

It is considered due to agricultural history, to preserve, in favor of a great invention, the following testimony from one among the most intelligent, judicious, and estimable cultivators of the soil, with whom we have had the happiness to become acquainted.

In any country, governed as all *countries* should be, in the nearest possible conformity to the public interest, Mr. Prouty, for this invention, would be placed by the public authority, and by the public esteem, far above any inventor of the instruments of human destruction, as they are placed, among barbarians, in advance of all others. But, alas! they are not savages only who give precedence to the art and the practice of shedding human blood.



The Prouty & Mears Patent Centre-draught Plough.

Lexington, Mass., February 25, 1846.

To Mr. James Pedder,

Dear Sir:—You ask my opinion of the "Centre-draught Plough." I give it freely and in a few words. If my opinion of its merits will, in any measure, induce my brother farmers to adopt this, in preference to any other plough now in use, I shall feel that I have rendered an important service to the public, and, at the same time, contributed my share toward the discharge of the debt of gratitude due to the inventor of this invaluable improvement, in an implement of so great importance to agriculture.

I have, for twenty-five years past, personally superintended my own estate, part of which I have annually had under the plough. I have tried English, Scotch, and every variety of American ploughs, and presume I shall be excused for saying, that I consider myself a competent judge of their relative value in the hands of farmers. The application of the "Centre-draught" principle to the plough, by Messrs. Prouty & Mears, is, unquestionably, the greatest improvement that has been made in the implement since its first invention. The remedy for the long existing evil of having the whole resistance *on one side* of the line of draught, and the necessity of placing the centre of resistance exactly *on the line of draught*, first suggested itself to the philosophical mind of David Prouty.

Mr. Prouty was a practical farmer. He saw the objections to the old-fashioned plough—his ingenious mind set about devising means, whereby the power of draught might be greatly lessened; the liability to wear, in certain parts more than others, obviated; the labor of managing greatly diminished, and, at the same time, doing the work infinitely better; and well has he done it. And when this improvement shall be generally adopted by farmers, and its merits justly appreciated, Mr. Prouty will be ranked among the greatest benefactors of his age. And although some of his contemporaries may injure him by unjustly interfering with his rights, and appropriating to themselves some of the fruits of his ingenuity—they can never rob him of his well-earned fame—posterity will do justice to his memory. And the approbation and magnificent testimonial of one of the most powerful and enlightened monarchs of Europe, is but a foretaste of what he may expect from his own countrymen, when the merits of his invention shall be rightly appreciated.

I am aware that my strong convictions of the vast utility to farmers of this improve-

ment in the plough, may lead me—in the minds of some—to speak in extravagant terms of the merits of the inventor. But you have known Mr. Prouty; you have been familiar with the operations, and can fully appreciate the benefits of his invention; and by you, I presume, I shall not be charged with bestowing unmerited praise, in saying, that if the farmers of his own state should appropriate to that object, but a *single tithe* of what this improvement in the plough has saved them, in the cultivation and better condition of their farms, it would raise a monument to his memory, which would not be transcended in beauty, in grandeur and durability, by any that have been erected to the memory of the greatest benefactors of mankind.

With great respect,
I am, my dear sir,
Very truly and sincerely yours,

E. PHINNEY.

CLAYTON B. REYBOLD'S ANNUAL SALE OF LONG-WOOLED NEW OXFORDSHIRE BUCKS,

Is advertised to take place near Delaware City, in the State of Delaware, on Wednesday, the 2d of August. There will be offered about twenty-five bucks, which he believes to be superior in all points to those disposed of at his former sale. The sire of the bucks to be sold, "took the first prize for the best long-wooled sheep, at the Saratoga meeting, in the fall of 1847," and weighed alive, 15th of May, 1848, three hundred and sixty-one pounds.

Mr. Reybold will be pleased to see any gentleman who will favor him with his company, on the day above mentioned, at his residence, Marsh Mount, near Delaware City.

We shall endeavor to be there "or thereabouts," in person or by proxy—the former would be far the more agreeable of the two. If landed men always draw their purse-strings close on these occasions, how can they expect a supply to be kept up, of the best blood, to ensure general improvement? Rely on it, gentlemen, it is true economy to "shell out," on such occasions. With one male, you readily and quickly improve your whole flock or herd. Colonel Lloyd, as we remember, warmly contended, before he saw the real improved short horn, exhibited with the last finish that had been given to them in England, that we had some as good cattle as were to be found in the world; but when he saw CHAMPION and SHEPHERDESS and WHITE ROSE, he did not hesitate to lay down $1500 for the three; and as soon after as there was time for Champion's blood to tell upon his numerous herds, (for he owned fourteen farms,) he said he considered himself well paid for his outlay, in one crop on his old stock; which he had thought was already first-rate. It is an obligation of duty and honor, as well as of interest, to encourage the importation of the best to be had.

ANNUAL SALES OF IMPROVED STOCK PROPOSED.

WOULD it not be well, if Mr. VAIL, for instance, and other breeders of improved stock, would follow the example set by Mr. REYBOLD, to hold public sales, every year, on a *given* day, where the flocks and herds, like theirs, are sufficiently large and of sufficient purity and excellence to justify it.

How would it do to have at Saratoga, every year, say on the 10th of August, a sale of improved sheep and cattle? There would be few sold, perhaps, at first, but it might soon grow into an affair of great consequence and convenience to the public.

COFFEE.

Nowhere does woman appear to greater advantage than in dispensing the hospitalities of her own house, and we confess ourselves to be so old-fashioned, so far behind the times, as to admire her more in the seclusion of that domestic circle, which owes its chief charm and refinement to her, than in the rostrum of a lecture room, or in the prominent position of an officer of a "Teetotal." Let *our* daughters cultivate the literature of domestic economy, and the elegancies of private life, leaving Utopian schemes to those who court the glare and the gaze of the world. As a specimen of what we mean by the Literature of Domestic Economy, we give here all that is known about *Coffee*, and we are sure that our fair readers will not dispense its nectar less gracefully for being *learned in the history* of this delightful beverage.

Coffee is named after Caffa, in Africa, where it grows abundantly. This berry, which affords such a wholesome and agreeable beverage, is said to have been drunk from time immemorial in Ethiopia, but for this we have no satisfactory authority; and as the use of most plants has been accidentally discovered, it is probable that the properties of coffee might have been first found out in the manner related by Chambers, who says that a goatherd observed that his cattle, after browsing on this tree, would wake and caper all night; and the prior of a certain monastery being informed of it, first made use of the berry to prevent the monks from sleeping at matins.

About the fifteenth century, the use of coffee appears to have been introduced from Persia by Gemaleddin, mufti of Aden, a city near the mouth of the Red Sea. He, finding it dissipate the fumes which oppress the head, give cheerfulness, and prevent sleep, without injury, recommended it to his dervises, with whom he used to spend the night in prayer. It was soon after this drunk at Aden by all studious persons, and those who travelled by night. It was progressively used at Mecca, Medina, &c., and Grand Cairo: hence it continued its progress to Damascus and Aleppo. From the two latter places, it was introduced into Constantinople by persons of the name of Shems and Hekin, in the year 1554, each of whom opened a public coffee-house in that city. These coffee-houses becoming a rendezvous for newsmongers, who made too free with state affairs, were suppressed by Caproli, the grand vizier.

Rauwolfus, who was in the Levant in 1573, was the first European author who made any mention of coffee; but the first who has particularly described it is Prosper Alpinus, in his *Medicina Ægyptiorum*, 1591, and in his History of Egyptian Plants, published at Venice in 1592.

The Venetians seem to be the next who used coffee. Pietro della Valle, a Venetian, writes from Constantinople in 1615, informing his friend, that upon his return he should bring him some coffee, which he believed was a thing unknown in his country. This beverage was noticed by two English travellers at the beginning of the 17th century, Biddulph about 1603, and William Finch in 1607. The former says, "the Turks have for their most common drink, *Coffa*, which is a black kind of drink, made of a kind of pulse like peas, called *Coava*." The latter observes, "that the people in the island of Socotora have, for their best entertainment, a China dish *Coho*, a black bitterish drink, made of a berry like a bayberry, brought from Mecca, supped off hot."

Lord Chancellor Bacon mentions it in 1624: he says, "the Turks have a drink they call coffee, made with boiling water from a berry reduced into powder, which makes the water black as soot, and is of a pungent and aromatic smell, and is drunk warm."

M. La Roque, who published his journey into Arabia Felix in 1715, contends that his father having been with M. de la Haye, the French ambassador at Constantinople, did, when he returned to Marseilles, in 1644, drink coffee every day; but the same author acknowledges that it was M. Thevenot who taught the French to drink coffee, on his return from the East, in 1657. It was made fashionable and more known in Paris, in 1669, by Soliman Aga, ambassador from Sultan Mahomet the Fourth, who gave coffee at all his parties with great magnificence; and it could not fail to be pronounced an agreeable beverage by the Parisian ladies, after they had received it from his slaves on bended knee. If it were a matter of policy with the Turks to get coffee introduced into France, the ambassador's splendid porcelain, equipage, and gold-fringed napkins, were the best recommendation that could have been given to a people who are so naturally fond of show.

Two years after, it was sold in public at the Foire St. Germain, by Pascal, an Armenian, who afterwards set up a coffee-hous

on the Quai de l'Ecole; but, not being encouraged in Paris, he left that city, and came to London. However, soon after this, some spacious rooms were opened in Paris for the sale of coffee, and they soon increased to upwards of three hundred.

It is said to have been first brought to England by Mr. Nathaniel Conopius, a Cretan, who made it his common beverage, at Baliol College, at Oxford, in the year 1641; but it must evidently have been a few years prior to this date, as Evelyn says, in his Diary, 1637, "There came in my tyme to the Coll: one Nathaniel Conopios out of Greece, from Cyrill the Patriarch of Constantinople, who, returning many years after, was made (as I understand) Bishop of Smyrna: he was the first I ever saw drink coffee, w^{ch} custom came not into England till 30 years after."

The first coffee-house in England was kept by one Jacob, a Jew, at the sign of the Angel, in Oxford, in 1650. Coffee was first publicly known in London in 1652, when Mr. Daniel Edwards, a Turkey merchant, brought home with him a Ragusan Greek servant, whose name was Pasqua Rossée, who understood the roasting and making of coffee, and kept a house for that purpose, in George Yard, Lombard street, or rather, according to Mr. Houghton, in a shed in the Churchyard of St. Michael's, Cornhill. This seemed to give alarm to the ale-sellers, who, taking advantage of Rossée's not being free of the city, petitioned the Lord Mayor against him; but Mr. Edwards having married a daughter of Alderman Hodges, the alderman joined Bowman, his coachman, who was a freeman, as a partner with Pasqua Rossée. The Greek was afterwards obliged to leave the country for some misdemeanor; and Bowman, by his business, and the aid of a subscription of one thousand sixpences, was enabled to convert his shed into a coffee-house. The famous Dr. Harvey used it frequently. Mr. Ray affirms, that in 1688, London might rival Grand Cairo in the number of its coffee-houses, so rapidly had it come into use; and it is thought that they were augmented and established more firmly by the ill-judged proclamation of Charles the Second, in 1675, to shut up coffee-houses as seminaries of sedition: this act was suspended in a few days.

The first mention of coffee in our statute books is in 1660, (12 Char. II., cap. 24,) by which a duty of fourpence was laid upon every gallon of coffee bought or sold. Kæmpfer says, "that Mocha is the peculiar region of coffee:"—"Kahwah; quæ nullibi terrarum quàm circa Mocham Arabiæ felicis colitur." (*Amæn. Exot.* p. 123.)

Bruce, however, would trace it to Caffa, "the south province of Narea, whence it is first said to have come." (*Travels, &c.*, vol. ii. p. 411.)

The Arabs seem to have been very jealous of letting this tree be known; and in order to confine the commodity to themselves, they destroyed the vegetable quality of the seeds; but Nicholas Witsen, burgomaster of Amsterdam, and governor of the East India Company, desired Van Hoorn, governor of Batavia, to procure from Mocha, in Arabia Felix, some berries of the coffee-tree, which were obtained and sown at Batavia; and about the year 1690, several plants having been raised from seeds, Van Hoorn sent one over to Governor Witsen, who presented it to the garden at Amsterdam. It there bore fruit, which in a short time produced many young plants: from these the East Indies and most of the gardens in Europe have been furnished. In 1696, it was cultivated at Fulham, by Bishop Compton; and in 1714, the magistrates of Amsterdam presented Louis the Fourteenth with a coffee-tree, which was sent to the royal garden at Marli. In 1718, the Dutch colony, at Surinam, began first to plant coffee; and in 1722, M. de la Motte Aigron, governor of Cayenne, contrived by an artifice to bring away a plant from Surinam, which, by the year 1725, had produced many thousands. The French authors affirm that it was planted in the Isle of Bourbon, in the year 1718, having been obtained from Mocha. This seems doubtful; but it is ascertained that M. Declieux carried the first coffee-plant to Martinico in 1720.

This passage was long and dreary, and fresh water being scarce in the vessel, made it necessary to limit every one to a small portion daily, to make it last out the voyage, when this gentleman deprived himself of a great part of his allowance in order to keep these valuable trees alive. M. Fusée Aublet states that one tree only survived in the Isle of Bourbon, which bore fruit in 1720. From Martinico it spread to the neighbouring islands. Sir Nicholas Laws first introduced it into Jamaica, in the year 1728, and planted it at Townell Estate, now called Temple Hall, in Liguanea: the first berries produced from this tree sold at a *bit* each, which is equal to 6*d.* In the year 1752, the export of coffee from Jamaica was rated at 60,000 lbs.; and it has continued regularly to increase since that time, except when additional duties have been laid on, which have as regularly lessened the exports and the revenue also; an important proof, among others, how frequently heavy taxation defeats its own purpose. In 1791, there were 607 coffee plantations in Jamaica, employing 21,000 negroes. In 1808, the exports from Jamaica were 29,528,273 lbs.; the

next year they were lessened about four millions of pounds; in 1812, the export was 18,481,986 lbs. The Abbé Raynal says, that 12,550,000 pounds of coffee are annually exported from Arabia Felix.

Almost every species of the vegetable creation has an apparent enemy peculiar to itself in the animal tribe, but which is undoubtedly intended for some wise purpose, although often beyond our investigation. The finest coffee-tree in our colonies, and sometimes a whole plantation, is seen to perish in a short time. This is often occasioned by an insect called the coffee fly; this fly is very long, and has attached to its head two saws, with which it sometimes cuts these trees to the very heart. The white vine-fretters also attack the coffee-tree, to prevent which, pine-apples are planted between the trees, because these insects, preferring the juice of this fruit, eat of it, which causes their death.

Every gentleman who has stoves should raise this tree for the beauty of its appearance. It is an evergreen, whose leaves continue three years; and being of a fine dark green, make a beautiful contrast with the clusters of pure white blossoms, which perfume the air with an odour like jasmine. Nothing can be conceived more delightful and grateful than the appearance and perfume of a field of coffee-trees when in full bloom; it resembles a shower of snow, which nearly obscures the dark green branches. The tree, like the walnut, produces smaller fruit, and better flavored, as it becomes older.

Sonnini, in his Travels in Egypt, says, "If you wish to be supplied with excellent coffee, you must go to Kous, Kenné, or Bonoub; for when one had arrived at Cairo, or had crossed the Nile, it was no longer pure. Merchants were waiting there to mix it with the common coffee of America. At Alexandria it underwent a second mixture by the factors who forwarded it to Marseilles, where they did not fail again to adulterate it; so that the pretended Mocha coffee which is used in France, is often the growth of the American colonies, with about one-third, and seldom with half of the genuine coffee of Yemen. When I was at Kous, the unadulterated coffee of the first quality sold for about tenpence halfpenny the pound. If to prime cost is added the expense of conveying it to Cairo, the duties which are paid there, the charges for loading and unloading, those for transporting it to Alexandria, freight to Marseilles, the exorbitant and arbitrary duties with which that commodity is there loaded, and if to these are added commission and the expense of grinding, &c., how is it possible to believe that they should have real Mocha coffee at Paris, at the rate of five shillings per pound?

The Turkey coffee is a small berry, and is more esteemed for its flavor than that which grows in the West Indies. We conclude that one great cause of the American coffee being inferior in point of flavor, is owing to the practice, in that part of the world, of gathering the berries before they are quite ripe, whereas the Arabians shake their trees, and by this means obtain the berries in full perfection. Mr. Lunan observes, that the West Indian berries being considerably larger than those of the Turkey coffee, require much longer keeping; but Mr. Miller, the celebrated gardener, is of opinion, that coffee does not require long keeping, and that it loses a part of its flavor. He states that two gentlemen, who resided some years in Arabia, assured him that the berries, when first ripe, were very superior to those which had been kept. He also states, that from plants brought from the West Indies, and raised in English hothouses, coffee berries have been produced, which, at a proper age, were found to surpass the very best Mocha that could be produced in Great Britain. Jamaica coffee is often sold as Turkey coffee in London, and there have been many samples sent from Jamaica, that have proved quite equal to any Arabian berries. As coffee readily imbibes the smell or flavor of any article it comes in contact with, it is often injured in the voyage home, by being stowed near sugar, rum, pimento, &c. &c.; and the flavor which it thus contracts cannot be separated again, even by roasting.

The most eminent physicians of every country have recommended the use of coffee for various complaints. It greatly relieves the headache, and is recommended to those of constitutionally weak stomachs, as it accelerates the process of digestion, removes languor and listlessness, and affords a pleasing sensation. Coffee is often found useful in quieting the tickling vexatious cough. Sir John Floyer, who had been afflicted with the asthma for sixty years, was relieved by strong coffee. The great use of coffee in France is supposed to have abated the prevalency of the gravel, for where coffee is used as a constant beverage, the gravel and the gout are scarcely known. Voltaire lived almost wholly on coffee, and said nothing exhilarated his spirits so much as the smell of it; for which reason he had what he was about to use in the day roasted in his chamber every morning, when he lived at Ferney.

A friend writes me from Constantinople, that many of the Turks will subsist almost entirely on coffee, except during the rigid fast of the Ramadan, or Turkish Lent, which

lasts forty days; during which time they neither eat, drink, nor smoke, while the sun is over the horizon; and the use of coffee is then so strictly forbidden, that those who have even the smell of coffee on them, are deemed to have violated the injunctions of their prophet: yet it is estimated that as much money is spent in coffee at Constantinople as in wine at Paris. Among the legal causes of divorce with the Turks, the refusal to supply a wife with coffee is one. Notwithstanding the immense consumption of coffee in the Turkish capital, they have but one building where it is allowed to be roasted; a great number of persons are employed in pounding it in mortars; this is performed as soon as the coffee is taken from the oven, which causes the surrounding neighbourhood to smell strongly of this aromatic drug.

Among the various qualities of coffee, that of its being an antidote to the abuse of opium must make it an invaluable article with the Turks, who drink it without either sugar or milk. The Persians, who sip their coffee extremely hot, take it also without either of these additions; but they have an accompaniment that would not be quite so agreeable to our fair countrywomen. The Persians have a saying, that "coffee without tobacco is like meat without salt." How greatly must the habits of the Mohammedans have been changed by the introduction of these two vegetable luxuries, which now contribute to solace even the poorest inhabitants of Turkey and Persia, as much as the Chinese leaf does the English.

An interesting analysis of coffee was made by M. Cadet, apothecary in ordinary to the household of Napoleon, when emperor; from which it appears, that the berries contain mucilage in abundance, much gallic acid, a resin, a concrete essential oil, some albumen, and a volatile aromatic principle, with a portion of lime, potash, charcoal, iron, &c. Roasting developes the soluble principles. Mocha coffee is, of all kinds, the most aromatic and resinous. M. Cadet advises that coffee be neither roasted nor infused till the day it be drunk, and that the roasting be moderate.

M. Bigio, of Venice, has succeeded in extracting from coffee a green gum lac, said to be useful and beautiful in painting.

Dr. Moseley, in his learned and ingenious treatise, states, that "the chemical analysis of coffee evinces that it possesses a great portion of mildly bitter, and lightly astringent gummous and resinous extract, a considerable quantity of oil, a fixed salt, and a volatile salt. These are its medicinal constituent principles. The intention of torrefaction is not only to make it deliver those principles, and make them soluble in water, but to give it a property it does not possess in the natural state of the berry. By the action of fire, its leguminous taste and the aqueous part of its mucilage are destroyed; its saline properties are created and disengaged, and its oil is rendered empyreumatical. From thence arise the pungent smell and exhilarating flavor not found in its natural state.

"The roasting of the berry to a proper degree requires great nicety. If it be underdone, its virtues will not be imparted, and in use it will load and oppress the stomach; if it be overdone, it will yield a flat, burnt, and bitter taste; its virtues will be destroyed, and in use it will heat the body, and act as an astringent. The closer it is confined at the time of the roasting, and till used, the better will its volatile pungency, flavor, and virtues be preserved.

"The influence which coffee, judiciously prepared, imparts to the stomach, from its invigorating qualities, is strongly exemplified by the immediate effect produced on taking it when the stomach is overloaded with food, or nauseated with surfeit, or debilitated by intemperance, or languid from inanition. In vertigo, lethargy, catarrh, and all disorders of the head, from obstructions in the capillaries, long experience has proved it to be a powerful medicine; and in certain cases of apoplexy, it has been found serviceable even when given in clysters, where it has not been convenient to convey its effects to the stomach. Mons. Malebranche restored a person from apoplexy by repeated clysters of coffee.

"Du Four relates an extraordinary instance of the effect of coffee in the gout; he says, Mons. Deverau was attacked with the gout at twenty-five years of age, and had it severely until he was upwards of fifty, with chalk stones in the joints of his hands and feet; he was recommended the use of coffee, which he adopted, and had no return of the gout.

"A small cup or two of coffee, immediately after dinner, promotes digestion. With a draught of water previously drunk, according to the eastern custom, coffee is serviceable to those who are of a costive habit."

The generality of English families make their coffee too weak, and use too much sugar, which often causes it to turn acid on the stomach. Almost every housekeeper has a peculiar method of making coffee; but it never can be excellent, unless it be made strong of the berry, any more than our English wines can be good, so long as we continue to form the principal of them on sugar and water. When coffee is used as a breakfast beverage, we would strongly recommend it to be served in the manner of the

French *Café au Lait*—with a small pot of very strong coffee, they send a large jug of boiling milk, and it is generally used from about one-fourth of coffee to three-fourths of milk; thus you get nourishment from the milk and sugar, and more refreshment from a small quantity of strong coffee than a larger portion of weak.

After dinner, we would recommend it strong and hot, but without sugar or cream.

Count Rumford says, "Coffee may be too bitter; but it is impossible that it should ever be too fragrant." The very smell of it is reviving, and has often been found to be useful to sick persons, and to those who are afflicted with the headache. In short, every thing proves that the volatile, aromatic matter, whatever it may be, that gives flavor to coffee, is what is most valuable in it, and should be preserved with the greatest care, and that, in estimating the strength or richness of that beverage, its fragrance should be much more attended to than either its bitterness or its astringency. This aromatic substance, which is supposed to be an oil, is extremely volatile, and escapes into the air with great facility, as is observed by its filling a room with its fragrance, if suffered to remain uncovered, and at the same time losing much of its flavor.

We would recommend those who give coffee to evening parties, to let their attendants hand empty cups, with a coffee-pot on the tray, which would insure its being warm and with flavor.

WINDOW GARDENING.

A GENTEEL address is said, by Chesterfield, (we believe,) to be the best letter of introduction; with how much more truth may it be said, that a fondness for flowers is among the best evidences of a refined and gentle nature in those who cultivate it. We never see the window of a room filled with fresh green shrubs and blooming flowers, without being prepossessed in favor of its occupant.

In sympathy with such of our fair readers as love the smiling beauties of Flora, we append the following.

That the cultivation of flowers, even in a window, is indeed an enjoyment to the inhabitants of cities, is evident by the pleasure with which we see many of those, who live by their labors with the needle or the loom, spending the greater part of their few leisure hours in tending a few geraniums or other flowering plants arranged on a window sill; and there is something affecting in the sight, when we recollect that many of these persons probably came originally from the country, and that these few leaves and flowers are all that remain to remind them of their native fields. The plants of persons of this class are, however, generally much more healthy than those of richer cultivators, probably because they are more cared for, and more diligently watched; for no living objects more amply repay the attention bestowed upon them than flowering plants.

All plants grown in pots, and kept in a room, require more attention than they would do in any other situation, as they are in a most unnatural state, and they need the greatest care that can be bestowed upon them to counteract the bad effects of their peculiar position. To understand thoroughly how disadvantageous that position is to their growth, we must recollect that plants derive their nourishment partly through their roots, and partly through their leaves, by means of pores so extremely fine, that they can only be seen by the aid of a very powerful microscope. When a plant is kept constantly in an inhabited room, the pores of the leaves become choked up with dust, and as the air of every room inhabited by human beings must necessarily be very dry, the delicate points of the roots, which are of a soft, spongy nature, to enable them to imbibe water, become withered or dried up, and lose that power of alternate dilation and contraction, which is absolutely necessary to enable them first to absorb moisture from the soil, and afterwards to force it up through the stem and leaves. In addition to these evils, which it is extremely difficult to guard against, may be added another of almost equal importance, arising from the use of saucers to the flower-pots. These it is difficult to dispense with in a living room, as, without them, there would be danger of injuring the carpet and other articles of furniture, every time the plant is watered; for water is of scarcely any use, unless it be given in sufficient quantity to saturate the whole mass of earth in the pot, and this cannot be done without some escaping by the hole at the bottom. If, however, water be suffered to stand in the saucer, unless there be abundance of drainage in the bottom of the pot, the water will sodden the earth, and if it does, the spongioles of the roots will inevitably become rotten. Wherever, therefore, plants are kept in pots, it

should be a paramount object with the cultivator to set them out in the open air as often as possible, and then, while the pots are standing without their saucers, to give them abundance of water, either syringing their leaves, or washing them thoroughly by holding a watering-pot, with a fine rose, above them, and letting the water descend on their leaves like a shower. In summer, plants may be watered in this manner twice a day, and in spring and autumn once a day, without receiving the slightest injury from overwatering. In winter, however, the case is different; and as soon as the air becomes frosty, the plants should not be exposed to it, and they should be watered as little as possible, so as to keep them alive, unless they should be plants which flower in the winter, in which case they should be watered daily, as all plants when in flower require more water than at any other season. As these winter-flowering plants must, of course, be placed in saucers, for the sake of cleanliness, it will be necessary to take care, when the plants are watered, that the saucers are emptied out as soon as the water has run through into them, so that no stagnant water may be allowed to remain to chill the roots. Another point which should be attended to, when plants are kept in living rooms, is to remove all the dead leaves as soon as they appear, as the decomposition of vegetable matter is extremely injurious to the health of human beings. Even the plants themselves appear to grow better when all the decaying vegetable matter they produce is regularly removed from them; and not only do they grow more vigorously, but the perfume and beauty of their flowers is said to be increased.

In attending to the cultivation of plants which are to be kept in rooms, it must never be forgotten that they require air as well as water to nourish them. It has been long known that plants will not thrive unless the air has free access to their leaves; but it has only lately been ascertained that the leaves not only act in elaborating the sap, but that they also take in nourishment from the atmosphere. Air should likewise be permitted to have access to the roots moderately, so as not to dry them; as the roots can derive nourishment from it, as well as the leaves, provided they are kept in a sufficiently moist state by the earth with which they are surrounded, to be capable of taking nourishment from any thing.

The important fact that plants derive a great portion of their nourishment from the atmospheric air, was little known before the time of Liebig; and even now, it is so contrary to all our ancient prejudices, that even where it is acknowledged, it is rarely remembered when the rules derived from it are to be acted upon.

Light is as essential as air or water to the growth of plants; and as plants in pots rarely obtain a sufficient quantity when they are kept in living rooms, their stems are frequently drawn up till they become weak and slender, and neither their leaves nor their flowers are so dark as they would be if the plants were grown in the open air. When plants are grown in green-houses, they are generally placed upon a stage raised on steps one above another, and in this manner the leaves receive the full advantage of light, while the sides of the pots are not dried by exposure to the sun; but the reverse of this generally takes place when plants are kept on a window-sill, as the leaves of the plants are frequently shaded by some projecting part of the house or window; while the pots are exposed to the full influence of the sun, and thus the points of the roots of the plants contained in them are very apt to become dry and withered.

It may possibly be thought by some persons, that it is scarcely necessary to enlarge on the importance of light, air, and water, to the health of plants, as every one must be aware of that fact; this, however, is far from being the case. The generality of amateurs who cultivate plants in pots, think that the principal care requisite for their plants, is to keep them warm; and if they do not grow freely, to give them manure; but nothing can be more erroneous than this mode of treatment. Too much heat is as injurious as too much cold; and if plants are brought suddenly out of a cool green-house into a very warm room, they will become sickly, their flower-buds will fall off without expanding, and probably they will lose the greater part of their leaves.

Over-manuring is still more injurious. The roots of plants in pots are so cramped by the confined space in which they are kept, that they have seldom strength to digest strong manure; and there is no doubt that great numbers of green-house plants were killed by over-doses of guano, when it was first introduced. Giving strong manure to a sickly plant is as injurious as giving strong food to an invalid; and in both cases, does harm rather than good. If to over-manuring be added abundant watering, and want of drainage, the earth contained in the pot becomes what is called sour, and is not only totally incapable of affording nourishment, but it actually rots the roots of the plants growing in it.

INSTINCT AND REASON.

I BELIEVE that I consider with as much reverence as any one can do, and I hope that I am duly grateful for that wonderful faculty which it has pleased our infinitely wise and good Creator to bestow upon his favorite creature, man, for his guidance—I mean his inestimable gift to us of reason. At the same time, I must confess that I am very far from participating in that pride, which has led some philosophers to suppose that they should infringe upon the dignity of our highly privileged species, by admitting any of the beings which have been placed below us in the scale of creation to a share in this endowment. On the contrary, my observations of nature have all tended to lead me to think, and I believe that, in general, those who devote much of their time and attention to studying the habits and manners of animals, will be disposed to the same opinion, that if our race has been pre-eminently distinguished by receiving the full light of reason, some sparks and glimmerings of the same divine faculty have been vouchsafed, by the same forming and almighty hand, to our inferior fellow-creatures.

It is no doubt exceedingly difficult, and perhaps impossible, to define where instinct ends and reason begins, in animals. But that some of them are endowed with a faculty which does not come under the usual notion of instinct, will, I think, hardly allow of a dispute. This, as it strikes me, appears in the different degrees of intelligence which we are accustomed to recognise as elevating one species of animal above another—as the *half-reasoning* elephant, for instance, and the dog, the friend of man. Now, the instinct of one tribe, one would think, as much as of another, must be full and perfect, and would not admit of our considering the degree of intelligence manifested in one species as higher or lower than that possessed by another. Again, much more must we conceive that the proper instinct of any species will be fully, and therefore equally, possessed by all individuals of that species. How then, upon the notion of mere instinct, shall we account for that superiority of intelligence which is found in one individual, to others of the same species, and which is familiar to those who are employed about, or in any way in the habit of *conversing* with, animals? But that which appears to me most decidedly to carry the faculties of animals to something exceeding the measure and character of instinct, is the new and ingenious contrivances to which they will often have recourse, in situations, and upon occasions, much too accidental and peculiar to admit of our imagining that they could have been contemplated and provided against in the regular instinct of the whole species. Instinct, we should naturally be disposed to conceive, must have been given to regulate the ordinary habits of the animals, and adapted to those exigencies of their mode of life which are continually occurring, not to such as do rarely, and might, one would be tempted to say, never occur. A few instances will, perhaps, better explain what I mean, and carry more persuasion than a mere argument.

I was one day feeding the poor elephant (who was so barbarously put to death at Exeter 'Change) with potatoes, which he took out of my hand. One of them, a round one, fell on the floor, just out of the reach of his proboscis. He leaned against his wooden bar, put out his trunk, and could just touch the potato, but could not pick it up. After several ineffectual efforts, he at last *blew* the potato against the opposite wall with sufficient force to make it rebound, and he then, without difficulty, secured it. Now it is quite clear, I think, that instinct never taught the elephant to procure his food in this manner; and it must, therefore, have been reason, or some intellectual faculty, which enabled him to be so good a judge of cause and effect. Indeed, the *reflecting* power of some animals is quite extraordinary. I had a dog who was much attached to me, and who, in consequence of his having been tied up on a Sunday morning, to prevent his accompanying me to church, would conceal himself in good time on that day, and I was sure to find him either at the entrance of the church, or, if he could get in, under the seat where I usually sat.

A gentleman, a good shot, lent a favorite old pointer to a friend who had much more to accuse himself of in frightening than in slaughtering partridges. After ineffectually firing at some birds which the old pointer had found for him, the dog turned away in apparent disgust, went home, and never could be persuaded to accompany the same person afterwards.

I have been often much delighted with watching the manner in which some of the old bucks in Bushy Park contrive to get the berries from the fine thorn trees there. They will raise themselves on their hind legs, give a spring, entangle their horns in the lower branches of the tree, give them one or two shakes, which make some of the berries fall, and then quietly pick them up.

A fly-catcher (*Muscicapa grisola*) had

built its nest in a pear tree against my garden wall, and I had once or twice stopped and looked at the bird as she sat on her nest. Coming one morning, and looking for the nest, I could not find it for some time, but at last discovered it, completely altered in appearance, the external parts of it being now in some degree assimilated to its situation. Some of the leaves of the pear tree also seemed to have been drawn more over the nest, as if for the purpose of concealment.

A large brown slug made its way into a glass hive, where the operation of the bees could be distinctly seen. Having killed the slug, and finding that they were unable to get it out of the hive, they covered it over with the thick resinous substance called propolis, and thus prevented its becoming a nuisance to the colony. Into the same hive one of the common brown-shelled snails also gained admittance. Instead of imbedding it in propolis, the bees contented themselves with fixing it to the bottom of the hive by plastering the edge with that substance. I have now in my possession a regular fortification made of propolis, which one of my stocks of bees placed at the entrance of their hive, to enable them the better to protect themselves from the attacks of wasps. By means of this fortification, a few bees could effectually guard the entrance, by lessening the space of admission, which I had neglected to do for them.

Bees show great ingenuity in obviating the inconvenience they experience from the slipperiness of glass, and certainly beyond what we can conceive that mere instinct would enable them to do. I am in the habit of putting small glass globes on the top of my straw hives, for the purpose of having them filled with honey; and I have invariably found that before the bees commence the construction of combs, they place a great number of spots of wax at regular distances from each other, which serve as so many footstools on the slippery glass, each bee resting on one of these with its middle pair of legs, while the fore claws were hooked with the hind ones of the bee next above him, thus forming a ladder, by means of which the workers were enabled to reach the top, and begin to make their combs there. Dr. Bevan, in his very agreeable work on the honey-bee, mentions another very striking illustration of its reasoning powers. He says that a friend of his, on inspecting his bee-boxes, perceived that a centre comb, burdened with honey, had parted from its attachments, and was leaning against another comb, so as to prevent the passage of the bees between them. This accident excited great activity in the colony, but of what nature could not be ascertained at the time. At the end of a week, the weather being cold, and the bees clustered together, it was observed, through the window of the box, that they had constructed two horizontal pillars between the combs alluded to, and had removed so much of the honey and wax from the top of each, as to allow the passage of a bee: in about ten days more there was an uninterrupted thoroughfare; the detached comb at its upper part had been secured by a strong barrier, and fastened to the window with the spare wax. This being accomplished, the bees had removed the horizontal pillars first constructed, as being of no further use. Huber relates an anecdote something similar.

The power which bees possess of ventilating their hives, and of producing such a temperature as will prevent the wax from melting in hot weather, is, I think, another proof that something more than mere instinct influences their conduct; as, in their natural state, bees are probably not in so confined a space as they are in our common straw hives, or exposed so much to the heat of the sun. In hot weather, a number of bees (the number probably being regulated by the state of the atmosphere) may be observed busily employed at the bottom of the hive, moving their wings with so much rapidity, that the motion of them is almost imperceptible. If, while this action is going forward, a lighted candle should be held at the opening on the top of the hive, it will immediately be blown out, a fact which proves the strong current of air produced by these insects from the motion of their wings. I have, however, known instances, in extreme hot weather, when all the labors of the bees to keep the hive in a proper temperature have failed, and a part of the wax has melted. In this case it is dangerous to go near the hive. The bees are in a state of extreme irritation, and though I fancy that mine know me and receive me as a friend, and allow me sometimes to interfere with them with impunity, yet, at the time referred to, I have suffered from their stings in endeavoring to shelter them more effectually from the heat of the sun.

From these instances it appears evident, that some animals and insects are endowed with a faculty which approaches very near to reason. Dr. Darwin asserts, that if we were better acquainted with the histories of those insects which are formed into societies, as bees, ants, and wasps, we should find that their arts and improvements are not so similar and uniform as they now appear to us, but that they arose in the same manner (from experience and tradition) as the arts of our own species; though their reasoning is from few ideas, busied about fewer objects, and is

exerted with less energy. This argument is, however, I conceive, disproved by the undeniable fact that all animals and insects have remained in exactly the same state in which we have always known, and at present find them. Dr. Darwin gives an instance of reason in a wasp, which he himself witnessed, and which is, I think, conclusive of the fact of these insects possessing something approaching very near to it. He informs us, that walking one day in his garden, he perceived a wasp upon the gravel walk, with a large fly nearly as big as itself, which it had caught. Kneeling down, he distinctly saw it cut off the head and abdomen, and then fly away with the trunk, or middle portion of the body, to which the wings remained attached. But a breeze of wind acting upon the wings of the fly, turned round the wasp with its burden, and impeded its progress. Upon this it alighted again on the gravel walk, deliberately sawed off first one wing and then the other, and having thus removed the cause of its embarrassment, flew off with its booty. If, as has been asserted, there is no surer test of reason than when, after having tried one mode of accomplishing a purpose, recourse is had to another more likely to succeed, surely some of the instances which have been given will sufficiently prove the reasoning powers of animals and insects; or, if not quite amounting to reason, it is clear, I think, that they are in possession of a superiority of intellect which approaches very near to it.

I have often watched a wasp taken in the web of a spider. The spider seems to be so perfectly aware that the wasp has the power of annoying him with its sting, that he carefully avoids coming in contact with it, but winds threads round and round it till the wasp can neither escape nor do any injury.

There is a spider found in Jamaica which makes its nest in the earth, of grass, moss, &c., and afterwards plasters it over with clay. The inside is lined with a silky membrane, smooth, and of a whitish gray, with a valve of the same texture. When the spider wants to secure itself in the nest, it fastens this valve with its silky threads, so that a resistance is perceived when the fingers are applied to remove it. Probably the spider is in dread of some enemy, which obliges it to have recourse to this ingenious contrivance for defending itself and preserving its young. In the Bermuda Islands there are spiders which spin their webs between trees that stand eight or nine yards asunder. This they do by darting their threads in the air, and the wind carries them from one tree to the other. This web, when finished, is sufficiently strong to entangle a bird. The fact of spiders throwing out a thread in order to facilitate their approach to a neighboring object, is now perfectly well ascertained.

SEED-SOWING.

Most observant persons must have remarked, that in gardening, in all its branches, a few scientific rules rationally observed, are the strongholds of the best cultivators. Let these be understood, and after processes are easy; let them be neglected, and no other advantages will compensate for the loss.

A finely-pulverized soil pressing on all sides of the seed, is found to assist its germination; too much moisture causes it to rot, while a moderate degree of humidity is favorable to a vigorous growth. We shall apply these general remarks to the various departments of seed-sowing, which are interesting to gardeners, both in the flower and the culinary departments.

Never attempt to sow vegetable seeds when the soil is so moist as to stick to your feet. Patience is exercised by delay, but the rule ought to be adhered to, for Peas, Beans, Onions, &c., put into the ground when it does not crumble under the touch of the hoe, cannot do well. The soil cannot be pressed on the seeds except in a hard clayey texture, inimical to growth, and the surrounding land will be rendered hard and impervious to light and air by the treading. The same remark fully applies to Potatoes, for the lighter the soil is, the better the crop will be.

If we follow nature, we shall not sow very deep, for all observation shows that even without any covering, seeds will germinate and prosper. If the ground is in a proper state, seeds should be trodden or rolled in. Last year I took the advice of a writer in the *Chronicle*, and rolled my Onion-bed, when sown, with a heavy garden roller. I think I perceived the advantages of the plan; and the crop was certainly excellent, less disposed to run to neck than ordinarily. After sowing, if the beds or rows are not too extensive, it is better to guard at once against birds and cats, by a slight covering of brushwood. I use pea-sticks, laying them along the rows of Peas and Beans, and upon seed-beds. As soon as the Peas are up, the sticks are on the spot for their destined service.

In reference to annuals and other flower-seeds, the same rules apply. Flower-seeds sown in the open air, should not be put in too early, however inviting the weather may be. In the Middle States, it is inadvisable to sow them till the beginning of May.

RECEIPTS.

We vouch for the following recipe, and recommend it to all mothers travelling with children in hot weather:

Preservation of Milk—If milk be introduced into bottles, then well corked, put into a pan of cold water, and gradually raised to the boiling point, and after being allowed to cool, be taken out and set away in a cool place, the milk may be preserved perfectly sweet for upwards of half a year. Or it may be evaporated to dryness by a gentle heat and constant stirring. A dry mass will thus be obtained, which, when dissolved in water, is said to possess all the qualities of the best milk. It is called Latteina, in Italy.

For Preserving Eggs.—In March, put half a pound of quick lime in a stone or earthen pot, and add a gallon of cold water: next day, fill the pot with new-laid eggs, tie a paper over it, and put the pot in a cool place. The eggs will be found perfectly fresh at the end of a year.

To make Hens lay Constantly.—Take away the rooster, and supply them (*if* in winter) with abundance of animal food, taking care to keep the hen-house warm and comfortable.

Preservation of Butter.—One part of loaf sugar, one part of refined saltpetre, two parts of the best pure salt, are to be pulverized together, and kept for use; one ounce of this to be mixed thoroughly with sixteen ounces of the butter, as soon as it is freed from the buttermilk; it is then to be put into a close and perfectly clean dry vessel, from which the air is to be carefully excluded, and it will remain good for many months.

To make Shoes Water-proof.—Take beeswax, tallow or mutton suet, equal parts, rosin, a tenth part of the whole, melt and mix together; apply hot to your husband's shoes, and they will last twice as long, and he will never complain of wet feet; the leather will absorb a quantity of the mixture, and it must be applied *hot*, until the shoes are thoroughly saturated, both soles and uppers.

Asparagus.—Manure heavily in the fall, and in March make the surface of the beds quite white with salt; your shoots will be double the usual size, and your beds free from weeds. The Asparagus grows abundant on the shores of the Chesapeake Bay, where it is almost daily flooded with salt water.

The only Certain Mode of Poisoning Rats.—Make a rich sweet dough, with flour, mashed potato, sugar, and fresh *unsalted* butter; work this into pills as large as a marrowfat pea, strew them in a closet or room inaccessible to children, domestic animals, poultry, &c., for four or five nights in succession, until you find that the rats get into the habit of eating them; then omit the potato and substitute finely pulverized arsenic, and we will answer for every rat on the premises getting his quietus. The rat is naturally so suspicious, that any of the usual modes of poisoning are very inefficient. You must first acquire their confidence, and then betray. As the effect of the poison is to make them exceedingly thirsty, it is best to choose a dry time for laying it, and remove all water from the premises; the rats will then make for the nearest stream, and die before they can return to their haunts. Apropos of rats, and their great sagacity in avoiding baits and traps, Dr. G. B. S., of Baltimore, relates the following: it seems, that being very much annoyed by the rats that infested his house, he succeeded, after considerable difficulty, in destroying them all save one, but this was the very Ulysses of the tribe, and he and the doctor had a trial of wits for a long time, but the doctor was too much for him at last; he discovered that his long-tailed enemy had a weakness, and, like a skilful general, he took advantage of it. His ratship, fearing poison, would eat nothing left in the kitchen, but the ends of the candles left in the candlestick; the doctor sprinkled some arsenic around the wick of his candle, and triumphed.

To make Good Vinegar.—Take ten gallons of apple juice fresh from the press, and suffer it to ferment fully, which may be in about two weeks, or sooner if the weather is warm; then add eight gallons like juice, new, for producing a second fermentation; in two weeks more add another like new quantity, for producing a third fermentation. This third fermentation is material. Now stop the bunghole with an empty bottle, with the neck downward, and expose it to the sun for some time. When the vinegar is come, draw off one-half into a vinegar cask, and set it in a cool place above ground, for use when clear. With the other half in the first cask, proceed to make more vinegar in the same way. Thus one cask is to make in, the other to use from. When making the vinegar, let there be a moderate degree of heat, and free access of external air.

The Plough, the Loom, and the Anvil.

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THE IRON TRADE OF THE UNION,

AND ITS INFLUENCE UPON THE INTERESTS OF THE FARMER AND PLANTER.

EVERY man is either a customer to the farmer and planter, or a rival to him. Every man that is raised here, and every one that is imported, may be made a customer while employing himself in the work of fashioning wool or cotton into cloth, or coal and ore into iron, or wood and iron into ploughs, and axes, and harrows, or into steamboats, or cotton, or woollen, or other machinery, but if prevented from becoming a customer he must himself become a producer of food, or cotton, and therefore a rival to the farmer and planter. The larger the proportion of consumers to producers, the larger will be the return to the labor of the farmer and planter, and the more valuable will be their land. The larger the proportion of producers to consumers, the smaller will be the return to the labors of the farmer, and the less valuable will be his land. These are plain and simple truths, which we desire to impress on the minds of our agricultural readers, before asking them to accompany us in an examination of the influence upon their interests now exercised by the iron trade of the Union.

In looking at the coal trade we began with the producers. In the present case we shall begin with the consumers. And first, we may inquire who are the real consumers of all the vast mass of iron that is manufactured and imported?

The farmer and planter require vast quantities of iron for the construction of axes, and ploughs, and harrows, and other implements required to be used in the production of food and of the raw materials of clothing—large quantities for the transportation of their produce in carts, and wagons, and steamboats, and cars, and on railroads, to the place of consumption, and for bringing back the sugar, and the coffee, and the cloths, required for their nourishment and protection—and other large quantities for the machinery required for the conversion of their wool and cotton into cloth, their timber into buckets and tubs, and carts, and wagons, and steamboats, and the thousand other articles required for the uses of themselves and their fellow-men. They are the great consumers of iron. They use nine-tenths of all that is made and all that is imported. They pay for nearly all of it, for of the little that is not directly consumed and paid for by them, a large portion is consumed and paid for by men who live by transporting and exchanging their products, themselves producing nothing.

Nevertheless, they appear to buy very little of it. Why is it so? It is because the present system of the world causes the waste of a large portion of their products on the road, and in the work of transportation and exchange, the planter giving five bales of cotton for one bale of cloth when he should receive two bales of cloth for three bales of cotton, and would receive them but for the wasteful process to which we have referred. Towns and cities are thus built up at the cost of the planter and farmer, who remain poor and are compelled to scatter themselves over the earth, and to solicit the people of those towns and cities to make roads for them, when, if they had the

fashioner of their products in their own neighbourhoods, they would grow rich and make their own roads. They it is that consume railroad iron, and iron in all its other forms, and they it is that pay for it, although indirectly.

If, now, we desire to understand how they pay for it, we may begin by placing ourselves alongside of a furnace, or rolling-mill, and watching how the farmer pays to the furnace-master the price of a ton of iron. On one day, he carries him a load of potatoes. On another, he carries eggs, and milk, and veal. On another, a load of hay. On a fourth, he carries him a load of lumber, the produce of his best lands, so heavily timbered that heretofore he could not venture to incur the expense of clearing them. On a fifth, he sells a day's work of his son and himself, his horses and wagon, not then required on the farm. On some of these occasions he carries back manure to return to his farm a portion of what he took from it, and the result at the close of the year is, that he has his iron paid for and that his farm is improved, and by the very process opened to him by the vicinity of the furnace, to a twice greater extent than the value of the iron itself. He has thus earned treble wages. He has received the price of the labor and his products once in iron, and twice in the improvement of his farm. To all who desire to study this process, we would recommend that they should place themselves alongside of a little town growing by aid of concentration, and see if we have erred in our estimate of the advantages derived by the farmer from its proximity, unless indeed we have done so in under-estimating them, as we believe to be the case.

Let us now place ourselves alongside of the man who is distant hundreds or thousands of miles from furnaces and rolling-mills, and see how he pays for his iron. It is obvious that he cannot send potatoes, or hay, or milk, or turnips, or any other of the commodities of which the earth yields largely. He may send wheat, of which the yield is 600 or 800 pounds to the acre—or cotton, of which he obtains 200 or 300 pounds, but from them no manure is returned, and he exhausts his land. He cannot sell the day's labor of his son or himself, his wagon or his horses, and all remain unemployed when not required on the farm. He has no market for his timber, and his best soils remain uncleared and unimproved. Nevertheless, the iron must be paid for, or he cannot have it. He sends the wheat, or the cotton, produced on poor lands, and having exhausted them, he flies to other poor lands. He has the iron, but his farm is deteriorated to the whole extent of its value. He has been paid once where the other has been paid three times.

We may now inquire what is the quantity of land and labor required for paying for this ton of iron.

An acre of land, to which the manure is returned, may be made to yield 400 bushels of potatoes, and half that product will pay for a ton of iron.

An acre of land may be made to yield two tons of hay, besides affording pasture for cows, whose milk, united with the hay, will almost pay for a ton of iron.

An acre of naturally good land will yield twenty bushels of wheat, but if the manure be regularly wasted on the road, it will fall to twelve or ten, as has been the case in New York and Ohio, and then it will require three or four acres to pay for a ton of iron. If the process be continued, it will in a little time take half a dozen acres to do it, and in a little further time the land will be abandoned.

An acre of cotton land yields two hundred pounds, and a thousand pounds, the produce of five acres, will be required to pay for a ton of iron. If it be regularly exhausted, the time will arrive when it will require a dozen acres, and then the owner will fly from it, as he is now doing in South Carolina.

In the first case, the price of the iron is the use of half an acre of land

and the labor bestowed thereon. In the second, that of an acre. In the third that of three or four, and in the last, five acres. The owners of the first and second give little land and labor to obtain a large return. The third and fourth give much land and labor and obtain a small return. The former become rich and their sons and daughters marry and remain near them. The latter see their daughters remain unmarried, because all the young men of the neighborhood fly to the west, and ultimately abandon their farms and fly to the west themselves.

The farmer and planter are the real paymasters for the iron, and it rests with themselves to determine how they will pay for it—whether by the mode that enriches them and their land, or that which impoverishes both. In 1842, they determined that it should be paid for in potatoes, and hay, and milk, and veal, and the result was that in 1847, there were made about 700,000 tons, worth in the various forms it was used, stoves, railroad bars, machinery, axes, ploughs, &c., at least $100 per ton, or seventy millions of dollars, and making a market for almost that amount of bulky articles of food, the refuse of which went back upon the land. In 1846, they determined to try if it could be had cheaper elsewhere, the result of which is that much of it has now to be paid for in wheat and cotton, of which the earth yields little, and of that little obtaining nothing in return.

The quantity of iron paid for in 1847 was probably double what was paid for in 1843, and the amount paid was greater in the former year by at least thirty-five millions of dollars than in the latter, and yet the payment of this vast amount was unfelt. Why was it so? Simply because the major part of it was paid for in commodities of which the return to labor was large, potatoes, and milk, and hay, and a large portion in labor of men and horses, that would otherwise have been wasted, and in timber that would have been valueless—and because, with every step in this process the land was improved to a greater extent than the value of the iron itself. Were all the furnaces and rolling-mills created within the last four years now to be stopped, and the quantity produced at home to be reduced to 350,000 tons, the quantity imported to take its place would not, we believe, amount to 80,000 tons, and the payment for even that quantity would be seriously felt, because it would be made in commodities of which little is returned to the labor employed in cultivation, and its export tends to the exhaustion of the land.

It is impossible to avoid being struck with the wonderful increase in the consumption of commodities of every description as soon as they come to be manufactured at home, and the reason for that increase is, that every such manufacture feeds itself by finding employment for labor and for things that would otherwise be wasted, and a market for those things the production of which enriches the farmer and his land at one and the same time. But a few years since, a gold pencil-case was a rarity not to be found in our principal cities, as we have had occasion to know from having ourselves made the search. Now, about 100,000 are made in a year in New York alone, in whose immediate vicinity live the farmers who send in a single day ninety tons of strawberries and milk to market. The pencil-makers help to make the market for the strawberries, and the farmer obtains hundreds of dollars from a single acre that would not have produced a dozen bushels of wheat but for the proximity of a market for its products, whence the manure could readily be returned.

We would now ask the farmer and planter, live where they may, to look around them and see if their neighbors and themselves, their sons and daughters, or their hands, do not waste more time for want of a regular demand for labor throughout the year, than would convert into yarn all the cotton and wool of the neighborhood, and if they do not themselves lose more for want of aid in

harvest than would pay for weaving it. We would next ask them to see if they do not waste more food than would feed the spinners and weavers, and then see if all that food would not be clear gain, as the persons who would be spinners and weavers must, and do, eat while engaged in doing nothing. Having done this, let them determine if the whole work of spinning and weaving would not be so much clear gain to them. Let them next see if they do not now waste more manure on the road, and at the distant markets, for want of a market at home, than would enrich the poor lands they now cultivate, and then let them determine how much more productive would be their labor if they could sell the timber which now covers their richest lands, remaining to this day unimproved because of the excessive size of that timber, and of the cost that would attend the work of its destruction. Let them then calculate the amount of taxes upon those now unproductive lands, and determine what would be their value if a market were provided on the ground for the hay, and milk, and butter, and veal, and beef, they could yield, and that market supplied by men and women, and boys and girls, now often unemployed, but then employed in enabling him to export cloth instead of wool, or cotton, and corn. Having done all this, they will satisfy themselves not only that the labor employed in the work of conversion is all clear gain, but that there is a further and great gain in the improvement of the machine given for the production of food and wool, more than equal to the whole labor employed in the work of conversion. The earth is the great machine—the one that improves with use, and improves most where most used, and therefore it is that the consumption of cotton and woollen cloths, and iron, and paper, and pencil-cases, and all other articles of necessity and luxury, increases so rapidly when the work of conversion is performed at home. It is the work that is twice blessed. "It blesseth him that gives and him that takes." If we desire evidence of this, we need only look to those parts of the world in which a market is found *on the land for the products of the land*, and compare the neat and comfortable houses and beautiful farms of Belgium, or of Tuscany, with the squalid wretchedness and poverty of Poland or Southern Russia, which export cheap food to England—to that country which now keeps itself poor by comparison with what she might be, because she expels men and wealth and imports food, while neglecting her own agriculture and compelling the world to use her looms when they would prefer to use their own, consuming their food upon the spot on which it was produced.

So entirely a gain is the labor applied to the fashioning of the raw materials yielded by the earth, that we feel perfectly safe in asserting that were all the coal and iron mines, the furnaces and rolling-mills, the cotton and woollen factories, the paper mills and the printing-offices, closed, and the whole labor therein employed turned to the production of food, the quantity of food produced would in a short time be less than it is now, for the reason that the labor which is now employed in producing tons of potatoes and turnips, hay, and milk, and veal, and strawberries, and cabbages, would be then turned to the production of commodities of which the earth yields by bushels, and which therefore bear to be exported. If we wish evidence of this, we may find it in the fact that New England, dense as is her population, can yet export hay, while South Carolina, sparsely peopled as she is, and with millions of acres fitted to yield the finest hay, imports it from the north. When that State shall obtain consumers on the ground for her rice and her cotton, she too may export hay, because she will then have railroads upon which it may be carried.

Were the whole labor-power of the Union turned to the production of food, and cotton, and tobacco, and hemp, the product of agriculture would be less than it is now, and for the simple reason that the process of exhaustion would be more rapid. For evidence of this, we need look no further than Virginia

or South Carolina; but if further evidence be required, it may be found in the impoverished state of every country that has made no market on the land for the products of the land. If this be so, it must be evident that every increase in the number of consumers tends to increase the product of agriculture to an extent exceeding the demands of those consumers, and that the gain to the community is more than the whole amount of their consumption.

Whenever the consumers of Poland, employed in fashioning the products of the earth, shall become as numerous as are now those of England, or New England, the great machine will yield by tons instead of bushels, and the producers will grow rich; and whenever the consumers of New England, or of the United States at large, shall become as few as are now those of Poland, the earth will yield by bushels instead of tons, and the producers will become as poor as those of Poland, and may then enter fairly into competition with them for the supply of the English markets.

It will be asked: if all this vast gain—and vast it is—results from thus applying labor to the work of conversion, bringing the consumer to the side of the producer, why is it that protection is required for enabling the latter to induce the former to take his place by his side? The reason is to be found in the unceasing changes resulting from the unsound and unnatural state of things existing in other parts of the world. For the last thirty years the average price of merchant bar-iron in England is stated to have been £8, 9*s*. 3*d*., or about $41 per ton. Within that time it has been up to £13, and down to £4, 15*s*., thus fluctuating between $62 40 and $23 80. In 1843, only four years since, the latter was the price. Last year, it was £8, 10*s*., or $40 80. Now, it is about £6, or $28 80.

What now, we would ask the farmer or planter to inquire, is the consequence of this? Let him look around and he will find the answer. He will see that almost as surely as a furnace or a rolling-mill is built, its owner is ruined by changes over which he has, and can have, no control. Judging from the past, all that such a man can hope for is that he may have a year or two of high prices, to enable him to provide against succeeding years of low ones, when he would otherwise be ruined. He is buying a lottery ticket, and he must trust to fortune to determine whether it shall be a blank or a prize. Last year, furnaces and rolling-mills were built everywhere, and the manufacture of iron made such progress as to warrant the belief that a very short time would place it beyond the reach of danger. Now, many of the parties are ruined, and all are in danger of being so. Their tickets have come out blanks. At the *average* price of England, with a very moderate protection, they could live, and soon they would cease to need protection. At the low prices of England, they cannot live.

These changes are unnatural. It required no more labor to mine and smelt the ore, and to roll the iron, in 1825 or 1846, than it did in 1843, and the quantity obtained in return to a given quantity of labor was as great in the one case as in the other. The return to the labor of the farmer is liable to great variation from the character of the seasons, and he may have twenty bushels in one year while obtaining but ten in the next, but such is not the case with the labor applied to the conversion of ore and coal into iron, or cotton and wool into cloth. In those cases, what can be done on any one day can be done on any other, and that for years in succession, with, of course, gradual increase from the improvement of machinery. The cost, in labor, of food and of the materials of clothing, and of other raw materials, is thus liable to changes, but the cost of iron, of cloths and of manufactured commodities generally, tends to remain stationary, except so far as they are subject to change from the greater or less supplies of the raw material in good or bad seasons, and yet the price of iron is as variable as that of food.

It goes up to 10 or 12, and down to 4 or 5, and it does this simply because in Europe nothing is permitted to take its natural course. At one time laws for making roads are refused, and iron is cheap. At another, laws are granted by hundreds, and iron is dear. At a third, it is found that speculation has caused roads to be made too fast, and iron is again cheap. From hour to hour the system changes, and universal ruin is the result. The furnace-master here has his market destroyed, and if he would not himself be ruined, he must discharge his hands, who are forced to go and join the farmer in raising more wheat, instead of consuming potatoes or cabbages.

Such results are due in a great degree to the fact that the farmer and planter pay *indirectly* for the vast quantities of iron that they consume, and not directly. If the farmer obtained his axes and ploughs, and spades and harrows, and the use of railroad iron, directly from the workers in iron, in his neighborhood, paying them in labor, and in cabbages and potatoes, it would matter little to him what was the price of iron in the general market, so long as he received the same quantity of it for his day's labor, for his bushels of potatoes, his tons of hay, his gallons of milk, or his loads of lumber. He would see at once that the market for those commodities was quite as important to him as could be the market for iron to the owner of the rolling-mill, or the market for axes to the maker of axes, and that the only result that could follow from his ceasing to buy from his neighbor, would be that his neighbor would cease to buy from him. Unfortunately for him, however, the whole system of trade tends to his impoverishment, and he is obliged to look to the people of distant towns and cities to supply him with axes and spades, and to make his roads, all of which they do by aid of the large portion of his products that they retain as their charge for performing for him the work of exchange. With them, the only question is, what is the smallest quantity of money that will purchase the iron with which to make axes, spades, or railroads? The money price of iron in England has fallen, and as the city capitalist has neither potatoes, nor hay, nor milk to sell, he buys his iron abroad instead of buying it at home, and the farmer is supplied with axes bought with money abroad, while his potatoes and his turnips rot on his hands at home, and he is obliged to give his milk to his hogs, because his neighbor the furnace-master has been ruined. He pays for his axes in wheat, of which it takes the produce of three or four acres to purchase as much as would have been paid for by half an acre of potatoes, and he loses all the manure, and his land and himself are impoverished, and then he flies to the west to seek new lands upon which to repeat the same operation.

The farmer and planter require protection to enable them to bring the loom and the anvil to the side of the plough, and they do so only because the unnatural, and consequently unsteady, system of the trade of the world has tended to drive men to congregate in large manufacturing towns and cities, and to compel both farmer and planter to waste in the work of transportation and exchange a large portion of their time, and a very large portion of their products, and to keep them poor. That protection they will take whenever they shall come fully to understand that the towns and cities of the world are built up at their expense—that they are kept poor by operations that make others rich—and that it is for that reason alone that they are compelled to call upon others to make their roads. With every step in the progress of concentration, by means of bringing the consumer directly to the side of the producer, the necessity for roads diminishes, and the power to make them for themselves increases, as they may readily see if they will travel through New England, or New York, or in the neighborhood of any place where the consumer and producer are fairly established in the neighborhood of each other. The whole manufacturing system of the world at the pre

sent time is one of centralization, which always enriches the few at the expense of the many. Concentration will enable the many to grow rich, and will tend to improvement and equality of condition, physical, moral, intellectual, and political—but that cannot be obtained so long as the farmer shall be compelled to buy his iron at a distance, while unable to sell his potatoes and his turnips, and the labor of himself and his horses, to the furnace master at home, ruined by the sudden downfall of iron in the market of the world, produced by changes of policy over which neither he nor the farmer could have any control.

AGRICULTURAL SCHOOLS.

The various attempts to establish Agricultural Schools in the United States have for the most part originated in laudable intentions; but being rudely planned, and with inadequate means, especially in the number and acquirements of the Professors, they have but imperfectly succeeded. They seem rather to have indicated the existence of a vague public feeling demanding the establishment of such schools, than any thorough conception of the appointments and materials requisite for their efficient organization.

In some cases, however, the conviction has been, though few may have been found to avow it, that the object of those who got up the agitation, hiring men to go round and procure signatures of Tom, Dick, and Harry, as they might be met here and there, and paying so much per name, out of the funds committed to their care by a credulous public—the general conviction has been, we say, that with such agitators the object was one of sheer speculation—to make money and to obtain influence. Such men, who live by flying a succession of humbugs, have endeavored to persuade the public and the public authorities, to establish great schools, near large cities, and have most innocently demanded to have them placed under their "auspices!"—in other words, to make them subservient to their personal management, convenience, and ambition; without the possession, on their part, of the industry, acquirements, or public spirit essential to those who take charge of all public institutions, and most especially such as are founded for the sacred purposes of intellectual and moral instruction.

But, as might have been expected, the first inquiry of the public and the public authorities has been,—whether any institution could be entitled to confidence and State patronage, that could not *conduct itself*, without being put under the guardianship of dry nurses who already have on hand, in the administration of other institutes, more than they can manage with that vigor and efficiency which their accumulated and accumulating means would enable them to do, if they would study usefulness more and humbugging less.

In other cases again, of undertaking to establish agricultural institutions for education, where the motive has been fair and honorable, a predominance has been given to the *military* feature of the school, incompatible, as we respectfully think, with that true and well-founded view of the public welfare that should prompt the farmer and the planter of this country to support all military establishments with habitual reluctance and distrust; and to regard them, if necessary at all, as necessary and deplorable sores on the body politic—natural enough, nay inseparable from a state of barbarism, where stratagem and warlike prowess take the place of cultivated humanity and justice; but utterly inconsistent with that high state of moral civilization which should be the constant aim and animating hope, ay, which should form *part of the education* of every Christian people.

Few indeed seem to have a just conception of the difficulty of procuring the various intellectual force which is necessary for the conduct of agricul-

tural colleges—a sort of force rare in our country; that is, where the school is to be one in which the several sciences naturally allied to agriculture are to be thoroughly taught. For manual schools, however, where the best practice of agriculture is to be daily inculcated and wrought at; in combination with a plain English education, including the lower branches of mathematics and practical surveying, the case would be very different; as for these schools which would be much more generally useful, we have both the means and the materials—the teachers qualified to instruct, and millions of boys who, by such a course of instruction, would be raised in the scale of real usefulness and respectability, in a manner to increase prodigiously the character and productive capacity of the agricultural classes.

But for schools of the higher class, competent teachers, as we have said, are not easily to be had—and where such can be found, they would be justly entitled to a grade of compensation that would make the school inaccessible to all but the wealthy—for the planter and the farmer is not now to be told, that for instruction in the great business of agriculture, the source of prosperity for all other pursuits, not a dollar is to be had from the government. Their Representatives, so called, have not even the courage or patriotism to demand it, while they are voting hundreds of thousands for surveys and institutions to diffuse *military* knowledge.

That the reader may have some idea of the difference in the character of the two classes of agricultural schools to which we have alluded, and judge the better, which is best adapted to our country, and most within the bounds of practicability and most likely to be useful, we may add that in England there are eminently *high* and again *low* schools of this sort, as he may perceive by what follows, and which we find in the agricultural journals of late date. They may answer not as models to be exactly followed in this country, but as affording hints that may be turned to account. Suppose, for example, one of those good farmers in the Quaker settlement in Hartford or Montgomery County in Maryland, would take twenty boys at twelve years of age to be bound to him until eighteen, ought not the Orphans' Court to be well pleased to have such an opportunity to provide for all that fall under their control, to place them where instruction would be blended with such fine examples of morality and thriftiness?

"*Haddesdon Agricultural Training School.*—The annual distribution of prizes to the successful students in this highly useful and prosperous institution took place on Monday se'nnight. There was a very large attendance of ladies and gentlemen from the surrounding neighborhood, and many of the relatives of the students were also present. The venerable Lord Dacre had consented to preside on the occasion, but, in consequence of ill health, was unable to fulfil the promise which he made. Under these circumstances, Mr. Haselwood, the Head Master, applied to Lord Dudley Stuart, M. P., who kindly undertook to occupy the chair, and deliver the prizes. Among those present, we observed Captain Townshend, M. P.; Mrs. Townshend and family; Mr. G. J., and Mrs. Bosanquet and family; Mr. C. Phelips; Mr. E., and Mrs. Lomax and family; Rev. H. Blane; Mr. Wm., and Mrs. Mylne and family; Captain O'Brien, R. N.; Dr. and Mrs. Buchanan; Mr. H. Thoresby; Mr. Peter Christie; Mr. Charles Christie; Messrs. Horley, Stokes, S. B. Bridge, J. Bigg, W. Heard, Hobbs, Clark, Roberts, &c.; Professors Simonds, Woodward, and Donaldson.

"The Head Master then read the report of the state of the school during the past year.

"The Chairman then distributed the prizes as follows to the successful students, making suitable laudatory and encouraging observations upon the delivery of each."

Here follow the names of those to whom gold and silver medals and other prizes were awarded separately for *general proficiency—general improvement—agriculture—botany—chemistry—geology—veterinary—mechanics—mathematics—surveying—artificers' work—Latin—French—German—history—geography—arithmetic—mapping—drawing—best collection of British grasses, and general good conduct.*

"In the course of the delivery of the prizes, the Head Master remarked, that in consequence of the papers sent in for the veterinary prize not being equal in merit to the standard required in the school, it had been withheld, and extra prizes for good conduct given instead. The same remark applied to the prize usually given for proficiency in German.

"The noble Chairman then addressed the meeting, after which the company separated."

The next is an account of a school of quite a different character—one of individual institution and management, and which would appear to be at once useful and feasible in most of our agricultural districts. In our country the fault is that we are apt to go upon extremes. In one end of it, boys are not reared in habits of bodily labor, and in the other end, their labor, or the proceeds of it, is so much a matter of sordid calculation, that many parents will not spare them long enough from the field to obtain even a good sound practical English education, so far as to embrace ordinary mathematics and surveying.

It seems that in England a Mr. Batson has established on his own hook a system of "agricultural training," which has been highly extolled by no less authority than Mr. Mechi, one of the most enlightened and spirited agriculturists of the age. In consequence of what was said by him at a meeting of an agricultural society, and the expression of his conviction that it would continue to succeed, the Editor of the Hereford Times applied to Mr. Batson for an account of his system, to which he gave the following answer. While aware that in many of the items given, this account may not be applicable to our country, some hints may yet be taken from it and made available for practical purposes. Who is it that cannot name, among farmers known to him, one or more, who, if they could be prevailed on to undertake it, might bring forward and turn out a number of young men, under whose management the whole face of the country might be changed for the better? But all these improvements will come, when a settled and steady demand shall have arisen, under the influence of a policy that shall concentrate instead of scattering, and give encouragement to all industrial pursuits. Supply will follow assured demand as certainly as that matter will for ever obey the laws of gravitation.

Dear Sir.—Agreeably with my promise, I forward you some account of the system I have adopted with the boys on my farm—a system which, I have much pleasure in saying, has realized my most sanguine expectations.

It is now nearly three years since I first formed a gang of boys, taking them merely as daily laborers, and paying them at the rate of 3s. per week in winter, and 4s. per week in summer; but, finding I could make no certainty of their attendance, and that there was considerable difficulty in adopting a regular system of discipline, owing to the want of education and *bad management at home*, I made the necessary accommodation for the reception of twenty boys on my premises, about fifteen months since, and took them under my own care entirely for a term of four years—boarding, clothing, and educating them in lieu of their daily labor on the farm—their ages averaging between nine and fourteen years.

The system that I adopted was this:—Each boy was to be provided with two suits of clothes—one for working in and the other for better use—with, also, a complete stock of linen, shoes, &c.; and at the end of four years I send them back with a like equipment.

The working hours are from six till six in summer, and during the winter they work while it is light.

The meal-times are at 9 o'clock, when they have half an hour for breakfast; at one o'clock, an hour for dinner; and at six o'clock, when they also have half an hour for supper; and the evenings are spent in education until nine o'clock, when prayers are read, and they retire to rest.

The food consists of bread and milk, or bread and broth, for breakfast; bread, meat, and vegetables, for dinner; and bread and cheese for supper; with the addition of coffee and pudding on Sundays. According to the rule universally observed on my farm, *no beer or cider is allowed, excepting during the hay and corn harvests.* The labor consists of the general farm work; but I may more particularly observe the planting or dibbling of

wheat, and other corn and root crops, and the hand-hoeing of corn, turnips, &c. The evening education is that of reading and writing, arithmetic, &c., and such religious and other instruction as time and opportunity will admit; in which, as well as in their daily labor, they are superintended by a young man for the purpose, who was four years at the Woburn National School, and six years at the Duke of Bedford's farm, where he also worked in a gang; to which, I may add, that I make it my duty to attend personally each evening to assist.

The enclosed calculations will show the cost of clothes per year and per week, and the cost of food per week, attendance, &c.:—

CALCULATION OF CLOTHES, MAKING, AND ATTENDANCE: TWENTY BOYS FOR ONE YEAR.

	£	s.	d.
34½ yards of moleskin, at 1s. 2½d. per yard	2	1	8¼
44½ yards cord, at 11d. per yard	2	0	4½
3 yards of canvas, at 7d. per yard	0	1	9
3 gross of buttons, at 1s. 6d. per gross	0	4	6
1½ lbs. of thread, at 2s. 10d. per lb.	0	4	3
160 yards of calico, at 3d. per yard	2	0	0
3½ dozens pairs of stockings, at 9s. per dozen	1	10	0
Shoes and mending, per contract	10	0	0
Making 20 suits, 50 days, at 2s. 6d. per day	6	5	0
Mending, say 25 days, at 2s. 6d. per day	3	2	6
20 pairs of braces, at 6d.; 20 handkerchiefs, at 6d.	1	0	0
78 lbs. of soap, at 5d. per lb.	1	12	6
20 caps, at 2s.; 20 ditto, at 1s.	3	0	0
20 smock frocks, at 4s. 6d. per frock	4	10	0
Attendance	25	0	0
	£62	12	6¾

Being £3, 2s. 7½d. per boy, per year; or 1s. 2½d. per week. This calculation does not include the person who works with the boys.

TWENTY BOYS' KEEP PER WEEK.

taken at average market prices, as per amount consumed.

	£	s.	d.
3 bushels of wheat flour, at 7s. 6d. per bushel	1	2	6
9½ lbs. of cheese, at 5d. per lb.	0	3	11½
1½ lbs. of treacle, at 4d. per lb.	0	0	6
3½ lbs. of dripping, at 6d. per lb.	0	1	9
35 lbs. of fresh and salt meat, at 6d. per lb.	0	17	6
1½ bushels of potatoes, at 6s. per bushel	0	9	0
3 oz. of coffee, at 2s. per lb.	0	0	4½
	£2	15	7

Or, 2s. 9¼d. per week, per boy

Each boy's keep per week	2s.	9¼d.
Each boy's clothes per ditto.	1s.	2¾d.
Total expense for each boy per week	3s.	11¾d

I shall now proceed to show *some* of the advantages derived from the system, and, in the first place, I may mention, as a general rule, that *their work is much more carefully done than any man can do it, working by the piece, at the prices usually given*, and as shown by annexed statement:—

COMPARATIVE VALUE OF BOYS' LABOR, WITH PRICES PAID FOR JOB WORK.

Boys.	*Men.*
*Wheat planting, 6 or 7 boys at 8d. per acre, 4s. 8d.	Not done in this county.
Wheat hoeing, 6 boys at 8d. per acre, 4s.	Men per acre, 4s.
Turnip hoeing, 5 boys, at 8d. per acre, 3s. 4d. Ditto, second time, 3 boys at 8d., 2s.	Do., 6s. 6d. to 7s.
Mangold-wurzel, 6 boys and 1 man plant 5 acres per day, say 1s. 3d. per acre	Do., 3s.
Cleaning and heaping swedes, 6 boys, at 8d. per acre, 4s.	Do., 6s.

You will perceive that this statement is in favor of the boys very considerably.

In planting corn there is a considerable saving of seed, (which will of course vary according to the idea of the farmer, as to quantity required;) the seed is *all in the ground*, and at the required distances apart to admit of hoeing and weeding, and thus it requires

* Mr. Mechi tells me that in his neighbourhood they pay 11s. per acre for planting wheat.

less harrowing to cover the seed. The hoeing is as perfect as it well can be done by hand, and all the surface is moved—a system which is seldom carried out when it is hoed by the piece. In the turnip hoeing, the plants are at regular distances, and all the surface is moved, so that no weeds escape. I may mention that the judges of swede crops for the Herefordshire Agricultural Society, the season before last, mentioned the cultivation of my swede crop as *the most perfect they had ever seen;* and I believe that in a field of 40 acres a man might have crossed it in six places, and not found six double plants. Of incidental work I need say little more than to remark that, in weeding, collecting couch, collecting turnips and potatoes, making hay, turning barley and other crops at harvest, picking stones from the land, &c. &c., the boys are peculiarly adapted, as these operations do not require strength, but care, and from their size the boys get *so much closer to their work.*

But these are few of the great advantages to be derived. Whilst my boys are learning to be good and skilful laborers, and to get their living, they are rescued from what are too frequently dens of immorality and vice, and are learning their duty towards their God, and their duty towards their neighbor. They are learning habits of cleanliness, and a systematic mode of living, and may be, I trust, the commencement of a better race of men.

You may ask, Is this system appreciated by the laboring class? I should say, most decidedly it is.

I believe, in three months after I had filled up my number, *I had refused as many as sixty applicants,* (some from a distance,) and one poor woman walked 24 miles to get her boy placed with me, but my number was already made up.

There is another great advantage I must not omit to mention, that in keeping these boys *I am consuming my own manufactures,* (wheat, pigs, sheep, &c.,) by which means I have the bran back on the farm; I have the butcher's profit of pigs and sheep; I get the manure (night soil) on the land, and *I keep my capital in my own country* (my farm) *instead of sending it abroad* (*i. e.*, the labor market). I believe I have given you every particular requisite, and I think the calculation very near. The only items I have omitted are milk, (skimmed,) which would otherwise go to the pigs; and garden stuff, which they have when in abundance. The calculation is from Sunday morning till Saturday night, and the boys have lived in the usual manner. The expense may vary, but I believe this is about the average. I have said nothing of the accommodation and expense of filling up, but it is not great. There are also books, &c., which are those generally used by the national schools, published by the Society for the Diffusion of Christian Knowledge; in these a sovereign will go a long way. This and the interest of capital invested in furniture, &c., when divided amongst 20 boys, amounts to very little per week; perhaps in all 2s. per boy.—*Hereford Times.*

AGRICULTURAL DINNERS.

WHY NOT POPULAR IN OUR COUNTRY?

Can any one give any good reason why we should not have, in our country, as in others, public dinners and discussions, when people have taken the trouble to come together, once a year, from (some times) hundreds of miles to see and be seen—to hear and to be heard—to give and to receive information? The most interesting and instructive portion of the English agricultural journals, is that which gives accounts of toasts and discussions which take place at the public dinners on all occasions of *annual* meetings of agricultural societies in that country. Every topic is brought into review, and a dozen or more of men, distinguished yet more for their scientific knowledge and practical experience, than for rank and wealth, make speeches which serve at once to enliven and enlighten the company and the public; for their remarks are taken down and published for wide and general circulation. The speakers on these occasions have generally the good sense to select topics of admitted interest for the day, and the good taste to *condense* their remarks within a small compass, conveying much that is worthy of note and remembrance, within a quarter of a column of a newspaper. Here, it would seem that we never or rarely mingle the lively with the useful.

Every man is thinking of the "*almighty dollar.*" Even some of those who betray unseemly anxiety for a paltry premium, will grudge the fee of admission on the ground; and when the show is over, instead of being publicly toasted for his success, at a public dinner, in a glass of Adam's ale if you will, and publicly called out to offer thanks for the honor of which he has a right to be proud, and to explain for the benefit of all present the means by which he has attained excellence in the department for which he has obtained a premium; you will see him put his five dollars for best "half acre of flax" in his pocket and go away, to see in what obscure house he can get the cheapest dinner—and thus the whole affair, which ought to be one of discussion and conviviality, giving and taking information, and explaining the processes as well as the results of good management—takes an exclusively sober, calculating, money hunting, unsocial turn; and all that is ever known by those who are not in attendance is, that Mr. A., living near, took $10 for five best ewe lambs, and Mr. B., a "diploma" for best middled wool buck! These remarks have been suggested by the perusal of an account of the proceedings at the public dinner, at a late second annual meeting of the "NORFOLK AGRICULTURAL ASSOCIATION" in England, where more than a dozen men of high eminence as agriculturists and stock-breeders addressed the meeting on various subjects.

On these occasions it is gratifying to see, too, that even the *Clergy* are not too straight-laced to take part, and give an example of anxiety for the progress of agricultural improvement, testifying to its great importance. At the dinner referred to in this case,

"The President, after a pause, again rose, and said, the next toast upon the list was "The health of the Bishop and Clergy of the diocese." Among them, he believed, they had agriculturists and geologists. He believed they were a body of men who did honor to their profession. He thought if the Bishop of Norwich lived a long while, there would be no sinecurists. (Laughter.)

"The Rev. P. Gurdon thanked the company for the great honor they had paid to the bishop of the diocese, and he made his acknowledgments for the compliment to the clergy. He was not ignorant that it was an old custom, and he might almost say a constitutional principle, to introduce the toast so early; and he was aware that it carried with it a two-fold object—it showed unequivocally the mark they set upon the pastoral office; and it clearly indicated to the clergy the important duties which devolved upon them. But he would not debate upon that topic on the present occasion; for he felt too great an interest in the welfare of that society to occupy their time as an humble individual, seeing, as he did, many around him more fully qualified to enter into the various matters and details which he considered they came there more properly to entertain, than to return thanks for compliments; but he could not take leave of them without expressing a hope, an earnest hope, that the clergy of the diocese might ever hold the high place which they had hitherto enjoyed in their estimation. He felt satisfied, as a practical working clergyman, that they could always secure that esteem; and he would use the language of the bishop in returning thanks to the citizens of London for the healths of the clergy; they could always secure that estimation by their talents, their education, and their diligence among the flocks over which they were appointed. (Applause.) He wished they might live long to support the society with that zeal and spirit they had done hitherto, being of the noble lord's opinion, that these associations must tend to the welfare and good of mankind, because they embraced three objects—the first to encourage the researches and the practical skill of the tiller of the soil; the second, to develope the symmetrical improvements in the breeding of those animals upon which the life of man is generally sustained; and thirdly, to bring into public notice the labor, the skill, the ingenuity, and science of the mechanic. He concurred in all that had been said in praise of that great man who had introduced so much zeal and energy into the county of Norfolk; and among the great things he had done, he had not left undone the introduction of machinery into Norfolk. They had seen many of those machines; and he would mention Crosskill's clod-crusher, and Messrs. Garrett's machine for hoeing wheat. When they saw such implements as these, he felt satisfied that societies like the present were for the general benefit of mankind. (Plaudits.)"

Among many other things worthy of note, some remarks were made on

the importance of preserving the *purity of blood* of improved stock as the only means of effecting desirable crosses.

Instead of the toasts all being read by the chairman of the meeting, (sometimes the dullest man to be found at the table,) it seems to be the practice to select particular persons, to whom the prepared toasts are handed, one to each, to be announced; and this is evidently an improvement. The toasts being numbered, they are given in their right order. The health of the judges of particular departments are usually given, and these being men of known experience and judgment, it affords an opportunity for the spokesman of that committee to explain the principles and consideration involved in the case, and thus much valuable information is elicited.

"Mr. E. C. Bailey having read the list of prizes awarded for sheep, Mr. W. Burroughes gave "The healths of the Judges of the Sheep," and regretted that there were not more competitors from East Norfolk. (Applause.)

"Mr. Ellman, of Sussex, [the son, we suppose, of the great improver of Southdown sheep,] said, it would be very bad taste on his part to detain the meeting with many observations on the stock exhibited, after Mr. Torr's eloquent speech. He would, however, take the liberty of making a few remarks, more particularly on the Southdowns. He found he had two most able men as judges acting with him, and he left the Leicester sheep entirely to them. In regard to the Southdowns, he must say, he derived the greatest pleasure from what he had witnessed, and he hoped he was not treading on tender ground, as a Sussex or Southdown man, when he expressed his satisfaction in seeing the Southdowns show much less of the Old Hampshire than they had previously done. Twenty beautiful ewes showed as much Southdown breeding as he had seen for many a day. He could not, for the life of him, see any great merit in those immense heads which some of the sheep had to carry. At one time it was the fashion to breed Southdowns with too much fat and too little lean; and, if he might refer to the Leicesters, the same fault was committed with them. The farmers of Norfolk were indebted for the introduction of Southdown sheep into the county to the late Lord Leicester, whose patronage his father had the honor of enjoying. It was impossible to come into Norfolk without acknowledging that the late earl's patronage had made the county pre-eminent among the agricultural counties of this kingdom. He had been in most of them, and he had no hesitation in saying that he never saw any thing like the skill which he had seen exhibited in Norfolk. He recommended attention to be paid to the pure breed of Southdowns, as, unless it was maintained, it would be impossible to have cross-breeds. In recommending that, he might be supposed to be taking more interest in this county than his own, because most decidedly he would be pleased to see the gentlemen of Norfolk coming to Sussex for Southdown ewes. He believed, that if the breeding in this county was followed up, they would find as good Southdowns in it as in any county of England; and he thought that, at the next Norwich meeting, Norfolk stood a great chance of preventing some of the Southdown prizes going away from it. (Applause.)

"Mr. Bennett, as one of the judges for the sheep, returned thanks, and expressed his opinion that the difference in the merits of the Southdowns and Leicesters was not so great as some supposed; but that form and quality should guide them in their judgment of all animals, whether Southdowns or Leicesters, Shorthorns or Devons. He agreed with Mr. Ellman, that they should keep a pure race of animals; for if they lost sight of the pure breed, where was the cross to come from? He remembered a saying of the old Duke of Bedford, that the first cross was a very good one; but beyond that, all that was good in either breed was lost, and all that was bad of both retained. (Hear, hear.) That was borne out in the practice of a great number of individuals, who had carried crossings of different breeds too far. He had been appointed one of the judges of the Southdown sheep, thirty-four years ago, by the late Lord Leicester, who said he appointed him because the nearer the Southdowns came to the form and quality of the Leicesters, the better. He did not know whether they must reverse the order of things now; and whether Mr. Harvey must not go to Mr. Overman, and get his form and quality, in order to be as perfect as he ought to be. If so, he was quite sure that the spirit, enterprise, and judgment of Mr. Harvey would be quite sufficient to induce him to do so. More skill and judgment were displayed in the improvement of the Southdown than in keeping the Leicesters what they were. *It was much easier to improve a race of animals than to keep up a race that were pretty near perfection.* He cautioned his friends, who were near the top of the tree, to be careful that they did not retrograde; *it required more judgment to keep up a good flock than to get that flock.* This he knew from experience, not only as regarded the Leicester breeds, but every breed of animals."

We apprehend there is much more truth in the remark of "the old Duke of Bedford," than is generally supposed, especially when the further cross is carried on by men destitute of skill and experience. Any one may effect a great and visible melioration by using an improved male for a single cross, but the misfortune is that all the progeny are usually employed in the further work of procreation and improvement, without reference to qualities, and in such cases if degeneracy does not ensue, no further improvement is effected. We once remember, more than twenty-five years ago, to have heard the late Mr. Steenbergen, of Virginia, one of the most sagacious and clear, strong-minded farmers we have ever known, remark that the *first* cross, by an improved male, was *better for general purposes than the full blood!*

But how is that first cross to be had, unless encouragement be given to the breeders of the pure races?

Before closing these very hasty remarks, made with a running pen, we feel it to be our duty to disclaim and denounce all idea of dinner parties anywhere for the low and vulgar indulgence of gormandizing and drinking. When gentlemen want to indulge in mindless revelry, and coarse and senseless jest, which some mistake for wit, the best place is some oyster cellar or third-rate tavern; but for the honor of agriculture we hope such low and coarse indulgence will never be connected with associations for the intellectual improvement of the best and most useful, and if *properly understood and followed*, the noblest calling under the sun. But there is no reason why we should exclude from such associations all idea of rational conviviality and encounter of intellectual force and comparison of practical experience.

WHAT IS NEEDED

TO GIVE TO THE FARMER AND PLANTER OF THE UNITED STATES THE MARKETS OF ENGLAND.

In our last number, page 75, we pointed out to our agricultural readers the mode by which they could secure themselves the great market of England for their grain and flour. We now invite their attention to the following letter from an American gentleman, writing from London under date of July 6th. He says:

"The crop of wheat here, it is thought, will not exceed the usual average; but of potatoes the yield promises to be very abundant, and the prospect for them and for grain is also very good on the continent. I have no doubt, however, that after February next, when the duty ceases, this country will be a constant customer to us for wheat and flour, though the extent of it will be governed by the prices with us; and in ordinary seasons it probably will not be taken to any considerable extent at over $4 50 a $5 per barrel."

Let the price of flour be reduced to $4 50 per barrel, and large quantities will be taken, *unless the price should fall so low in England that it will not be taken at more than* $3 50. To accomplish this object, nothing is needed but to convert our consumers of food into producers of food, by repealing the present inefficient tariff, and thus depriving the farmer of his present protection. Food will then be low enough for export to England, and then the planter will raise less food and more cotton, and cotton will be so cheap in England as effectually to do away with East India competition. What, then, however, will be the condition of the planter? What will be the value of his land? What that of his hands? Will he then be able to live better or worse? Will he feed, and clothe, and lodge his hands better or worse? Let him answer the question to himself, and in doing so let him for once forget party—if he can. If he will do this, he will say to himself,

that throughout the world the plough has prospered in the vicinity of the loom and the anvil, and throughout the world it has failed to prosper where the loom and the anvil have been very distant, compelling its owner to waste labor and manure in the work of transportation and exchange. Let him then ask himself the remedy, first satisfying himself of the difference between the raising of tons of hay and potatoes to be consumed on the ground, on the one hand, or hundred weights of wheat or cotton, to be sent from the land, on the other.

Since writing the above, we have met with an article from the London Times, on the grain crop of the United States, from which we take the following extract for the information of the farmers of the Union.

"Supposing the above tables to approach any thing like correctness, one conclusion would seem apparent. A considerable surplus of wheat is produced (taking the American crop on the basis of 1847) over the amount required; and *prices must, consequently, decline in all open markets* until they reach a point which will lead to an increase of consumption sufficient to take off such surplus, or until a diminished production shall ensue in consequence of their passing below a remunerating rate."

In the same article is given a list of the open markets of the world—those which export food—and they are Russia, Egypt and Syria, Eastern Germany, Denmark and Sicily—all of them the poorest countries of Europe, those which waste most labor and manure in the work of transportation and exchange, and have least of either to apply to that of production. Such are the countries with which the United States are required to compete, and a belief is confidently expressed by the writer in the Times, that they will do so. That they may do so, all that is necessary is that they should shut up their furnaces and factories and drive the prosperous consumers to the west, there to become poor producers, and they may then, in the words of the Times, "boldly enter into competition with those of any other nation in the great corn market of the world"—even with the Russian boor and the Egyptian fellah. When consumers abounded in Egypt and Sicily, the producers were rich. They themselves consumed largely and had much to spare. The consumers have disappeared and the producers have become poor. They can consume little themselves, and they have little to spare.

FLANNEL MILLS STOPPING.

"The mills of the Hon. Mr. Hale, at Haverhill, have stopped, in consequence of the great stock of flannels on hand and the limited demand the present season. We understand that the flannel business has paid little or nothing for a year past."—*Lowell Courier.*

When we meet with such notices as the above, and they are now of constant occurrence, we cannot avoid reflecting on the injurious effect to the farmer that results from compelling men to travel west to *raise* food, when they would prefer, if at all possible, to stay at home and *consume* it. Every increase in the ratio of producers to consumers is an injury to the farmer and planter. Every increase in the ratio of consumers to producers is a gain to them—and yet we see farmers and planters throughout the country uniting to sustain a policy that builds up, *at their cost*, cities that are filled with people who live by profits of transportation and exchange. If every county in the Union had its mills, or furnaces, or other places of exchange, as it should have, we should hear no more of mills and furnaces stopping—nor should we witness such rapid growth of cities, while the country was being depopulated, because of the exhaustion attendant upon the cost of transporting and converting cotton and wool into cloth. When will the farmers and planters open their eyes to the fact that protection to the loom and anvil is in reality protection to the plough.

LIST OF PREMIUMS OFFERED BY THE NEW YORK STATE AGRICULTURAL SOCIETY.

We have been favored with a list of premiums to be awarded at the next State exhibition at Buffalo, on the 6th and 7th of September. Among others, there are more than fifty premiums offered for "field crops," on spaces limited to "not less than two acres," as the highest minimum, and so down to "half an acre" for others. No premium to be given for winter wheat where the yield has been less than forty bushels—spring wheat thirty-five—Indian corn this year not less than eighty—barley forty—rye forty—oats sixty—buckwheat thirty—peas thirty—beans thirty—potatoes two hundred, and another for not less than three hundred bushels*—ruta baga (swedish turnip) one thousand—sugar beets five hundred—carrots five hundred—mangel-wurzel five hundred—*best half acre of tobacco*, $5.

These premiums indicate what the executive committee deem it expedient to promote the cultivation of, in that State, and the quantity which it is presumed they know may be made. It is respectfully suggested that a committee should be appointed to examine the statements of the claimants, and to sift out from them any thing that is really new and economical worthy of being preferred and adopted, over materials and systems already brought to light, by the offer, in ten thousand cases, of premiums for the same objects—for if the end has not been accomplished, by the employment of implements, manures, or processes more economical and labor-saving than are already known and have been heretofore practised and published—then it may be asked, *cui bono?* What good is expected?

The following forms of *Affidavits* prefixed, will show against what sort of habits and practices, and qualities of mind and character, it has been deemed by the executive committee of the state society necessary to guard, by compelling the claimant to "kiss the book."

Forms of affidavits for surveyor, applicant, and assistant are annexed.

The application, with the proofs, must be forwarded to the Secretary, at the Agricultural Rooms, Albany, by the 10th of January, 1849.

Forms of Affidavits for Surveyor, Applicant and Assistant.

—— *County, ss.*—A. B. being duly sworn, says he is a surveyor; that he surveyed, with chain and compass, the land upon which C. D. raised a crop of —— the past season, and the quantity of land is — acres, and no more.

Sworn to before me, this —— day of ——, 184 . A. B., Surveyor.

————, Justice.

—— *County, ss.*—C. D. being duly sworn, says that he raised a crop of —— the past season, upon the land surveyed by A. B., and that the quantity of grain raised thereon was — bushels, measured in a sealed half bushel; and that he was assisted in harvesting and measuring said crop by E. F.; and that the statement annexed, subscribed by this deponent, as to the manner of cultivation, expenses, &c., is in all respects true, to the best of his knowledge and belief; and that the sample of grain exhibited is a fair average sample of the whole crop.

Sworn to before me, this —— day of ——, 184 . C. D.

—— ——, Justice.

—— *County, ss.*—E. F. being duly sworn, says that he assisted C. D. in harvesting, getting out, and measuring his crop of ——, referred to in the above affidavits, and that the quantity of grain was — bushels, as stated in the affidavit of C. D. E. F.

Sworn to before me, this —— day of ——, 184 .

————, Justice.

* The Executive Committee, when they fixed this minimum at three hundred bushels, had probably not seen the account by the New York correspondent of the National Intelligencer, of eight hundred bushels! and we forget how many thousand cabbages and other things made and to be made on an acre in New Jersey this year by Professor M., of the *American Institute!*

THE TEA PLANT,

ITS CULTURE IN THE UNITED STATES.

As the Chinese and their empire are gradually, from their increasing contact with the Anglo-Saxon race, better known, many prejudices and unfounded opinions, formed for want of knowledge, are exploding and giving place to more just and correct information. A subject hitherto much in the dark, and now but partially understood, is the *Tea Plant*, and its culture. We remember that for years and years, and indeed until within the last few years, we in common with our countrymen thought it was impossible to procure tea plants or tea seed from China; albeit, tea seed occasionally came to this country, brought as a curiosity by a captain or supercargo, but as we never could succeed in making it grow, we took the general opinion for granted, that the Chinese *boiled* it before selling. We also acknowledge that we thought, with that best work that was ever published for general reading, "The Penny Magazine," that it was "only in a particular tract of the Chinese empire that the plant is cultivated; and this tract is situated on the eastern side, between the 30th and 33d degrees of north latitude. The more northern part would be too cold; further south the heat would be too great." These were our old prejudices; but they have given way before better information. The Chinese will not only sell plants and seeds, but they will also hire themselves to cultivate them in a new country. The great English tea companies imported into Hindoostan ship loads of plants, seeds, and Chinese cultivators. Neither is it only in a particular part of China that the plant will grow. It is cultivated in the northern and mountain region, where snow lays on the ground three or four months of the year; it is found wild in Assam, as far south as the 24th degree, and is cultivated in quantities at the foot and on the sides of the Himmaleh mountains. Such being the case, cannot tea be cultivated with profit in the United States? From the best information we can get—from the books and journals of travellers—from conversations with the traders to and returned residents of the tea country, we are fully convinced that the Union, from Texas to New York, will grow tea equal in quality to two-thirds of that imported, and that some of the states will grow it equal to or better than the best that comes from China. The Assam plant would undoubtedly flourish foom Florida to the Potomac, but would probably require time and care to naturalize it in the Middle States; whilst in these states the seed from the cold and mountainous parts of China would grow luxuriantly, but would be troublesome to naturalize in the south.

The characteristic observant and inquisitive tone of our countrymen, for which as a nation we have become famous, leads us to believe that there is a great mass of information in the country relative to the growth of the tea plant; and thinking as we do that it is every patriot's duty to render his country, as far as he has the power, independent of foreign nations, we beg those having such information to furnish us with it, that we may spread it before the practical public, and have the experiment of tea-raising tried: and we request our contemporaries, agricultural and daily, to notice the subject, and gather all the facts in their power. If they will do this, and if our traders, merchants, supercargoes, and shipmasters will bring or order home plants and seed whenever it is possible, the child is now born that will live to see the United States *export, instead of import, tea!*

Since the above was partly written, we have learned that there is a young gentleman of our city recently returned from Calcutta, who for five or six

years had the management of one of the company's tea factories (i. e. plantations) in Assam, and that he has written a history of the culture and habits of the tea plant, and the mode of preparing it for market; and has made drawings of all the implements used in its culture and preparation. This gentleman, we understand, has expressed an opinion that this country can and will grow as good teas as any portion of the world.

We know not the size of his work, but if it is not too large we shall be happy to be the means of spreading it before the public, with the necessary wood-cut illustrations.

It is to objects like these that agricultural institutes and societies should turn their attention, and offer premiums for importations and for information. Our officers of the navy have ever been ready to attend to any suggestions from agricultural societies in such cases; indeed many of them have incurred considerable expense in this way, the government having no power, and perhaps less disposition, to make advances for any thing but *military surveys*.

Nations, like individuals, never know what they can do until they try. Look at the history of the cultivation of the olive, now the main support of commerce in some of the provinces of Italy. Pliny informs us that in the year of the city 500, when Appius Claudius and Junius were consuls together, a pound of oil was sold for twelve asses; but that in the year 680, ten pounds of oil were exchanged for only one ass—and that in twenty-two years after that time, Italy was able to furnish the provinces with oil.

If we were governed by a domestic policy, that would nurture every branch and variety of industry and production, corresponding with our almost unlimited variety of climate, soil, and natural resources and capacity, we should soon be making all our own wine and silk, and olive oil and tea: and thousands would be employed in the production and manufacture of these articles, and *consuming* the produce of the plough, who, for want of these various employments, are following at the handles of the plough—swelling its fruits into such masses of abundance that they must rot at home, or be sent abroad to contend, where the Commissioner of Patents thinks they may successfully contend, with the grain produced on the cheap lands of Russia—by the serfs of Russia.

We shall be truly thankful for any practical information illustrating the fitness of our climate for the production of this, or any new and valuable commodity like it, even though the facts we may disseminate may be treated as was the full history we gave *twenty-five years ago, (along with the substance itself,)* respecting the use and value of *Guano*.

RICHMOND, VIRGINIA,

ITS ADVANTAGES FOR MANUFACTURING PURPOSES.

A NORTHERN gentleman visiting this region of country, on which Nature has bestowed such eminent advantages, writes thus to the Philadelphia Daily Sun.

Richmond, Va., July 15, 1848.

GENTLEMEN:—This is my first visit South; and being particularly struck with the beauty and advantages of this, the capital of the Old Dominion, I have spent a few days in asking questions, and critically examining for myself why it is that this favored spot should have been so long overlooked by the enterprising capitalists among my brother Yankees. I have come to the conclusion that it can be accounted for only in one way, and that is, the *Northern prejudice* that has so long withheld me from a Southern tour.

My short intercourse with the people, and my strict observance of their *peculiar* institution, has already removed all prejudice; and while I contemplate the magnificence of this situation, its central position, its climate, its being at the head of navigable tide water, at the terminus of the James River Canal, in the route of the great Southern Railroad, its tremendous water-power, together with its great agricultural resources, I am wonder-stricken that it is not already one of the first cities in the Union.

This overlooked region presents greater advantages to the manufacturer than any point I have ever before visited. In addition to the advantages of climate, and low price, and abundance of water-power, its vicinity to the cotton-growing country, the great superiority of the Virginia iron, its being the terminus of the Richmond and Danville Railroad, now being located, and the ultimate terminus of the great work proposed through Tennessee to Memphis on the Mississippi, must make it ere long the Lowell of the South, if not the Manchester of America.

There are already in this city several large cotton factories; one woollen factory; several extensive flour mills, one of which is said to be equal, if not superior, to any in the Union; an armory; one cannon foundery; several iron works, rolling-mills, and machine shops; one steel factory; one nail and screw factory; one paper mill, and several saw, corn, and plaster mills. And when it is taken into consideration that those many establishments use but a moiety of the water-power on the one side of the river, what destiny may we not anticipate for a city so favored.

The Richmond and Danville Railroad will commence from their depot—on or near the dock, or shipping point—cross the James River diagonally, as I understand, in a south-west direction, pass under the Petersburg Railroad Bridge near the south abutment; thence up the river, through what are known as *the Falls* and *Spring Hill* properties; thence diverging to the Chesterfield Coal Fields, and in its passage to the south-western terminus, traverse that fertile portion of Virginia watered by the Roanoke and its tributaries.

This road will not only reduce the price of the best article for generating gas known to our chemists—the Chesterfield coal—by affording a cheap and ready transportation, but, after its completion to Danville, near the North Carolina line, and within the cotton region, will open a new avenue to the raw, as well as manufactured material, and thus so add to the already numerous resources of this favored spot, as to give a new impetus to the awakening spirit for manufacturing; and call into requisition that splendid water-power on the Spring Hill and Falls property, opposite the city, which, until recently, has for many years been seemingly overlooked. Beautiful as Richmond is, and numerous as are its advantages, I feel it but due to suggest to such of your readers as business or inclination may lead this way, not to omit visiting Spring Hill. It is certainly one of the most beautiful and best located spots for a manufacturing town I have ever seen. Its water front is about 3000 feet, and within that distance the fall is some 27½ feet. When you think of this, and that you may command at all times water enough to drive a half million of spindles, you will wonder, as I did, that it has not long since been brought into requisition. It has, however, within the last year, fallen into individual hands, who, as I understand, has given evidence of enterprise by obtaining a charter, and is about organizing a company for the full development of the power, and the disposition of privileges and lots.

His first purpose is, as I understand, to induce capitalists of enterprise to visit the spot; that done, I have no hesitancy in anticipating the success of his enterprise, and shall date from it a new era in the industrial prosperity of this portion of the South.

A NEW CORRESPONDENT.

Unfortunately, as we think for the welfare of Richmond and of Virginia, those who have always controlled the policy of the state, and who from that state have generally shared in the direction of the policy of the general government, have belonged to the 'let us alone' school of politicians—a policy that would be very well if ours was the only country in the world, and one in which the members of the confederation belong to one government. One portion should not be taxed or restricted to advance the pursuits of another; but where the intercourse and the contest is between rival nations, does it not seem to be suicidal for one to fold its arms and leave all other nations to regulate their intercourse on such terms as *they* deem best for their own interest? And again, the cry raised against banks and capitalists, and the difficulties thrown in the way of associations to loan money and build factories—denouncing all such as attempts at "odious monopolies"—has had the effect of driving capital from that state into others, where the wisdom of the people and of legisla-

tures has prompted them to offer to capitalists and capital every possible temptation, saying, Come—come, and be welcome.

For how long a time will the people be hoodwinked by demagogues of all parties, in search of power and place? Is not the present a propitious moment to re-establish reason and patriotism in the place so long usurped and held by party prejudice?

MR. REYBOLD'S ANNUAL SALE OF SHEEP.

To the Editors.—I made one of a trio, to go by the Napoleon, to Mr. Reybold's sale of Oxfordshire sheep, returning by the Express—both good steamboats, and, what very much helps to make good boats, both under the guidance of polite and attentive commanders. At Mr. Reybold's we found a goodly company of substantial farmers; among them Harry Carroll, of "My Lady's Manor," Maryland, and his neighbor Mr. Jessup. Mr. Carroll had last year provided himself with a buck of Mr. Reybold's breed, and Mr. Jessup was lucky now, in getting No. 10, a choice animal, at a figure somewhere above $40. Neighbors may, in such cases, advantageously exchange rams for a season, and thus avoid breeding too closely in-and-in. Mr. Reybold is himself cautious to avoid this too common fault, or too common necessity, of American breeders, by sending to England occasionally for a stream of fresh blood, with which to dash that of the progeny of his old stock. He is now expecting another ram from England, for use, this autumn. The sire of his present flock was there in all his majesty, and is a perfect sight in the *ovine* department. In May he weighed some 360 pounds, and no doubt would, if now hung up in the shambles, cut eight inches through the ribs.

The sale went to prove, what I apprehended, that there is not spirit enough among breeders in this country, to keep up, at remunerating rates, annual auctions of improved stock—some ten or twelve only were sold, for from $40 to $60. A two-year-old was sold, under private orders, to a gentleman in Virginia for $80—*but such a sheep!* except his sire, is not to be found every day, in any country. One was sent, under orders from Texas, to Galveston. It is quite probable that every buck in the pen would have been let in England, by the year, for double what their life-estate would bring here. But England takes care that *those who manufacture* for her, shall all live and do their eating within her boundaries. *She* does not send abroad to buy manufactures for which she has all the climate and capacities at home, resources which we possess in glorious abundance, if our commercial policy did not forbid or cripple manufactures in our own country, and thus cut off the market which would otherwise and ought to be supplied to the American farmer, by having the consumers alongside of the producers; if, in a word, the loom and the anvil, the coal mine and the iron-foundery, were kept constantly going near the plough.

It is believed that Mr. Reybold, not finding the encouragement which he ought to have expected from his extraordinary care and outlay in this branch of husbandry, will hereafter sell at private sale, as opportunities offer—which hitherto he has not felt himself at liberty to do, from his obligation to reserve all choice bucks for public auction. But for this reserve, it was said that he might have disposed of all he had on satisfactory terms. Nevertheless, the public may be assured, that he will in no measure relax in his attention to the maintenance of his noble flock, in its present points of excellence;

and those who desire to increase the weight of their sheep, in flesh and wool, and to infuse into their flocks a greater propensity to fatten, on good pastures, will know where to get the impregnating element.

For men whose land is poor, and pasturage poor, and flocks poor, and where all is likely to get from poor to poorer, for want of inquiry and activity of mind and body, on the part of gentlemen proprietors, we have no advice to offer except that they continue to sit in their cool piazzas, with their bottoms on one chair, their feet on another, and, leaning back at their ease, keep on whittling sticks, or reading their party newspapers, until the sheriff comes to—*sell them out!*

All I have to say, in addition, Messrs. Editors, is, that if the use of Mr. Reybold's bucks will ensure such mutton as we found on his table, it would not be easy to name too high a price for them. I do not mean that it was excessively *fat*, which to every man of good taste is a serious objection with all meat—but that it *was* fat, and at the same time juicy and tender; and altogether free from *sheep* flavor. I should like to have known, but neglected to inquire, *how long it had been killed;* for on this point I have my peculiar theory for both fowl and butcher's meat. My persuasion is, that both should be eaten, either *immediately after* they are killed, and if possible before they get cold—or that if they do get *dead cold*, they should then be kept until the fibre begins to give way, in the transition towards putrefaction. Hence it is, let me tell you, for I can—

How to fry a chicken.—The traveller, whoever he may be, that ever stopped to breakfast at Mr. Goodwin's, on the Fairfax road going out from Alexandria, will remember how sharp was his appetite on arrival there in the stage, and how by the time he could wash and refresh himself in that way, he was shown into the breakfast room, to refresh himself more substantially with good old-fashioned Virginia *biscuit*, fragrant hot coffee, and a dish of hot fried chickens, as *tender as young partridges!* Well, if he had asked Mrs. Goodwin the *quo modo*—the *how* it happened; she would have told him that when the stage arrived, the chickens were in the coop, from which they were taken all "alive and kicking," and having their heads wrung off, were instantly disemboweled and washed out with hot (not cold) water, and then quartered and dropped into a pan of boiling lard, (pure sweet lard mind ye,) and were served up hot and dry, not swimming in grease; and thus it is, Mr. Reader, that you get what is worth eating in the way of *fried chickens!* or if you prefer to have them served up with gravy, let it in heaven's name be nice cream gravy—for which too you must not stop this side of old Maryland; and here permit me to enlarge with a line or two to tell—

How to have lamb or mutton free from the objectionable "mutton" taste.—If a man were called on to review our early annals in search of the locality and the period, of the most whole-souled, uncalculating, generous hospitality, that ever did honor to any country, he would go back to a time anterior and for twenty or thirty years subsequent to the American Revolution; and running his finger over the map of the old thirteen, he would stop when he came to *the tide-water counties of Maryland, and run it thence along, slowly pointing to the lower country of Virginia and the Carolinas*—dwelling, as he proceeded, particularly on the *Chotank and the James River region of Virginia*—famous for fox-hunting, for card-playing, for dancing, for good old rum-toddy, and for good mutton. What, in fact, that is best in good men, and good living, were not those regions famed for?

In old Chotank lived, among other choice and noble spirits, Colonel Lawrence T. Dade, for twenty-five years a member of one or the other

branch of the legislature. At that time, the people, in looking for representatives of the landed interest, did not contract their views down to the narrow microscopic points of modern requirements in politics. They did not ask whether the man was for 49° 30′ or 54° 40′. Will he go the whole of my hog, or another man's hog? They looked out for *gentlemen* of intelligence and property, who they knew must be *for their country*, and for which their blood and their property were alike deemed the best security; and felt safe in leaving all the rest to their honor and patriotism. But it is not with Colonel Dade as a politician or lawgiver that I would deal, but as a gentleman of the old school of high-breeding and unbounded hospitality; and with his judgment on two points of great importance in this world of sober realities, where eating and drinking—or as Swift said, buttoning and unbuttoning—constitutes the chief business of life.

It was Colonel Dade's observation, as to the management of lamb or mutton, as well as all other living things to be eaten—that as soon as killed, they should *be instantly disemboweled.* It was his theory that the warmth of the body, carried off by the loss of blood, was for a time supplied from the warmth of the bowels, and that it is the neglect to remove the entrails at once, (and not, as some suppose, the meat being touched by the wool,) which imparts to it that strong "mutton taste," which sometimes spoils the best meat on a palate the least discriminating.

Colonel Dade afterwards removed to Kentucky, and there came in contact with the *great cat-fish* of the Ohio, some of them as heavy as an old field southern bacon hog, running at large, enjoying the largest liberty for sixteen months, and there he observed the same principle to hold good; that the fish too, as soon as taken, must have all the slime washed from its body, and be immediately eviscerated, taking care, as well with fish as with sheep and other animals, never to let the meat be touched by the entrails or their contents.

I hope, Sir, you will not consider these homely subjects unworthy of being treated in a paper, designed as yours is, to give useful information to every class—in every branch of useful occupation—but I must not conclude without a word about—

The Peach district of Delaware.—In going to New Castle, you pass in view of that fine peach orchard on the noble estate of Doctor J. W. Thompson, of Wilmington, advertised for sale on the cover of the Plough, the Loom, and the Anvil. On leaving New Castle, wending your way down to Delaware City, you pass some minor orchards, that in any other part of the world would be esteemed large, until you come to that naturally splendid and highly improved district belonging now to Major Reybold and his sons, and sons-in-law, from whose orchards alone, it is estimated will be sent this year 160,000 baskets of peaches to the Philadelphia and New York markets. Delaware City ought to have been called Peach town. You may see there, from this time until the last of September, a line of mule wagons, of peculiar construction, loaded with peaches, extending for a mile—or as long as the line of girls that came out in New England to greet the arrival of the "old Hero," General Jackson.

From these wagons, the steamboats take off 5000 baskets a day, five days in the week, making 25,000 baskets weekly for seven or eight weeks—each basket holding about three pecks. I saw in the boat a Knight of the Thimble, going down from Philadelphia, as he said, to hire out to "pick peaches," as promising more agreeable if not more lucrative employment than handling the goose. Some of these days I will give you a more detailed account of this *peach husbandry*, in its practical and mercantile details. This too is an important variety of industry, which owes its cultivation to the application

of *steam* and the use of coal—enabling the peach grower to send his fruit from the Chesapeake and the Delaware fresh into the New York market. But, sir, can you name any thing so important for agriculture and horticulture as the success of all the other various industrial pursuits, whereby mouths may be created gaping wide for the produce of the garden and the orchard, the dairy and the field, like young robbins waiting for worms. Look through all nature, and you see how she has provided *consumers* for every thing she has created; insects to devour fruits and vegetables, and birds to devour insects! So it is conformable to her designs that other employments should provide thriving consumers for all the products of the plough and the spade, and those who favor a policy of government which prevents concentration of the followers of other pursuits, near to and around the plough and the spade, to consume the fruits of agriculture and horticulture, war with nature herself, and would substitute for her orders and designs, the sinister inventions of human policy, always seeking to make the many subservient to the few.

Lastly, in respect to this peach region, you are not to associate in your mind, a poor, light, warm, sandy country, as people are apt to do. Not at all! for here you see noble fields of great extent, covered with rich herbage, on which large herds of bullocks "wax fat and kick," or fine flocks of sheep, and fields of corn that promise sixty bushels to the acre. At Major Reybold's I saw one field of swedish turnips of 20 acres beautifully drilled. And then how different has been the conduct of Major Reybold from many rich, old miserly curmudgeons that we know of! Instead of keeping his children in servile expectancy and dependence, there resides the old patriarch in the midst of his sons and sons-in-law, and grand-children, increasing in the midst of abundance, and each head of his family enjoying his separate independence. The old cock seems to delight in hearing the young ones crow, each at a respectful distance on his own walk, all venerating the parents of their existence, the nurses of their infancy, and their exemplars in diligence and industry.

"SHORTNESS OF HANDS," HOW ACCOUNTED FOR.

Harvest.—Last week completed, or nearly so, in this county, a long, laborious harvest, including hay, wheat and oats. Each of these crops have been unusually abundant and of the best quality. The increased quantity of produce, as compared with the last preceding harvest, has doubled the amount of the farmer's labor in securing it. The increased quantity—a shortness of hands, and the brittleness of the weather, have subjected the farmers to a long and laborious harvest; but their toil is rewarded by the extraordinary quantity and good quality of their products.—*Delaware Co. Rep.*

"The shortness of hands" will always be felt where the pursuits of labor are all of one kind; whatever tends to foster the greatest variety of employments will be found most advantageous to all—and most especially to the farmer and planter, because their operations are simple and require but little experience to perform those of them by which they are most liable to be pressed. Where the loom and the anvil, the saw-mill and the wind-mill, the tanner and the shoemaker, labor in the neighborhood and buy of one another, each can be called upon at a pinch to help the other. There will be seasons of comparative leisure, as well as of business, in the employments of all, occurring at different seasons of the year; and if the farmer would insist on having the loom and the anvil—the ironmonger and the miller, the tailor and the carpenter, come and settle near to his plough—that is, if he will require a system of legislation that will make it most profitable for those who manufacture for him, to be as near to him as possible, in that case, when harvest presses, and his crops are threatened to be overtaken by summer storms and the frosts of winter, he can command help from neighboring

mechanics and artisans, who will be willing to take in payment for their labor a portion of the very crop which that labor has assisted to save from destruction. Look where he will—view his interest and condition in whatever light he may, and the farmer and the planter will see that instead of detracting from the value and diminishing the profits of other branches of industry, the more they prosper the better for him. The Earl of Leicester—otherwise and better known as the great Norfolk Farmer—used to say, that he would like to know that each of his tenants could drink his bottle of champagne every day; and so we say to the farmer and the planter, it would be better for them if every wood-sawyer on the wharves could make money enough to buy their strawberries and their cream every day of their lives.

HOW TO RAISE POULTRY FOR MARKET ON A LARGE SCALE.

American Poultry.—The following method of rearing and feeding poultry, says Mr. Charles Whitlaw, I had from a Captain Dunn. He had received some hints from the Chinese, and likewise imported all the different kinds of fowls he could get from that and other countries, in order to improve and cross the breed. After many years' experience, he found that the breed produced between the English and the Malay fowls was the best, taking size and flavor, and their being better suited to the climate, into consideration. The severities of the winters at New York require the employment of artificial heat, in order that the hens may lay all the winter, and that chickens may be reared all the year through. The houses for this purpose may be built either of brick or stone, one story high, with wooden roofs, and must be heated by cast-iron steam pipes; their ceilings and walls must be finished with Roman cement, in order to keep the houses free from vermin, which are apt to generate when heat is employed; each house is to be divided into compartments—the first for hatching and rearing chickens, the second for breeding turkeys, the third for ducks, and the fourth for geese. A furnace is to be built at one end, with a steam boiler to hold fifty or one hundred gallons of water, which will heat a house eighty feet in length; the first two compartments must have the steam pipes passed through both rooms, at the bottom of the walls, for hatching chicken and turkey eggs, and they must pass once round the other two rooms, ducks and geese requiring less heat. The boiler must also be so constructed as to steam potatoes, parsnips, carrots, and herbs, which, when cooked and mixed with milk, barley, oats or peas, meal or flour, produce the finest chickens and other poultry. To make the hens lay all through the winter, mix powdered oyster shells and slate, or decomposed schistus, with their food; the lime in the oyster shells is necessary to form the shells of the eggs, and the slate improves the quality and flavor. Those hens are found to lay better flavored eggs which are bred on soils formed from decomposed schistus or granite. By persevering in the above plan, a sufficient quantity of poultry might be obtained to supply London at one-half the prices generally charged, and yet allow a fair profit to the farmers, and an abundant supply of eggs in the winter would always be certain. The finest children I have seen in the United States were fed mostly upon bread, milk, eggs, and poultry. If parents would feed their children in this way, giving them little or no other animal food, they would not be so liable to disease, nor would contagious disorders be so fatal as they are now, owing to the excessive use of animal food, and particularly pork.—*From an English Paper.*

THE EXPERIENCED BUTCHER.

CHAPTER I.

On the Lawfulness of eating Animal Food—On eating Blood—On killing laboring Oxen.

The profession of a butcher, and the members of that profession, have commonly been accounted, however deservedly or not, amongst the most coarse and cruel of the human race. If the imputation be just, as they are a numerous body, it may serve the cause of humanity, both in respect to them, to mankind at large, and to the animal creation, to consider the causes which make them so, and to inquire whether cruelty be a necessary consequence of engaging in the profession, or merely accidental; and, if the imputation be unjust, it will be no less an act of justice and humanity to endeavor to remove it, to lay down an impartial statement of the case, and offer such rules and hints for the improvement and conduct of the profession as may appear to be agreeable to reason, and that higher rule for the conduct of man, the Word of God. It is the object of the writer of this little volume to attempt this desirable end; and, as there have been, in all ages of the Christian era, those who have denied the lawfulness of eating flesh, or of taking away life at all for the sustenance of man, it seems requisite to begin with a consideration of that question. Of the writers on this subject of late years, the principal are Oswald, in his "Cry of Nature," Ritson, in his "Essay on Abstinence from Animal Food as a Moral duty," and the compiler of "The Literary Miscellany," in the eighteenth number, containing remarks on the conduct of man to animals, flesh-eating, &c. To these may be added some of our poets, who, in a strain of thoughtless or affected humanity, censure that which they could not prove to be censurable, and which, probably, they practised themselves: among these are Pope, Gay, Thomson, Armstrong, and Goldsmith. Pope, in his "Essay on Man," epist. i. line 81, as a general censure, calls the killing a lamb for food, *riot;*

> The lamb thy riot dooms to bleed to-day

Again, Ep. iii. l. 154, he calls the killing animals for food and clothing, *murder.* Speaking of man, in what he calls *a state of nature,* he says,

> No murder clothed him, and no murder fed.

And again, l. 161—164,

> Ah! how unlike the man of times to come?
> Of half that live the butcher and the tomb;
> Who, foe to Nature, hears the general groan,
> Murders their species and betrays his own.

Gay, in his Fable of the Philosopher and the Pheasants, makes the parent pheasant say,

> Sooner the hawk or vulture trust
> Than man, of animals the worst;
> In him ingratitude you find,
> A vice peculiar to his kind.

The sheep, whose annual fleece is dyed
To guard his health and serve his pride,
Forced from his fold and native plain,
Is in the cruel shambles slain."

Thomson, in his *Spring*, laments that "the wholesome herb neglected dies," which is not true, for it is still cultivated as the food of the animal creation, and, to a considerable extent, as the food of man, of whom he says:

——— with hot ravine fired, ensanguined man
Is now become the lion of the plain,
And worse. l. 340.

After comparing him with the wolf and tiger, whom he thinks less to be censured, he says,

Shall he, fair form!
Who wears sweet smiles, and looks erect on heaven,
E'er stoop to mingle with the prowling herd,
And dip his tongue in gore? The beast of prey,
Blood-stain'd, deserves to bleed; but you, ye flocks,
What have you done; ye peaceful people, what,
To merit death? You, who have given us milk
In luscious streams, and lent us your own coat
Against the winter's cold? And the plain ox,*
That harmless, honest, guileless animal,
In what has he offended? He, whose toil,
Patient and ever-ready, clothes the land
With all the pomp of harvest, shall he bleed
And, struggling, groan beneath the cruel hands
Even of the clowns he feeds? And that, perhaps,
To swell the riot of th' autumnal feast,
Won by his labor? Thus the feeling heart
Would tenderly suggest; but 'tis enough,
In this late age, adventurous, to have touch'd
Light on the numbers of the *Samian* sage.

He, however, seems to be aware that the thing for which he pleads, is against the appointment of Heaven, and concludes with,

Heaven, too, forbids the bold presumptuous strain,
Whose wisest will has fix'd us in a state
That must not yet to pure perfection rise. l. 354—376.

Armstrong, too, in his poem, "The Art of Preserving Health," speaks of the time

——— when the world was young;
Ere yet the barbarous thirst of blood had seized
The human breast B. ii. l. 2[illegible]

He had before pleaded,

And if the steer must fall,
In youth and sanguine vigor let him die. B. ii. l. 62.

* Dr. Aikin, in his excellent little volume on "The Arts of Life," Letter VII., says: 'I shall not attempt to spoil your appetite by interesting your compassion in favor of the victims, or dwelling upon the cruelty of a butcher's shop. You may find some very pretty lines to the purpose in the poet Thomson, who, however, could eat his beef-steak with as good a relish as any man. Treat animals kindly while they live, and never take away their lives wantonly; but you need not scruple to make that use of their bodies which Nature has plainly ordained."

Here Dr. A. no doubt uses the word *nature* according to Cowper's acceptation:

Nature is but a name for an *effect*,
Whose *cause* is God. *Task*, b. vi. l. 223.

And again,

> Then, shepherds, then begin to spare your flocks;
> And learn, with wise humanity to check
> The lust of blood. B. ii. l. 291.

Goldsmith makes his Edwin, turned hermit, say,

> No flocks that range the valley free
> To slaughter I condemn;
> Taught by that Power that pities me,
> I learn to pity them.
>
> But from the mountain's grassy side
> A guiltless feast I bring;
> A scrip with herbs and fruits supplied,
> And water from the spring.

The amiable and humane Cowper, however, whose pen moved, more than any other poet's, agreeably to the dictates of reason and religion, while he has pleaded for the brute, has not intrenched upon the liberty of man, and has acted as the arbiter between man and beast:

> On Noah, and in him on all mankind,
> The charter was conferr'd, by which we hold
> The flesh of animals in fee, and claim
> O'er all we feed on, pow'r of life and death.
> But read the instrument, and mark it well:
> The oppression of a tyrannous control
> Can find no warrant there. Feed, then, and yield
> Thanks for thy food. Carnivorous, through sin,
> Feed on the slain, but spare the living brute. *Task*, b. vi. l. 450, &c.

That the *grant* to Noah continues in force under the Gospel, may be collected from the following considerations, made by Mr. Plumptree in the second of his "Three Discourses on the Case of the Animal Creation, and the Duties of Man to Them:"

"1. Before I mention our blessed Lord himself, I will just notice that remarkable instance of abstemiousness, John the Baptist, the 'Elias who was for to come,' Matt. xi. 14, and who might be said, comparatively speaking, to have come 'neither eating nor drinking,' v. 18, whose food was '*locusts* and wild honey,' Matt. iii. 4; his life, therefore, was sustained by the labor of the bees and the death of the locusts.

"2. Our blessed Lord, '*by whom* are all things,' Rom. viii. 6, and who, when upon earth, 'did no sin, neither was guile found in his mouth,' 1 Pet. ii. 22, and who would neither 'break the bruised reed, nor quench the smoking flax,' Isaiah xlii. 3; Matt. xii. 20, scrupled not to partake of the *usual* entertainments of those times, at which, no doubt, according to the custom of the Jews, there was flesh. So much did he frequent and partake of them, that the Pharisees, in reproach, called him 'a gluttonous man,' Matt. xi. 19. At the feast given by Matthew, the publican, on his quitting his profession, Matt. ix. 10, 11, and at the marriage feast in Cana, he probably partook with others of 'oxen and fatlings,' John ii. 1—11; Matt. xxii. 4. In the parable of the Prodigal Son, mentioned as a type of the rejoicing in heaven on the repentance of a sinner, the *fatted calf* is killed for the entertainment, Luke xv. 23. And again, at the marriage supper of the king's son, another likeness of the kingdom of heaven, we hear expressly of the 'oxen and fatlings' being 'killed,' Matt. xxii. 4.

"Of the paschal lamb he partook along with his disciples, who were most of them fishermen by trade, an employment which consists in the taking away of life for the sustenance of man. Upon two occasions, he

brought a multitude of them miraculously to their nets, Luke v. 1—11; John xxi. 1—14; and these were probably their common food, as we find they had fishes with them upon those occasions, when Christ miraculously increased them, together with the bread, to give food to fainting thousands, Matt. xiv. 15—21; Mark vi. 35—44; Luke ix. 10—17; John vi. 5—14. Of fish also he eat, even after his resurrection, Luke xxiv. 42; John xxi. 29. He mentions also, without any censure, the 'two sparrows sold for a farthing,' and the 'five for two farthings,' which were probably sold as *food*.

"3. Under the law of Moses, and indeed long before that, in the time of Noah, certain animals had been forbidden to be used by man as food, under a distinction of *unclean* and clean animals. But, under the Gospel, even this is done away; for, when St. Peter was at Joppa, and at prayer upon the house-top, 'and he became very hungry, and would have eaten: while they made ready, he fell into a trance, and saw heaven opened, and a certain vessel descending unto him, as it had been a great sheet, knit at the four corners, and let down to the earth, wherein were all manner of four-footed beasts of the earth, and wild beasts, and creeping things, and fowls of the air. And there came a voice unto him—Rise, Peter; *kill* and *eat*. But Peter said, Not so, Lord; for I have never eaten any thing that is common or unclean. And the voice spake unto him again the second time, What God hath cleansed, that call not thou common. This was done thrice, and the vessel was received up again into heaven,' Acts x. 10—16. Here permission is given to kill and to eat animals of all kinds. St. Peter again, in his 2d Epistle, speaks of the 'brute beasts' as being 'made to be taken and destroyed,' ii. 12. And, afterwards, when the disciples at Antioch had some scruples as to the necessity of observing many parts of the Mosaic law, and sent Barnabas and Paul to Jerusalem, to consult with the other apostles on the subject, their determination was, 'That ye abstain from meats *offered to idols*, and from *blood*, and from things *strangled*,' Acts xv. 29. And St. Paul, in the 10th chapter of his 1st Epistle to the Corinthians, advises them, 'Whatsoever is sold in the shambles, that eat, asking no questions for conscience' sake. For the earth is the Lord's and the fulness thereof.' 'If any of them that believe not bid you to a feast, and ye be disposed to go; whatsoever is set before you eat, asking no questions for conscience' sake.' 'Whether therefore ye eat or drink, or whatsoever ye do, do all to the glory of God,' v. 25—27, 31. And he says also, in another place, that 'the kingdom of God is not meat and drink;' that is, that these, however necessary and desirable, are not the great objects of life, 'but righteousness and peace, and joy in the Holy Ghost,' Rom. xiv. 17.

"4. But St. Paul goes further, and informs us, in the 4th chapter of his 1st Epistle to Timothy, that the commanding to '*abstain* from meats' is 'a departure from the faith.' 'Now the Spirit speaketh expressly, that, in the latter times, some shall *depart from the faith*, giving heed to seducing spirits and doctrines of devils; speaking lies in hypocrisy, having their conscience seared with a hot iron; forbidding to marry, and *commanding to abstain from meats*, which God hath created to be received with thanksgiving of them which believe and know the truth. For every creature of God is good, and nothing to be refused, if it be received with thanksgiving; for it is sanctified by the Word of God and prayer,' v. 1—5. These passages are abundantly sufficient to satisfy any one, who believes in the word of God, and will take the trouble to consult it, that the eating of flesh is lawful.

"The *frequency* and *measure* of this, however, is another question, and must rather be determined by convenience, and by the physician, upon considering the constitution of each individual. I believe, however, that it may be said, in general, that those who have the means of eating animal food, commonly eat too much. Were the rich to eat less, and the poor enabled to procure more, both classes would be the better for it. In particular constitutions and tempers, as, for instance, the irascible, an entire abstinence, or nearly so, from flesh and fermented liquors, might be advisable. Instances have been known of angry tempers being cured by living upon the food assigned to our fathers of the world before the flood—the herbs and fruits of the earth. Let it be observed also, that, when animal food is rendered what is called *high*, either by putrefaction, or preparation, its ill-effects are increased; and that all *waste* of meat, by reducing a large quantity into a small portion of *essence*, is, no doubt, a *sin*."

On the *Prohibition of Blood* it seems necessary to say a few words. Stackhouse, in his "History of the Bible," vol. 1, book ii. chap. 1, Dissertation 1, has considered the subject at some length. Those who may wish to see the arguments on both sides, may consult the original, the result of his inquiry is sufficient for this place: "Unless we are minded to impair the authority, and sap the foundation of revealed religion, we must allow the decree to be still in force, and the command, which prohibits the eating of blood, still chargeable upon every man's conscience. A command, given by God himself to *Noah*, repeated to *Moses*, and ratified by the apostles of *Jesus Christ;* given immediately after the flood, when the world, as it were, began anew, and the only one given on that occasion; repeated, with awful solemnity, to *the people*, whom God had separated from the rest of the world to be his *own;* repeated with dreadful denunciations of divine vengeance, upon those who should dare to transgress it; and ratified by the most solemn and sacred council that was ever assembled upon earth, acting under the immediate influence of the Spirit of God; transmitted from that sacred assembly to the several churches of the neighboring nations by the hands of no meaner messengers than two bishops and two apostles;* asserted by the best writers and most philosophic spirits of their age, the *Christian apologists*, and sealed with the blood of the best men, the *Christian martyrs;* confirmed by the unanimous consent of the fathers, and reverenced by the practice of the whole *Christian* church for above three hundred years, and of the *eastern* church, even to this very day," p. 162, 163.

He afterwards says, "though this prohibition of eating blood can hardly be deemed a commandment of *moral* obligation, yet is it a *positive* precept, which cannot but be thought of more weight and importance, for being so oft and so solemnly enjoined; that, though the reasons alleged for its injunctions are not always so convincing, yet the prevention of cruelty and murder, which is immediately mentioned after it, will, in all ages, be ever esteemed a good one; and, though the liberty granted in the Gospel seems to be great, yet can it hardly be understood without some restriction," p. 163.

In concluding this chapter, it seems desirable to say something on the subject of killing the laboring oxen for food. Thomson and Armstrong have spoken against it in the passages before quoted; and Mr. Young, in his "Essay on Humanity to Animals," chap. 1, p. 27, says: "Amongst the Athenians and many other nations, in very ancient times, it was held unlawful to kill the ploughing and laboring ox, either for

* Gen. ix. 4; Lev. iii. 17; vii. 26; xvii. 10, 14; xix. 26; Ezek. xxiii. 25; Acts xv. 29.

sacrifice or food.* I cannot help doubting whether it would not have been for the honor and even the advantage of mankind, if this sentiment had continued to retain its influence in later ages. I could wish it to be considered, whether the loss of food, which would have arisen to mankind from abstaining from the flesh of the ploughing and laboring ox, would not have been compensated by the increase of humanity, which would have arisen from an abstinence of that nature."

On this, it may be said that the law of Moses, which was so tender to animals, Exod. xxiii. 4, 5, 12; Deut. xxii. 1—4, 6, 7, 10, and especially to the laboring ox, Deut. xx. 4, makes no prohibition of the kind; and it appears from the case of David, 2 Sam. xxiv. 22—25; 1 Chron. xxi. 25, &c., and from the case of Elisha, 1 Kings xix. 21, that there was no scruple with the Jews on this head. Nor do I consider it as being more cruel to kill the laboring ox for food than to allow it to lead a lingering old age; but should consider the making it to cease from its work, while yet in strength, and allowing it *rest* and abundance of food to fatten, to be rather an act of mercy. The not using oxen more in agriculture, but using horses in their stead, which, after their work is over, afford no sustenance to man, seems to me to be a waste of food. Nor does it seem to me to be more cruel to kill for food the ox, which has been the companion and sharer in the laborer's toil, than to eat the poultry reared by our own hands. It does not appear, that, if the poor man himself, mentioned by Nathan in his parable, had taken his "little ewe lamb, which he had brought and nourished up," which "grew up together with him and with his children," which "did eat of his own meat and drank of his own cup, and lay in his bosom, and was unto him as a daughter," 2 Sam. xii. 3, and killed it, that *he* would have been considered as having had "no pity." The great object in our conduct towards animals seems to be, *mercy* in *life*, *mercy* in *death*.

THE PIKE.

The Pike, commonly called Jack when under three or four pounds in weight, is a well-known fish; like many of us, better known than trusted or treated. He is a greedy, unsociable, tyrannical savage, and is hated like a Bluebeard. Everybody girds at him with spear, gaff, hook, net, snare, and even with powder and shot. He has not a friend in the world. The horrible gorge hook is especially invented for the torment of his maw. Notwithstanding, he fights his way vigorously, grows into immense strength, despite his many enemies, and lives longer than his greatest foe, man. His voracity is unbounded, and, like the most accomplished corporate officer, he is nearly omniverous, his palate giving the preference, however, to fish, flesh, and fowl. Dyspepsia never interferes with his digestion; and he possesses a quality that would have been valuable at La Trappe—he can fast without inconvenience for a se'nnight. He can gorge himself then, to beyond the gills, without the slightest derangement of the stomach. He is shark and ostrich combined. His body is comely to look at; and if he could hide his head—by no means a diminished one—his green and silver vesture would attract many admirers. His intemperate habits, however, render him an object of disgust and dread. He devours his own children; but, strange to say, likes better (for eating) the children of his neighbors. Heat spoils his appetite; cold sharpens it; and this very day (30th December, 1846) a friend has sent me a gormandizing specimen, caught by an armed gudgeon amidst the ice and snow of the Thames, near Marlow. I envy the pike's constitution.—*Handbook of Angling.*

* Potter's Grecian Antiquities, book ii, chap. 4.

FARMING IN MARYLAND.

We do not doubt that in Maryland there is vastly more of intellectual investigation applied to agriculture than there was thirty years ago. We of course remember when there was no such thing thought of as an agricultural paper, whereupon we determined, as far as we could command the means, to supply a defect so discreditable, as we considered it, to those concerned in the great occupation which lies at the foundation of all others.

Essays appeared occasionally in the newspapers of the country, and were read with avidity by all men eager for that most covetable of all things—knowledge; but no one thought of a regular organ, or channel, for conveying information as to the practice, much less the *rights* of agriculture. In behalf of the latter, even now, most of our journals are as dumb as so many fish. Among the papers that made a stir throughout the agricultural community in the South, and evinced an honourable eagerness to learn what the best experience had taught to be best, were the papers of *Arator*, from the pen of Col. John Taylor, of Caroline, published originally in a Georgetown (D. C.) paper. It is believed there was then no paper published in Washington. Since that time, hundreds of pens, and thousands of heads, have been employed in agricultural discussions, until a knowledge of what is most safe and profitable in the mere processes and implements of agriculture, is widely diffused; and what, as we have elsewhere said, the cultivator of the soil now most needs to know, and therefore what he should most especially study to find out, is, how shall labor be made to do well in *other pursuits*, to create a demand for every variety of produce to which agricultural and horticultural labor can be applied? and how shall the market, to be thus created, be established in the nearest vicinity to the plough, and be made most reliable? These are the real and true questions now for the practical farmer and planter, and hence do we endeavor to manifest our sense of duty, by endeavoring to show, not merely how the heaviest crops can be made with the least cost, but how much the profit of *American* husbandry must depend on the prosperity of *American labor*. We want to find, and we want our readers to learn, how concentration is to be made to take the place of dispersion. When a state of things exists that children are seen to settle around their parents; that the son of one neighbor marries the daughter of another, and the son of that other marries his brother-in-law's sister, and grandchildren and great-grandchildren are dandled on the knees of the old people, then may we be sure there is something wholesome and prosperous in the social and political condition; but when sons, as fast as they grow up, are seen to move off to Wisconsin and Iowa, to Arkansas and Missouri, or to seek clerkships at Washington, and the old tenements are getting full of old maiden daughters, we may be as sure there is something unnatural, "something rotten in the state of Denmark." It is only where population concentrates and thickens, that lands are progressively improving. All the premiums that can be offered will never improve the face of a country generally, where churches and meeting-houses are filled with old maids. But to return to our starting point, the progress of improvement in Maryland has been, it is apprehended, rather in patches and on particular estates, than universal, and resulting from well-rooted and widely-extending influences. Thus, while the whole Eastern Shore of Maryland has been stationary, for forty years, in population; while the marriages are few, and the children not increasing, there are instances of individual intelligence and energy, and improved knowledge of agriculture, under the influence of which farms have been made to more than double their former produce, proving the effect as well of the judicious application

of capital and labor, as of superior management generally. Take Talbot county, for example: with an easy navigation almost to every man's door, her population, in 1820, was 14,387; in 1840, it had sunk to 12,090—loss in twenty years, 2319. At that rate, how long would it take to extinguish the whole seed, breed, and generation? and that in a country which every one knows, who knows any thing of its inhabitants, is not excelled in the Union for general intelligence, and especially for intelligence in the prosecution of their chief pursuit—grain-growing. Does not this show that something else, besides the knowledge of ploughing and hoeing, and sowing and reaping, is necessary to prevent dispersion? to give life and cheerfulness, animation and hope; to keep the sons at home, and to get husbands for the daughters? What is that something? Does not the farmer know that if a mistaken policy forces us to go abroad for manufactures, fabricated by people who eat the produce of other countries, that all those of our own country, who ought to be employed at home in driving the loom and working at the anvil near to his plough, and all foreigners coming to our country, with their capital and their trades, will be forced to throw up the shuttle, and to throw down the hammer, and travel out to the cheap lands provided for them by the *old states*, on railroads and canals built by the old states to carry them there at the least possible expense?

Col. Lloyd, for example—and there need be no better example as a man or a farmer—makes this year, probably, on his portion of his father's estate, double as much wheat as the governor made on his 14,000 acres, yet it will probably not bring him as much money. The colonel is among the last who need to be told that the native and the foreigner are growing wheat against him, on cheap lands in the west, at a rate so cheap as to require him to make three for one to keep way with them. How then must it be with those who grow wheat in the old states, subject to fifty and one hundred miles of land transportation? Is it not obvious that whatever shuts up the coal-mine, and puts out the fire in the furnace, and stops the loom, and stills the sound of the hammer on the anvil, drives those who are delving in the mines, and working in the founderies, and throwing the shuttle, and lifting the hammer, to go where they can get land for nothing, and make a bare subsistence with the least amount of capital and labor; thus not only ceasing to eat the farmer's wheat and his corn, his bacon and his mutton, but producing all these in superabundance for themselves? Who, then, is his greatest friend—he who tells him what he knows already, that is, how to make poor land rich, or he who endeavors to bring about such a state of things as will reward him for enriching his land, and afford him a good and steady market of consumers close at hand?

Take Queen Anne's county, in the same state, for another instance. There too, the population, in 1820, was 14,952, and in 1840 it had sunk to 12,633. Does any one believe this retrograde movement is the result of any want of intelligence? Here too, we understand, that a son of our lamented friend, Col. Emory, has very greatly increased the crops on that part of the paternal estate which has fallen under his management. Blakeford, the beautiful estate of the late Governor Wright, (another true friend in days long gone by,) presents another example of great value, as it proves that capital will tell, when used with sagacity and fearlessness, in *agriculture*, as it has under the same mind in commerce. The crop of wheat, which, under former owners, perhaps never reached an average exceeding fifteen bushels, went this year up to, and perhaps something above, twenty-five to the acre, which sold for $1 12 per bushel, more than $28 to the acre, or yielding from that part of the farm the interest on more than $400 to the acre. The corn crop will be as large and as much increased in proportion.

Hence it is not by lessons in practical agriculture, let us repeat, that such neighborhoods need to be informed, so much as they require to be told how those who take our *money* for their manufactures can be forced to come and manufacture so near our ploughs as that it shall be their interest to take pay in the wheat and the corn of us, who buy their slops and haberdasheries, and coal, and earthen, and glass, and hardware, and cutlery, and iron, and leather, and linen manufactures, and plate, and salt, and tin, and pewter, and silk, and woollen, and small wares, all of which should be made in our own country.

We have referred to farmers and to crops of which we have heard by accident, and that occur to us at the moment. We know enough personally to say, that if we wanted practical knowledge of agriculture generally, especially in the production of the cereal crops, there is no place to which we should repair with more confidence than to the very counties whose population, with all their natural advantages, has been thus diminishing. There can be no want of either enterprise or intelligence, where such men as the Goldboroughs, the Martins, the Stevens, the Hambletons, the Lloyds, or the Carmichaels, Chambers, and Emorys reside. Still, there stand the "fixed facts" staring us in the face—young men moving away, while young women remain single, though so charming that no change could improve them, except—change of name!

Finally, to help the reader, as it has helped us, to understand what had been mysterious in respect of the condition of the old states, we entreat him to peruse and ponder the following extract,

ON THE BENEFICENT EFFECTS OF A POLICY THAT PROMOTES CONCENTRATION,

From Carey's Past, Present, and Future.

The great prosperity of the people of the United States is uniformly attributed to their abundance of fertile soils. They have been supposed to be receiving wages for their labor, *plus* the excess that elsewhere would be absorbed as rent. Forced, however, to squander their labors over the poor soils of the west, and to use a vast amount of the inferior machinery of exchange, they appear to have been receiving only wages *minus* the profits of the capital which has been wasted in subjecting to cultivation poor soils, when fertile ones were at hand waiting the demand for their products. The rich meadow-lands of Pennsylvania and of various other States have remained covered with timber, while thousands have sought the west, there to commence the work of cultivation on dry prairie-land upon which trees will not grow; and to obtain from an acre of land thirty or forty bushels of Indian corn that must be converted into pork before it can reach a market, distant thousands of miles: whereas, by the careful cultivation of the better soils of the older States, their labor might have been blessed with returns far greater. An acre of turnips in England is made to yield twelve or fourteen tons. Acres of potatoes yield frequently almost as much; whereas an acre of prairie-land yields but a ton of Indian corn, the most productive of all grains. The meadow-land of Pennsylvania is not worth the cost of clearing, because the market for its products has no existence: and until the consumer shall place himself side by side with the producer, it can have none. Place him there, and then nothing will be lost. The rich soils will give forth their products, and the refuse will remain on the spot, to go back into the ground: and thus the produce of the rich will fatten the poor ones. The land round cities is valuable, because the soil gives forth its produce by tons: not bushels.

An acre of potatoes will outweigh a dozen acres of wheat, and its refuse will fertilize an acre of poor soil; but from the produce of an acre of wheat sent abroad to be exchanged, nothing goes back upon the land. We see everywhere that when furnaces are built, coal mines opened, or mills established, land in the immediate vicinity becomes more valuable: and it does so because when the consumer and the producer come together, man is enabled to compel the rich soils to exert their powers in giving forth the vast supplies of food of which they are capable, and to pay them back by giving them the whole refuse: and until they do come together, nothing can be done. To render the meadow-land worth the cost of clearing, the farmer must have a market on the ground for his milk and cream, his veal and his beef. If compelled to convert the milk into cheese, giving the refuse to his hogs; and to drive his lean cattle to market: sending also to distant markets the food they would have consumed in the process of being fattened, and thus losing altogether the manure: the land is but little more valuable than the prairies of the west, always to be had at the minimum price of a dollar and twenty-five cents an acre: whereas to clear the trees and stumps and level the ground might cost twenty dollars: and hence it is that men fly from rich soils to poor ones. The people of the United States are now scattered over a million of square miles, and over that vast surface they have been forced to make roads, and to build court-houses, schools, and churches: whereas, had they been permitted to follow the bent of their inclinations they would not, at this time, have passed the Mississippi. The tendency of man is to combine his exertions with those of his fellow-men; and when we find him doing otherwise the cause will be found, invariably, in the existence of some essential error in the course of policy. Self-interest prompts him to this union. He feels that two, ten, or twelve, acting together, can accomplish that which would be impossible to a thousand men, each acting alone: yet is he seen flying off to the wilderness, abandoning his home, his parents, and his friends, while meadows uncleared exist in unlimited quantity, soliciting his acceptance of their gifts. To produce an effect so contrary to the laws of nature, a powerful repulsive force must exist. It does exist, and the extent of its power may be measured by an examination of the condition of the adjacent province of Canada. Concentration therein is impossible. The man who should undertake there to establish a work of almost any description, would inevitably be ruined by the perpetual fluctuations of the English system.

But a few months since, the prices of cotton cloths were high. Now, the mills are closed, and a single town exhibits twelve hundred houses unoccupied. The cotton manufacturer of Canada would be ruined. Three years since, the price of iron was low, because peers would permit but few railroads to be made. Now, it is high, because they have permitted the formation of roads innumerable. A month hence railroad building may stop, and then the world will be flooded with iron,* and foreigners will be ruined. Against such revulsions, the product of a system that is to the last degree unsound, the people of the British provinces have no protection. Ministers are omnipotent: Parliament is omnipotent; and the Bank is omnipotent. They make war or peace: grant or refuse railroads: make money

* So it has already happened, almost before the author had time to revise his proof sheets. Last year iron was $40 80 per ton—now it is down to about $28, and those in our country who were last year employed in making iron and consuming the products of the plough, must next year be at the handles of the plough, augmenting yet more the redundant products of the land, until the farmer shall become so badly paid and so poor, that he may at last justify the assertion of Mr. Burke of the Patent Office, and undersell the Russian serf in the Liverpool market.—*Edits. P. L. & A.*

abundant or scarce, at their pleasure; and the poor colonies must bear all; and hence the utter worthlessness of land, as is shown by the occurrences of every day.* Railroads and canals are made with government assistance, but they are almost unused, and so must they continue to be, until the people shall acquire the power of self-protection: or until England shall have learned to obtain her own food from her own rich soils, and to permit those who occupy the other portions of the earth to consume, on the ground on which it is produced, their own food, returning to the soil its refuse: and thus facilitating the construction of the great machine, and the development of all its wonderful powers.

From first to last we may see in the great fathers of our country a full belief that the proximity of the consumer and the producer was essential to the promotion of agriculture. They had seen the effects of provincial government. They had been in the situation in which Canada now is placed, and they had felt its hardships. The people of that province are poor, and so must they remain pending the existence of the system: because, while it lasts, they must continue to scatter themselves over the poor soils. *There* [as in some places nearer to us] great men are numerous. They are busily employed in governing the poor and scattered little men, and paying themselves: as they will continue to do, so long as the power of concentration on the rich soils shall continue to be denied. The abundance of land is said to be the cause of American prosperity, but Canada has land in greater abundance, and yet she is too poor to make a road: too poor to keep her own people, who are now deserting her capital to open houses of trade in New York: too poor to keep the unhappy immigrants from Ireland: while the ever-growing wealth of the Union, blessed as it has heretofore been with peace, has furnished means of employment for all that came direct from the British Isles and from Europe at large, and all that overflowed from Canada; and having received them, has placed them at once in a situation to obtain, if they would, houses, lots, and lands: *homes of their own.*

The right of resistance to wrong is inherent in every man: and every

* "By describing one side of the frontier, and reversing the picture, the other would be described. On the American side, all is activity and bustle. The forest has been widely cleared: every year numerous settlements are formed, and thousands of farms are created out of the waste; the country is intersected with common roads, &c. * * * * On the British side of the line, with the exception of a few favored spots, where some approach to American prosperity is apparent, all seems waste and desolate. * * The ancient city of Montreal, which is naturally the capital of Canada, will not bear the least comparison, in any respect, with Buffalo, which is a creation of yesterday. But it is not in the difference between the larger towns on the two sides that we shall find the best evidence of our inferiority. That painful but most undeniable truth is most manifest in the country districts through which the line of national separation passes, for a distance of a thousand miles. There, on the side of both the Canadas, and also of New Brunswick and Nova Scotia, a widely scattered population, poor, and apparently unenterprising, though hardy and industrious, separated from each other by tracts of intervening forests, without towns or markets, almost without roads, living in mean houses, drawing little more than a rude subsistence from ill-cultivated land, and seemingly incapable of improving their condition, present the most instructive contrast to their enterprising and thriving neighbors on the American side. * * * Throughout the frontier, from Amherstburgh to the ocean, the market value of land is much greater on the American than on the British side. In not a few parts of the frontier this difference amounts to a thousand per cent. * * * The price of land in Vermont and New Hampshire, close to the line, is five dollars per acre, and in the adjoining British townships, only one dollar. On this side of the line, a very large extent of land is wholly unsaleable even at such low prices, while on the other side property is continually changing hands. * * * I am positively assured that superior natural fertility belongs to the British territory. In Upper Canada, the whole of the great peninsula between Lakes Erie and Huron, comprising nearly half of the available land of the province, is generally considered the best grain country of the American continent."—*Lord Durham.*

man and every nation may be at times compelled to resort to war in self-defence. War is an evil, and so are tariffs of protection: yet both *may* be necessary, and both *are* sometimes necessary. But for universal resistance, the corn-laws would still exist, and the land-owners of England would not yet have felt the necessity of looking towards home. Concentration is now advancing in the United States because the interferences of England are diminished, and thus we see mills slowly rising throughout the Southern States, filled with black operatives. Planters now raise the food required for their hands, and ploughs and other agricultural implements are made at home; and hence it is that the overcharged markets of the world are relieved of the surplus cotton, and that the planter obtains for a crop of two millions more than could have been yielded by one of three millions. With a large crop freights are high, and the machinery of exchange absorbs a large proportion of the small price obtained abroad. With a small crop, freights are low and prices abroad are high; and the planter obtains a large reward, enabling him to clear and drain his rich soils. He is placing the consumer by the side of the producer, and with every step in this course he will obtain increased returns from a diminished surface. With each, he will improve his own condition, while the labor of those by whom he is surrounded will become daily more valuable: and with each, there will be seen an increasing tendency to improvement in their physical, moral, intellectual and political condition.* If we now turn our eyes to Pennsylvania, we see the same results. To bring into activity the coal mines of the eastern portion of that State, has required an expenditure of $50,000,000, by aid of which they now send to market three millions of tons of coal, worth $6,000,000: all of which is expended on the spot, in payments to laborers employed in mining coal, constructing engines, and building houses. Small as is, as yet, the result, it has doubled the value of every farm, over hundreds of thousands of acres. The farmer has now a market for his timber, and he clears his rich lands with profit to himself from furnishing wood to be used in propping mines, building boats, laying railroads, and building houses. He has a market for his cabbages, his turnips, and his potatoes; his veal and his beef; and he is thus gradually acquiring power to force out from the great treasury of food what nature intended it should give forth: and that power is consequent upon the fact that men have come to eat it. Close the mines, and he must raise wheat to compete with the product of the dry lands of western prairies: and at once must his lands decline in value. To accomplish thus much required a vast sum: but, as we have already seen, in every operation connected with the fashioning of the great machine, the first cost is the greatest. The land that yields coal yields also iron ore. A hundred furnaces would produce five hundred thousand tons of iron, worth, at the price in England, $12,000,000, or twice as much as the present yield of coal:† and yet these hundred furnaces, that would bring to the producer twice as many mouths as does now the coal, would cost but $3,000,000. Why, then, are they not built? Capital abounds for every purpose, and iron which should be sold for fifteen dollars, commands thirty dollars: and yet furnaces are built but slowly. The reason is to be found in the fact that every species of manufacture is a lottery, and will so continue while the policy of England remains unchanged. The furnace-builder must calculate upon paying himself in a year or two, and so much time may not be allowed him. Even at this moment, the increasing difficulties of the times may have caused the abandonment of great lines of roads, diminishing the demand for iron, and lessening the price one-half: and

* On our friends in Georgia and the Carolinas these truths will not be lost.—*Eds. P. L. & A.*

† Or more than double our average exports from 1840 to 1846.—*Eds. P. L. & A.*

if so the furnaces and rolling-mills of Pennsylvania may be closed.* Pending the existence of this state of things in a nation possessing the power that is wielded by England, all operations of trade or manufacture requiring large expenditure, must continue to be mere gambling; and, as a necessary consequence, they must continue to be monopolized by the few who can afford to incur large risks for the chance of large profits: and those are not the men who work most economically. When the manufacture of iron shall become safe, it will fall into the hands of working men: and then iron will be cheap. While such fluctuations shall continue, all operations in agriculture must likewise continue to be attended with great vibrations, consequent upon the changes of English action. At one time, cabbages and potatoes will find a market on the ground, as in parts of the country now they do. At another, they will rot in the ground for want of a market, as some years since they did.

The tendency of the whole system of the United States, is that of taking from the great machine all that it will yield, and of giving nothing back: and that tendency flows necessarily from the want of power over their own actions. Concentration is natural, and dispersion is unnatural, yet dispersion flows naturally from the absence of that power. The farmer of New York raises wheat, which exhausts the land. That wheat he sells, and both grain and straw are lost. The average yield per acre, originally *twenty* bushels, falls *one-third*. Had he a market on the ground for wheat, and milk and veal, he could cultivate rich soils, and the same labor that now yields ten bushels would yield him forty: and with each year he could clear such soils, for increasing population would produce demand for timber, and stone, and clay for bricks; and with each the great machine would yield forth more largely the treasures with which it is charged. He sows his wheat early and it is killed by the fly. Had he a market on the ground, for the produce of the rich soils now covered with timber, he could so improve his land as to sow it late, and then it would escape the fly. He sows his wheat on bottom lands, and it is killed by frost. Had he a market on the ground for veal and beef, he could enrich his higher lands with the manure produced on the lower ones, and then he would escape the frost. The farmer of Ohio raises wheat on thin soils, and it is killed by drought. He tries raising corn and wheat on the river soils, and it is drowned out, or destroyed by rust. He obtains ten bushels to the acre, which he must sell: and the produce of his land diminishes with each year. Were the consumer near him, his lower lands would be appropriated to meadows for his cattle, whose manure would enrich the poor soils of the higher lands, and drought would not then materially affect them. Another obtains thirty bushels of Indian corn from rich land, that, under a proper system of drainage, might yield sixty bushels: but while he wastes his labor and manure on the road, no drainage can take place. Thirty-two tons of corn, sown broad-cast, have been obtained from an acre, in Massachusetts. That acre was enriched with the manure yielded by western corn, consumed in the rich State that has already placed the consumer by the side of the producer. When Ohio shall make a market for such crops, she will have them.

The Kentuckian exhausts his land with hemp, and then wastes his manure on the road, in carrying it to market. Had he a market on the ground for corn and oats, peas and beans, cabbages, and potatoes, and turnips, he might restore the waste: but the rich bottom lands must remain undrained until he can place the consumer side by side with the producer.

Virginia is exhausted by tobacco, and men desert their homes to seek in

* Has not all this been unhappily realized?—*Eds. P. L. & A.*

the west new lands, to be again exhausted: and thus are labor and manure wasted, while the great machine deteriorates, because men *cannot come* to take from it the vast supplies of food with which it is charged. Thousands of acres, heavily timbered with oak, poplar, beech, sugar-tree, elm and hickory, are offered at about the government price, or a dollar an acre, and on long credit, but they are not worth clearing: and they cannot be cleared, until there shall arise a demand for lumber for the construction of houses, mills, and railroads: and that cannot arise so long as men shall continue to be limited to the use of the worst machinery of exchange; wasting on the roads the manure yielded by the products of their poor soils, and the labor that might be applied to the clearing of the rich ones. An acre of wheat has been made to produce over eighty bushels, and such will, at some future day, be the produce of these lands: but the consumer and the producer will then be near neighbors to each other, and all the manure produced by the land will go back again to the great giver of these rich supplies. She pays well those that feed her, but she starves those who starve her: *and she expels them.*

The cotton planter raises small crops on thin soils, and he, too, is ruined by drought. He tries rich soils, and rains destroy his crop, even to the extent of more than two hundred thousand bales, worth many millions of dollars, in a single season. Were he near neighbor to consumers of food, vegetable and animal, he could raise large crops of grass and food on rich lands, and manure the poor ones: and then he would suffer little from drought or rain. He would have always at hand, aid in harvest, and his cotton fields would yield him larger crops from smaller surface.

South Carolina has millions of acres admirably adapted to the raising of rich grasses, the manure produced from which would enrich the exhausted cotton lands: but she exports rice and cotton, and loses all the manure, and must continue so to do until the consumer of veal, and beef, and corn, shall take his place by the side of the producer of cotton. When that time shall arrive, her wealth and population will both increase: but until then both must continue to diminish.

The sugar planter raises large crops, but they too are drowned out: or, if they escape the loss from rain, they perish with the frost. Had he neighbors who would consume food produced from rich land, he might raise his sugar on lighter soils while draining his heavier ones; and he would have at hand supplies of labor to aid him in his harvest. He now prays for the appearance of the cotton worm, as the farmer of Ohio prays for the potato-rot in Ireland. The one wants hands to make his crop, and the other mouths to eat it. Both are thus compelled to wish their neighbors ill, and for the same reason: because the consumer of food cannot take his place by the side of the producer. The direct effect of the dispersion of man is to cause vast loss of labor and manure, and to prevent the growth of those feelings of kindness that are found where men possess the power to concentrate themselves, and to combine their efforts for the general good.

The prosperity of the people of the United States is *not* due to the abundance of land. It exists despite of the necessity that has been forced upon them, for squandering their labor over the surface of hundreds of millions of acres of poor soils, leaving untouched the rich soils that lie beneath. It exists, despite of the necessity for living apart, when they might have lived in communion with each other, combining their exertions for the establishment of better schools, larger libraries, better houses and gardens, and all of the thousand aids to the development of intellect, of taste, and of the affections. It is, in despite of these obstacles, that they have schools where every man

is educated:* that they have colleges and libraries fitted to produce men like Prescott and Bancroft, Kent and Story, Irving and Cooper, Norton and Robinson, Anthon and Pickering: that mind has been developed in the construction of machinery,† enabling them to establish with the mistress of the manufacturing world a competition that, more than any thing else, has tended to produce the abolition of restraints upon agriculture; and which in its turn tends now to produce a total change in her system and that of the world, by aid of which the machinery of exchange will be diminished in quantity and perfected in quality: the consumer of Germany, Italy, Canada, the United States and India, taking his place by the side of the man who produces the food he is to eat. With each step in the progress of this change, labor will become more and more productive: man will learn more and more to concentrate his thoughts and affections upon home: he will learn more and more to unite with his fellow man, and will acquire daily increasing power over the land and over himself: and he will become richer and happier, more virtuous, more intelligent, and more free.

That the people of the United States should have acquired power thus to affect the movements of the world, has been due to the fact that they have abstained from war, and preparations for war, while other nations have wasted millions of lives and thousands of millions of treasure on useless fleets and armies, and in wars of desolation. That they have to so great an extent remained at peace, has been due to the fact that the war-making power rested with the whole people:‡ with the men who paid the taxes, each one of whom had in his house and lot, his farm, his shop or mill, a little saving-fund in which he could deposit his time and money; and a home occupied by his wife and children, the depositaries of his affections. For them to go to war is difficult, because with them alone rests the power to declare it; and before such declaration can take place, a majority in favor of such a measure must be obtained. Among them is an infinite variety of interests. Some produce corn, and some cotton: and others tobacco, or rice. Some manufacture wool: others wood or cotton. Some own ships: and others steamboats. All these people *may* lose by war, and few *can* gain much. Under such circumstances, before a majority can be obtained, much discussion is needed in and out of the newspapers; in and out of the halls of Congress. Time is gained. The arguments for and against the war are read abroad as well as at home. The cost of war is discussed on both sides, and the value of the trade at risk is brought into view: and the result is a settlement of the difficulty. Such is the history of the Oregon and Maine boundary questions. Slow action is safe action; and where a nation takes the form of a pyramid, with a great base and a very small top, the motion is slow, and appears devoid of energy: whereas, in one like that of France, where the pyramid is inverted, the movement is rapid, and energy appears

* "In New England, every citizen receives the elementary notions of human knowledge; he is moreover taught the doctrines and the evidences of his religion, the history of his country, and the leading features of its constitution. In the States of Connecticut and Massachusetts, it is extremely rare to find a man imperfectly acquainted with all these things, and a person wholly ignorant of them is a sort of phenomenon."—*De Tocqueville.*

† "The Americans possess a quicker mechanical genius than even ourselves—as witness their patents and improvements for which we are indebted to individuals of that country in mechanics, such as spinning, engraving, &c. We gave additional speed to our ships, by improving upon the naval architecture of the Dutch; and the similitude again applies to the superiority which, in comparison with British models, the Americans have, for all the purposes of activity and economy, imparted to their vessels."—*Cobden.*

‡ A single usurpation of that power has cost us 20,000 lives and 100 millions of money. May it prove a warning in all time to come!—*Eds. P. L. & J.*

to exist; but here, as elsewhere, the amount of power exerted is in the inverse ratio of the speed.

It may be suggested that concentration might have a tendency to prevent the expansion of mind consequent upon the existence of the present system, and that men would think too much of home, and become selfish. Directly the reverse is the effect that is produced in private and in public life. The prudent man that is fond of his home, his wife, and his children, has leisure to read and to think. The voluptuary and the spendthrift have leisure for nothing that tends to the expansion of mind. Such we see to be the case in France. Every speech in the chambers, and every newspaper, abounds in selfish views. If we look back through her history, among sovereigns, nobles, leagues, and leaguers, the whole presents a picture of selfishness not to be exceeded in the world. If we look at the people, it is the same. Expansion of mind and liberality of feeling cannot exist where men cultivate the poorer soils, for communication is slow and difficult; and man must mix freely with his fellow men, or he remains a barbarian.

In the course of England we find far less selfishness than in that of France; but it invariably appears during long periods of war, like those of India, and that long one which closed with the battle of Waterloo. Each step in the progress of the latter was marked by growing disregard of the rights of man abroad and at home, until neutrals were driven from the ocean, and the people of England were driven, almost *en masse*, to the poor-house. If we trace the progress of feeling from the days of the Edwards to the present time, we may see growing liberality with increasing population. If we look at the kingdom now, we may see the intensity of selfishness in many of the highest, and very many of the lowest orders: the one owners of extensive and ill-cultivated lands, looking to corn laws for support: and the other *habitués* of the gin shop. If we desire to find liberality of feeling, it may be met in abundance among the middle class of people who rejoice in the comforts of home.

We have shown that in no country does there exist the same tendency to concentration of affection, of feeling, of action, and of wealth, as in Massachusetts: yet *there* may be found liberality of feeling in the highest degree. How, indeed, could it be otherwise, when every boy, however poor, has in the little library of the town school, towards which his father pays his little contribution, and in which the son feels himself as much at home as the sons of the wealthiest, books that enlighten him in regard to the modes of thinking and acting throughout the world: and may now, or soon will, read in the morning's penny newspaper the history of the proceedings of *the previous evening* in every principal town in the Union, from New Orleans and St. Louis to the very extremity of Maine? With every diminution in the quantity required of the machinery of exchange, whether of things or ideas, we find expansion of intellect, liberality of views, and the disappearance of selfishness. Concentration, by means of which the consumer and the producer are brought together, has the same effect in nations as in families; and if we desire to see improvement in moral feeling, in habits of kindness, and in the disposition to make exertions for the common good, we shall find it as we look more and more inward, and endeavor more and more to render pleasant that home in which we are placed: in which, but for the interference of the laws of man with those of the Deity, there might in all time past have existed a degree of happiness, of which, in most nations, its inhabitants have had but little idea.

Passing southward from Massachusetts, eldest born of the family of States, we find, from north to south, and from east to west, a tendency in the same direction: but diminishing as men become more and more scattered, and the

fertile soils are seen more and more unoccupied. Throughout the whole system exists, in a greater or less degree, the tendency to concentration of feeling and affection, as is best shown in the existence of twenty-two hundred newspapers, each giving to its readers the history of the proceedings of the neighborhood; and in the universal tendency to have, in every little settlement, schools where the young can meet for instruction; and places for the worship of the Deity, where all, young and old, can meet. The *home* stands first; and where that is the case, there will be found in the highest degree the power of obtaining knowledge relative to things *distant from home.**

Were France to turn her regards inward instead of outward, and dispense with fleets and armies, and foreign missions, and the numerous other absurdities that characterize her system, the expenses of her government need not exceed those of the United States. That done, wealth would increase; and her people would cultivate the rich soils instead of the poor ones: and population would then advance. The United Kingdom contains less than a hundred millions of acres, occupied by twenty-eight millions of people, and the machinery of government that is needed is less than in the United States, where twenty-one millions occupy six hundred millions of acres; for where people are concentrated they protect themselves: whereas, where they are scattered they require protection. Were the expenditure of England reduced to five millions of pounds, wealth would grow rapidly; for everybody would work, either with his head or his hands: and the experience of every day in that country goes to show the rapid improvement of the higher orders, since it has been discovered that if men would maintain their places in society they must contribute towards its well-being, as the world gives nothing for nothing. In no part of the world do all classes, from the highest to the lowest, so uniformly labor for the advancement of the interests of the society in which they are placed, as in Massachusetts: and in none do men who have acquired fortune exert so much influence: and simply because, with all their fortunes, they continue to work almost to the close of life. They are always ready to unite in what is needed to be done, and to contribute both time and money to its accomplishment: and society respects them, because they promote the good of society. In less enlightened parts of the Union, men of wealth do little for the promotion of the interests of those around them, and the latter take no interest in them. All this may equally be seen by comparing the rapidly growing Liverpool with the stationary Bristol. Concentration tends to promote activity of mind, and that activity will exhibit itself more usefully abroad in the precise proportion that it manifests itself usefully at home. The nation that keeps itself poor by efforts in behalf of "the liberties of Europe," exhibiting to the world a whole people in the almshouse, does far less for the extension of freedom than it would do were it to mind its own business, and exhibit the beneficial effects of freedom in universal prosperity and happiness. The Parliament that occupies itself with the affairs of Spain and Italy, and India and Canada; and reports on coal mines, and drainage, and interments, exhibiting a near approach to barbarism; does less for liberty than a Congress whose attention is turned

* "I travelled along a portion of the frontier of the United States in a cart, which was termed *the mail.* We passed, day and night, with great rapidity, along roads which were scarcely marked out, through immense forests. * * * From time to time we came to a hut in the midst of a forest, which was a post-office. The mail dropped an enormous bundle of letters at the door of this isolated dwelling, and we pursued our way at full gallop, leaving the inhabitants of the neighboring log houses to send for their share of the treasure. * * * *It is difficult to imagine the incredible rapidity with which public opinion circulates in the midst of these deserts. I do not think that so much intellectual intercourse takes place in the most enlightened and populous districts of France.*"—*De Tocqueville.*

exclusively homeward, leaving the liberties of the world to take care of themselves. The influence of the United States upon the world is now greater than that of England, because it maintains little army or navy; and its people increase in numbers, and grow rich by minding their own business. True grandeur goes with peace and prosperity, and the cultivation of the rich soils of the earth. Littleness and selfishness are the invariable accompaniments of war and the cultivation of the poor soils.

The highest degree of security for the rights of persons and of property that exists in the world is to be found in Massachusetts: and it is there obtained at the smallest cost, because there the people do most for themselves; and those charged with the duties of government do least. As we pass from that State and from New England generally, south and west, security diminishes, and cost increases. In every part of the world security diminishes with the increased cost of government. The latter is greater in France than in any other portion of Europe: and hence it is that the government builds fortifications, and that every man feels that he is sitting on a volcano that may burst forth at any instant.* In that country *centralization* is carried to the highest point: while in Massachusetts is shown the perfection of *concentration.* In the one, man's *necessities* are great: while in the other, his *powers* are greatest.

The PAST says to the landholder of the PRESENT: "If you desire that your property increase in value: labor to promote the growth of wealth, and the concentration of man for the purpose of eating the food where it is produced."

To the laborer it says: "If you desire a large return to your labor; to live in your own house, or on your own farm, eating your food on the ground on which it is produced: labor to promote the growth of wealth."

To all it says: "If you would be free, and happy, and rich: labor to promote concentration, whose companions are peace and wealth; and avoid centralization, whose companions are poverty and war, followed by the dispersion of man over the poor soils of the earth."

Brentz's Unbranning Machine.—During the last sixty days, L. A. Spaulding, miller of this place, has been engaged in putting up a model machine for unbranning wheat—that is, to strip off the berry or outer coat or brand before grinding it. Yesterday ten bushels of wheat were submitted to the process, and the result equals the expectations of the discoverer. It is now no longer theory, and is one of the most important discoveries of the age—adding, as it does, at least twelve and a half per cent. to the value of the wheat crop of the country—and if brought to bear on the whole wheat and rye raised in the United States, would save at least thirteen millions of tons per annum. On flour manufactured for market the saving will be enormous, and no Flouring Mill, as now arranged, can compete with one having this improvement. The advantages are too great to be stated in a brief paragraph, which we pen merely to call public attention to the fact that such a machine is in operation in Lockport, and the only one ever used in any mill.

The advantages are—1st. Full twelve and a half per cent. more flour 2d. Flour of better quality. 3d. Not so liable to sour or injure in a hot climate. 4th. Less offal.

We are informed that the apparatus sufficient for a mill having eight run of stone, will cost inside of five hundred dollars—exclusive of the right to use it. Such machinery is now in course of construction in the big mill in this village, and we are told that it will be ready for use in the course of a few weeks.—*Lockport Courier.*

* How prophetic!—*Eds. P. L. & A.*

WHEAT.

HOW TO BE MANAGED—VARIOUS KINDS—THICK AND THIN SOWING.

The reader may remember that a promise was given at page 110 to supply some extracts on these subjects, for which we had not room at that time.

The Commissioner of Patents *estimates* the crop of wheat for the whole United States in 1847–8. at 114,245,500 bushels; the population of the Union, at 20,746,400; the number of bushels of wheat consumed, allowing three and a half bushels to each free person, at 62,303,146½ bushels. We think he is mistaken, as we shall elsewhere explain, in his conclusion "that the American grain-growers can deliver grain or flour at as low a price in England as the grain-growers of any other country, not excepting Russia on the Black Sea; and that they have it in their power to command the great grain-market of Great Britain, and of nearly all the corn-importing countries of the world." If, however, the free-trade doctrine, for which the Commissioner is understood to be an able and zealous advocate, could be fully established, there is no doubt that we should soon be able to produce the cereal grains in such abundance that the world might have them almost for taking them away: the effect would be that agricultural labor would turn to other products—to sugar, to cotton and tobacco—until these again would become, if possible, drugs more valueless than now.

But we must have done with our own ideas on the politico-economical aspect of the subject, lest we should again be compelled to postpone the practical suggestions which even now may prove almost too late for practical use: we will take room, therefore, to add here only, that lately, in Maryland, we learned that a kind of wheat called the "blue stem white wheat" is fast making its way into general favor.

1. *Preparation of the Land according to variety of Soils.*—Wheat, the most valuable of grains, is grown upon nearly every description of land; but the soils best adapted for its culture are those which are more or less clayey: indeed these heavy soils are so peculiarly fitted to its production, that they are frequently distinguished by the appellation of "good wheat-land." It is well known, however, that wheat will grow to high perfection upon almost every soil, when the land is properly prepared for it.

Whatever may be the nature of the soil, it should always be the aim of the farmer to grow full crops: partial and sometimes extensive failures will even then but too often occur; but to neglect making the best-known preparation, or only to prepare for half a crop, is an ill-judged notion, and has a direct tendency to unremunerating farming.

In order to prepare for luxuriant crops, the land, when of a wet nature, must be liberated from all surplus water by proper under-draining; it must be clean from couch-grass [blue grass] and all other kinds of rubbish; not tired out by cross or improper cropping; must be judiciously manured, but not overdone with it, inasmuch as too much manure causes the growth of an unnaturally large quantity of straw, which, if the season happens to be wet or stormy, will be crippled and flat on the ground before the ears could come to perfection. When this happens, it both lessens the quantity, and very much deteriorates the quality of the grain. The land being otherwise well prepared, it is perhaps upon the whole more desirable to have a little deficiency of manure than too much, as, if necessary, a partial top-dressing may always be added in the spring. The land must not be wheated oftener than the soil will admit: some soils will bear it more frequently than others, and it is essentially necessary that the kind of seed should be adapted to the description of soil upon which it is to be propagated. An entire change of seed from hot land to cold, and from cold land to hot, will always be found advantageous, and especially from hot to cold soils, in which case it will frequently bring the harvest nearly a *week earlier*. In both cases it is generally allowed to increase the yield, improve the sample, and preserve the stock in greater purity.

It has now become very general to sow wheat after clover upon all classes of soils. This is doubtless one of the best systems of growing wheat: the roots of clover after becoming decomposed afford much nutriment to the growing wheat, and the firmness given to the land is another great recommendation. It has been frequently observed when the plant of clover has been deficient that the wheat-plant fails also. This, however, is not always the case: at the same time it serves to show a peculiar adaptation, on many soils, to the growth of wheat after clover. There are several other methods of preparing land, varying according to the nature of soils, which oftentimes produce crops of the first order. Some of these are as follows:—

1st, *Upon clayey soils*, a full summer's fallow is occasionally resorted to as a preparation for the wheat-crop, particularly when the land becomes foul with couch-grass, &c., and cannot very well be brought into a thorough clean state of cultivation by partial fallows, connected with the growth of green crops. Considerable benefit is also derived from summer fallowing upon this kind of soil, as it causes a more perfect decomposition of its constituent parts. This latter effect has been proved in many cases by experienced farmers, and has come under the observation of the writer. For instance, when this kind of land has been repeatedly dunged, better crops have frequently been obtained after a full summer's fallow without dung, than after a good dressing of dung without a full summer's fallow. In illustration of this statement, Professor Liebig, in his work on the 'Chemistry of Agriculture,' says—"In the effect produced by time, particularly in the case of fallows, or that period during which a field remains at rest, science recognises certain chemical actions, which proceed continuously by means of the influence exercised by the constituents of the atmosphere upon the surface of the soil;" and in another place he says—"It is quite certain that careful ploughing and breaking up of the soil, by producing the change and increase of its surface, exercises a very favorable influence upon its fertility." At no very distant period farmers generally considered systematic summer fallowing to be one of the most important points of agriculture; and there are some in the present day who have proved its peculiar suitableness to a few of the wet clayey soils; though many speak of it as an unnecessary waste of labor, and a sacrifice of the produce of the land.

It is well known that wheat should be sown when the land is *clung*, and it is considered better to wait and have a late season of sowing than to put it in when the soil is in a dusty state; which, upon some land, causes the wheat to become root-fallen; and upon soils of a closer texture, where this does not occur, the wheat seldom flourishes so well as when put in after rain. The land is never too wet for sowing wheat, provided it works at all kindly, and the seed can be effectually covered. There are, however, some soils of a peculiar mixture of sand and clay, which, if stirred when very wet, will run together, and afterwards in dry weather form a hard crust, which of course checks the growth of the plant.

The best period for sowing wheat on cold, clayey soils is from the last week in September to the middle of October, as it seldom becomes winter-proud upon such land.

Many think that water-furrowing may be entirely dispensed with where the land has been thoroughly under-drained, but this opinion is not borne out upon very heavy tenacious clays. I have observed that upon such soils the surface-water has not gone off sufficiently quick without it.

Upon rich, deep, dry, loamy soils, wheat is successfully cultivated after potatoes, the potatoes being removed at the latest in October. It is no uncommon thing on some tracts of land—such as are extensively found in the

neighborhood of East Ham, Barking, Romford, Edmonton, Enfield, and other places—to grow wheat and potatoes alternately for many years together. But in order to carry on this system successfully, dung must be liberally used for the potatoes; no dressing beyond this is required for the wheat; the potatoes yielding from three hundred to five hundred bushels per acre, and the wheat from thirty to forty bushels. Of course, as above hinted, to carry on this kind of farming, manure must be made rich and applied abundantly, or be obtained plentifully from large towns. Upon this description of land four pecks of seed are amply sufficient, and it should never be sown till the end of October or the beginning of November; if at all earlier, it becomes winter-proud, and produces too much straw. I have witnessed the large yield of full fifty bushels per acre throughout a field of thirty-seven acres in the parish of East Ham, in Essex, where the seed was not sown till the middle of December, after a full crop of potatoes. Upon other strong yet rich loams, containing a larger proportion of clay, wheat and beans are successfully cultivated alternately. The beans, being kept perfectly clean, frequently supersede the labor of ploughing for wheat; in which case the land is harrowed previously to drilling or dibbling the wheat.

With respect to dibbling, we may observe, that it is acknowledged to be the means of obtaining a stiffer straw: and hence the propriety of hand-dibbling at a cost of 7*s.* or 8*s.* per acre on a loose peat.

On freshly broken-up grass-land, oats are preferred to wheat; though, after the surplus vegetable matter of the soil has been reduced by burning, tillage, and the mechanical application of suitable earthy matter, wheat can be grown of good quality. Of course these remarks on fresh broken-up land are general, though not applicable to every case.

It is an acknowledged fact, applicable to every description of soil, that the land prepared for wheat cannot be too stale or solid, provided it be free from weeds, and the surface sufficiently mouldy to cover the seed.

2. *The application of Dung or Artificial Manures.*—If a sufficiency of farm-yard manure could be obtained there would be little necessity for any other, inasmuch as it contains all the ingredients requisite for producing every kind of crop. But let it be understood that the dung should be composed of the excrements of animals well fed under cover.

It has been before observed, that when dung is to be applied in liberal quantities for the benefit of wheat, it should, if practicable, be put on the land previous to sowing a preceding root or pulse crop; for thus those ingredients of the dung, which only tend in their first effect upon the land to force an over-abundant growth of straw, will have been extracted, leaving the land in a good state for wheat. Where root or pulse crops are not grown, the dung should be applied to naked fallows for wheat as early in the summer as possible.

Though the practice of manuring immediately before sowing the wheat is objectionable, it is still adhered to in many parts of the country.

A compost of earth and dung is highly beneficial on light chalky and silicious soils.

Four or five loads per acre of farm-yard manure and half a folding with sheep are a good manure for wheat, and frequently adopted by the farmers of the midland counties.

A very large proportion of land is manured for wheat by means of the sheep-fold alone, especially upon dry soils, where great benefit is derived by its solidifying the ground; it has also a tendency to kill the slugs and other destructive insects, or at least to put a stop to their ravages. Folding

upon fallows is likewise adopted with advantage; upon loose, light soils, folding after the wheat is sown is of advantage.

Some farmers adopt the plan of ploughing green crops in; but others consider it a better plan to convert all green crops into animal manures, by feeding off with sheep or by soiling.

Pigeons' and hen-house dungs are frequently used as a top-dressing for wheat, and are almost sure to be beneficial on any soil. From thirty to forty bushels are used per acre. Like all other light manures, it is best covered by means of harrowing or hoeing, or it may be drilled between the rows.

Soot is much used as a top-dressing for wheat, and is commonly found very beneficial. From forty to sixty bushels per acre are generally applied. It has a tendency to increase the quantity and improve the quality of the wheat, without forcing an undue quantity of straw. It should be sown in February or March at the latest. It is however frequently sown as late as the month of May: but if a dry summer follows, it is in that case of little or no value. As ammonia is the principal ingredient of this manure, it should be covered by means of the hoe or harrow, being liable to waste by evaporation; and, as it is a very light substance, calm and showery weather must be chosen for applying it. This manure is found to be peculiarly suited to the county of Hertford, and consequently a very large proportion of the soot made in the metropolis comes into this county. It has been used in Essex, Kent, Middlesex, and other counties, but in most cases without general beneficial results.

Bones may be applied with much advantage upon dry soils previous to sowing the wheat, at the rate of from sixteen to thirty bushels per acre.

Guano, at the rate of from two to three cwt. per acre, is sometimes advantageously used at the time of sowing the wheat. This manure is found most beneficial on poor loamy soils.*

The nitrates of soda or of potash are occasionally used at the rate of from one to three cwt. per acre, and applied broadcast in March or April. Chemical analysis has proved that wheat always contains a much larger proportion of potash than of soda; hence we may suppose that nitrate of potash is the best of the two: it is, however, the most expensive. As to the application of nitrate of soda to wheat when it has a yellow or sickly appearance in the spring, if finely pulverized, and sown in moist weather, it will in a few days alter the sickly hue to a luxuriant green. As it increases the quantity of straw, it is best suited to poor loams and gravelly soils.

Common salt is sometimes applied before sowing the seed, at the rate of from ten to twenty bushels per acre, and is often beneficial in bringing the ears to perfection: it also causes a greater weight of grain, but seldom increases the quantity of straw.

These are the principal manures that have been proved to be useful for wheat. There are many others; but even a bare enumeration would occupy too much space.

3. *The Time of Sowing.*—The time of sowing wheat varies with the nature of the soil. Upon very strong clays or cold soils the plant has been known to flourish best when sown as early as the middle of September. It takes a firmer and deeper hold of the soil before the frost commences, and there is no danger here of its becoming "winter-proud." Sowing early on

* In Maryland, perhaps we might say particularly in Hartford and Montgomery counties, guano has been used with great advantage. Benjamin Hallowell, a practical farmer, and a man of science, will give us an account of his experience in the latter county; but he is of opinion that bone-dust is preferable to guano. We may possibly hear from him in time for this number.

this class of soils not only insures a better crop, but brings it much earlier to harvest. Wheat seed-time upon these soils begins about the 20th of September, and lasts till towards the end of October. Wheat sown at the former period has been known to be nearly a fortnight earlier to harvest than that which was sown a month later.

Upon warmer soils, as before observed, the best period of sowing is from the last week in October to the last week in November. If sown earlier, the plants get too forward, and do not mat on the ground; the plants become weak, and spindle into a long slender stalk, and frequently lose their healthy appearance in the spring. Varieties of spring-wheat are sown in February and March, and succeed on good land, though a productive crop is rarely seen on inferior sands and gravels.

Observations having been made on the time of sowing in treating of the preparation of the land, any further remarks are uncalled for.

4. *The Quantity of Seed.*—The necessary quantity of seed varies from four to ten pecks per acre. It depends entirely upon circumstances—as the time of sowing; the manner of sowing, whether broadcast, drilled, or dibbled; when sown early, it requires less seed than when sown late; the nature and condition of the soil, the variety of wheat, and the quantity of vermin that consume the grain before or after it vegetates,—all have some effect on the quantity of seed required. The poorer the land, the more plentiful must be the seed. On a poor gravelly soil, where an abundance of manure is not attainable, ten pecks are requisite, drilled at from six to eight inches; and we find, from observation of both wet and dry seasons, that when this quantity is at all sensibly decreased, or the intervals between the drills increased to a material extent, the crops suffer a diminution both in quantity and quality.

When the land is good, very little seed is required, for it always branches out in the spring; but on poor land, when sown late, many of the plants die, at the same time that others on good land are preparing for numerous branches. Nothing definite, therefore, can be named as to the proper quantity to be sown. Upon the broadcast system, where two and a half bushels per acre are sown, it is generally allowed that, if drilled, two bushels would be equivalent, and if dibbled five pecks. As an instance of the effect of time, I may mention that upon a poor heavy soil, if we commence in September with two bushels, by the middle of October we increase it to two and a half bushels per acre.

It has been repeatedly proved that upon land of the best quality, and in high cultivation, if dibbled and put in perfectly regular, four pecks of seed per acre are better than more, inasmuch as it leaves a roomy and healthy space between the plants, encourages branching, and produces stiffer straw, with plumper ears, than when sown thicker, and upon the whole gives the most certain and fullest production that the land is capable of. Thickly-sown wheat on rich land grows much weaker straw, smaller ears, and is liable to fall down long before the usual time for coming to perfection.

Varieties of wheat differ in their tillering properties. The following experiment was made in 1843:—

October 28th, 1843, planted thirty kernels of six varieties of wheat, with a view of testing their tillering property, and the time at which they arrive at maturity. The wheat was dibbled, one kernel in a hole, at equal depth and distance, on a piece of loamy ground. The varieties each formed a row, distant from each other ten inches, and from plant to plant in the rows four inches. The following table will show the result of the experiment:—

Variety.	Number of Seeds vegetated.	Time of coming into Ear.	Number of perfect Ears.	Number of Ears from one Grain.
Bellevue Talavera White	26	June 3	234	9·0
Marygold or Rattling Jack Red . .	26	" 14	134	5·1
Spanish Talavera White	26	" 8	203	7·8
Spalding's Prolific Red	27	" 14	155	5·7
Jonas's Seedling White	26	" 12	168	6·4
Shirreff's Hopetoun White	25	" 12	191	7·6

The Spalding's and Marygold are the most productive of the six varieties, though in this case they tillered less than any of the other kinds.

5. *The varieties of Seed and the change of Seed.**—The variety of wheat must be suited to the soil and climate; and the knowledge of the varieties best suited to a particular soil can only be obtained from the experience of the farmers who cultivate that soil. It is, however, bad judgment to be so far prejudiced in favor of one sort as to cultivate it to the exclusion of all others. The best kinds deteriorate in course of time: new varieties are constantly being introduced, some of which would in all probability be found superior to the old.

More wheat is now produced per acre, by greater attention being paid in choosing the most prolific kinds. It should, however, be borne in mind that the most prolific are also very frequently of a coarse quality, and commonly lose in price what they gain in quantity. At the same time it is admitted by those who have put the question to a test, that the most productive are often the most advantageous to the grower. Instances, indeed, have occasionally occurred where heavy white wheat of the finest quality has been tried by the side of a coarser description, and has equalled it in quantity; but this must be considered an exception to the rule, and not the rule itself.

On rich soils, where an abundance of straw is produced, short and stiff-strawed wheat yields the best crop, as the weak and long-strawed wheat is liable to be spoiled by being laid. Such varieties as Spalding's Prolific and Piper's Thickset are suitable for rich land. On very productive wheat-land in Norfolk, Piper's Thickset produced such abundant crops, that on its introduction into that county it at once obtained the name of Protection Wheat. On the contrary, short-strawed wheats like Piper's Thickset are very inferior to long-strawed wheat on land that yields a light crop. Mixed wheat (red and white) is sown in some parts of the country, care being taken to select two sorts that ripen at the same time. It is considered that two varieties are more likely to produce a certain crop than one alone; for undoubtedly it frequently occurs that one kind produces the heaviest crop one year, and another the next; and when equal portions of red and white wheats are sown together, sometimes the white and sometimes the red predominates in the sample that is produced. It is well known that a mixture of red and white wheats commands a higher price in the market than red alone.

During the last few years many new sorts of wheat have been introduced, though some are but new names for varieties long well known. Some are

* BLUE-STEM WHITE WHEAT is getting in great favor in Maryland: we understand Mr. Wright made a crop of about or over twenty-five bushels to the acre, at Blakeford, near Queen's Town. It is said to be free from the fault found with the Mediterranean wheat —weakness of straw; on the contrary, the straw is uncommonly stiff and strong, while the grain is well covered in with the chaff, that prevents it from shattering—while it threshes uncommonly well. The popularity and spread of this variety is rapidly increasing.

noted for the earliness of their growth,—among these are the Bellevue Talavera, Mexican Vicario, and the bearded April wheat, which are all recommended for spring-sowing; but it has been confidently asserted, from observation, that the two former, though of superior quality, do not on a gravelly soil, in a dry climate, produce an average crop, if spring-sown; besides this, the grain adheres with such tenacity to the chaff, that there is extreme difficulty in thrashing them with the machine.

Among other faults which some varieties possess is an incapability to withstand severe weather, liability to shell when harvested, or to grow in the ear, to which very chaffy kinds are more especially subject.

The advantages to be derived from a change of seed from a hot to a cold soil, and *vice versa*, has already been mentioned. Plants removed from one climate to another will in some measure continue in the same habit of growth. Thus seed brought from a warm country will produce an early crop, though it will be inferior in hardihood to plants grown from seed brought from a cold climate; and it will be found that, whilst the latter improves by cultivation, the former deteriorates.

The following is the result of an experiment tried last year upon red wheats by Mr. J. B. Brown, Elms Hall, Colne Engaine, given to the public, which will be found to contain valuable information:—

	Quantity per Acre.	Weight per Bushel.	Weight of Straw per Acre.	Bushels of Chaff per Acre.
	b. p. p.	lbs.	lbs.	
1. Colne White Chaff	42 3 4	62	3250	90
2. Bristol	39 2 12	63½	3515	75
3. Sharp's, Goody's, or Crabb's	39 0 14	64	3415	70
4. Spalding's	38 2 1	65½	3765	80
5. Seyer's	37 3 4	65	3860	75
6. Smoothy's	36 2 14	64½	3985	65
7. Kent Red	36 2 4	64	3755	65
8. Sewell's	36 0 6	63½	3535	65
9. Piper's Thickset	33 3 0	63½	2550	100
10. Kent Red	36 2 14	64	3780	50

	Weight of Grain per Acre.	Proportional Weight of Straw in comparison with Grain.	Proportional Measure of Chaff in comparison with Grain.
	lbs.		
1. Colne White Chaff	2654	1·22	2·09
2. Bristol	2520	1·39	1·88
3. Sharp's, Goody's, or Crabb's	2510	1·36	1·78
4. Spalding's	2522	1·49	2·05
5. Seyer's	2458	1·57	1·98
6. Smoothy's	2368	1·26	1·77
7. Kent Red	2340	1·60	1·77
8. Sewell's	2291	1·54	1·80
9. Piper's Thickset	2142	1·19	2·91
10. Kent Red	2350	1·60	1·36

The wheat to which the above tables refer was sown on the 28th of October, 1845, at the rate of five pecks per acre, with the exception of No. 10, and that was at the rate of ten pecks per acre. The reader will of course draw his own conclusions as to the merits of each kind of wheat; and also of thick and thin sowing.

6. *The Diseases to which Wheat is liable.*—The principal disease, and one which can be completely guarded against by the seed undergoing preparation previous to its being sown, is that which is commonly known among farmers by the name of smut.

This disease was formerly very common, but now smut-balls among good farmers are seldom seen; when they are found it may be attributed to carelessness in preparing the seed. Tull informs us that—

"Brining seed-wheat to prevent smut was first practised about the year 1660, when a vessel of wheat was sunk near Bristol, and the grain so much injured by salt-water, that, though it would vegetate, it was considered to be unfit for bread. It was taken out of the vessel at low-water, and sown in different parts. It was free from disease at the following harvest, when wheat in general happened to be smutty. This accident led to the practice of brining."

Salt-water of sufficient density to float an egg is still extensively used. A quantity of salt and water of the above density is prepared in a tub, the wheat is put into the pickle, and, when stirred, all the diseased or light grains will rise to the surface, which are skimmed off. The wheat is then taken out of the brine, and a sufficient quantity of new slaked lime sifted upon it to dry the whole quantity.

Some farmers wet their seed by throwing over it, when lying in a heap, a quantity of urine; it is then well mixed, and dried with lime, as in the former case.

Water poured on caustic lime, and then thrown on the wheat while effervescing, is a plan adopted by many.

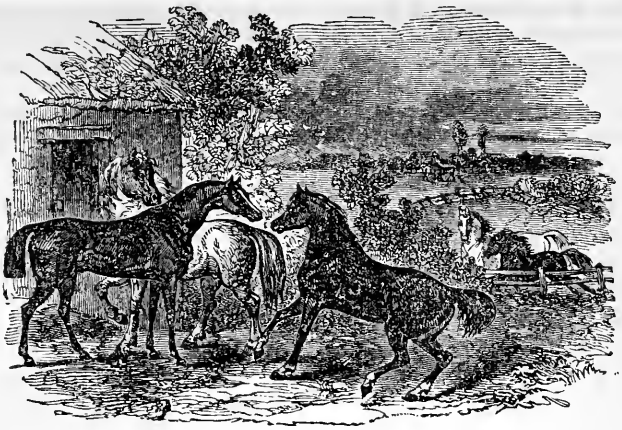
But the cleanest, and perhaps the most efficacious preparation, is that of blue vitriol (sulphate of copper): 4 quarts of boiling water poured on one pound of blue vitriol is sufficient for three bushels of wheat; this is well mixed upon the floor with the grain, and thrown into a heap on the night previous to the day the seed will be wanted.

Others prepare a solution of blue vitriol in a tub, by adding double the quantity of cold water to the above mixture; the wheat is put into it, and the light grains are skimmed off. The seed is then taken out and laid in a heap to dry. A convenient apparatus for wetting wheat, is a tub sufficiently large to wet four bushels at once. The solution is first put in, and then four bushels of wheat; this is well stirred, and skimmed with a common fleeting-dish for ten minutes. The liquor is then drawn from the tub into an under tank, and the wheat thrown out with a shovel. As soon as this is completed the solution is returned to the tub, and we proceed in like manner with another four bushels.

Another method is to have a "skep" basket, into which the wheat is put, and plunged into the solution contained in a tub.

When the seed has been prepared, and cannot be used on account of the weather, care must be taken to spread it thinly over a floor, and give it an occasional turning.

There are many other diseases to which wheat is liable, as the rust, blight, mildew, &c. &c. Some of these are owing to the growth of parasitical plants, "fungi," which arise from a want of the proper constituents in the soil for the growth of the wheat-plant to perfection, from an unfavorable season, or from a feebleness of constitution inherent in the plant. Disease and havoc are also caused by insects. But to describe fully the diseases to which wheat is liable, requires the pen of a man who has made that subject his peculiar study, rather than of the farmer: the latter may know from dear-bought experience how to guard, in some measure, against these diseases, but cannot so well describe their cause.



THE HORSE.

INTRODUCTION.

Valuable Properties of the Horse—Reasons for its Use being Proscribed to the Israelites—Difficulty of Determining its Native Country—Excellence of the British Breed.

The Horse is a distinct genus, belonging to the order of *Belluæ*, or large beasts, and in himself the most serviceable of all quadruped animals, as well as the swiftest of those brought under the dominion of man. Notwithstanding these high qualifications, ancient history informs us, that, in the primitive ages of the world, the ass was used in preference to him, not only as a mere beast of burden, but for the purpose of conveying, from place to place, persons of the highest distinction. This, however, may be satisfactorily accounted for. Previously to the art of horsemanship being known, the ass, a superior race of animal perhaps to that generally found in Europe, was more easily managed than the horse, and better suited to the kind of food usually met with for his support. He was, in fact, found to answer every purpose of horses, until mankind increased in numbers and in wealth, when the complicated interests that were the result, brought their services into use, and they were trained to the art of war. But another reason may be given for the late introduction of horses. Their use was interdicted by the Almighty in the early ages of the world:—first, lest his favorite people, the Israelites, should be led to idolatry, by carrying on commerce with Egypt; secondly, by their dependence on a well-appointed cavalry, they might cease to trust in the promised aid of Jehovah; and, thirdly, that they might not be tempted to extend their dominion by such means, and then, by mixing with idolatrous nations, cease in time to be that distinct and separate people which it was His intention they should be, and without which the prophecies relative to the Messiah could not be fully accomplished. Thus in the book of Psalms, the horse commonly appears only on the side of the enemies of God's people; and so entirely unaccustomed to the management of him were the Israelites, at the period of their signal defeat of the Philistines and other idolatrous nations, that David, their commander and king, caused the greater part of the horses of the cavalry prisoners to be cut down, from his ignorance of any use to which he could apply them. In the reign of Solomon, however, a cavalry force was established, but to no great extent.

In the infant state of all nations, indeed, we can readily account for the

restrictive use of horses. A great deal of land that might be applied to the production of human food is requisite for their maintenance in all countries: and, in hot and sterile ones, the camel answered better, and was found ready at hand. It is true they were used in the armies of the ancient Greeks and Romans, which were not considered as complete without them. In Greece they were not so numerous; but in a war with the Italic Gauls, the Romans are said to have had no less than seventy thousand horses, and seven hundred thousand foot, to attack their formidable enemies.* The army of Xerxes, when reviewed by him at Dorsica in Thrace, after it had passed the Hellespont, is reported by Herodotus, contemporary with him, to have contained eighty thousand horse; but the judicious reader will be inclined to make considerable abatements from the boasted amount of that celebrated but ill-fated expedition resting as it does entirely on the authority of Grecian writers, who represented facts in the light the most unfavorable to their enemies, and the most glorious to their own gallant countrymen.

As, in the scale of excellence, the horse ranks first of all animals coming under the denomination of cattle, and, as Buffon justly says of him, "possesses, along with grandeur of stature, the greatest elegance and proportion of parts of all quadrupeds," it is not a matter of surprise, that, as an image of motive vigor, he should have been the subject of the chisel and the pencil of the first artists in the world, or that the description of him by the pen should have been not considered as unworthy the greatest writers of antiquity. But it is in his native simplicity, in those wild and extensive plains where he was originally produced—where he ranges without control, and riots in all the variety of luxurious nature—that we can form an adequate idea of this noble animal. It is here that he disdains the assistance of man, which only tends to servitude; and it is to a description of his release from this servitude, his regaining his natural liberty, that we are indebted for two of the finest similes of the immortal Greek and Roman epic bards. The return of Paris, with Hector, to the battle of Troy, is thus given in the sixth book of the Iliad:—

"Ὡς δ' ὅτε τις στατὸς ἵππος, ἀκοστήσας ἐπὶ φάτνῃ
Δεσμὸν ἀπορρήξας θείῃ πεδίοιο κμαίνων,
Εἰωθὼς γούεσθαι ἐϋρρεῖος ποταμοῖο,
Κυδιόων· ὑψοῦ δὲ κάρη ἔχει, ἀμφὶ δὲ χαῖται
Ὦμοις ἀΐσσονται· ὁ δ' ἀγλαΐῃφι πεποιθώς,
Ῥίμφα ἑ γοῦνα φέρει μετά τ' ἤθεα καὶ νομὸν ἵππων."

And Virgil is considered to have even exceeded Homer, in that splendid passage in the eleventh book of the Æneid, where Turnus, turning out fully accoutred for the fight, is compared to a horse that has just broken loose from his stall:—

"Qualis, ubi abruptis fugit præsepia vinclis,
Tandem liber equus, campoque potitus aperto,
Aut ille in pastus armentaque tendit equarum,
Aut, assuetus aquæ perfundi flumine noto,
Emicat, arrectisque fremit cervicibus alte
Luxurians; luduntque jubæ per colla, per armos."

It is impossible, at this distance of time, to fix upon the native country of the horse, as he has been found, in various forms, and of various sizes, in every region of the Old World. The difference in size is easily accounted for. The origin of all animals of the same species was doubtless the same in the beginning of time, and it is chiefly *climate* that has produced the change we perceive in them. Warmth being congenial to his constitution, and cold naturally injurious to him, he is produced in the most perfect form, and in the greatest vigor, when subject to the influence of the one, and not only diminutive, but misshapen and comparatively worthless, when exposed

* See DUNCAN'S *Discourse on the Roman Art of War.*

to the evils of the other. Buffon, however, is wrong in making the horse indigenous to Arabia, as is clearly proved by a reference to the Sacred Writings. In the reign of Saul, horse-breeding had not yet been introduced into Arabia; for, in a war with some of the Arabian nations, the Israelites got plunder in camels, sheep, and asses, but still no horses. Even at the time when Jerusalem was conquered and first destroyed by Nebuchadnezzar, Arabia appears to have been without horses, as the Tyrians brought theirs from Armenia. That the earliest available uses of the active powers of horses was adopted by the Egyptians, the same authority satisfies us; for we read in the fiftieth chapter of Genesis, that when Joseph carried his father's remains from Egypt to Canaan, "there went up with him both chariots and horsemen." One hundred and fifty years afterwards, the horse constituted the principal strength of the Egyptian army; Pharaoh having pursued the Israelites with "six hundred chosen chariots, and with all the chariots of Egypt." The earliest period now alluded to was 1650 years before the birth of Christ; and 1450 years before that event, the horse was so far naturalized in Greece, that the Olympic Games were instituted, including chariot and horse-races.

The origin of the native horse of our own country is now merely a question of historical interest, the discussion of which would not lead to much practical benefit. That experiments, founded on the study of his nature and properties, which have from time to time been made to improve the breed, and bring the different varieties to the perfection in which we now find them, have succeeded, is best confirmed by the fact of the high estimation in which the horses of Great Britain are held in all parts of the civilized world; and it is not too much to assert, that, although the cold, humid, and variable nature of our climate is by no means favorable to the production of these animals *in their very best form*, we have, by great care, and after a lapse of nearly two centuries, by our attention to breeding, high feeding, and good grooming, with consequent development of the muscles, brought them to the highest state of perfection (with one exception*) of which their nature is susceptible. They may be classed under the following heads, and treated of individually, viz. the Race-Horse, thorough-bred and not thorough-bred; the Hunter; the Hackney, for various purposes; the Charger; the Troop-Horse; the Coach, Chariot, and Gig-Horse; the Stage-coach and Post-Horse; and the Draught or Cart-Horse.

THE RACE-HORSE.

PROGRESSIVE IMPROVEMENT OF THE ENGLISH BREED.

Although we may safely pronounce that the native breed of English horses, however esteemed for other purposes, could not *race*, in the present acceptation of that word, yet it is equally obvious that they formed the parent stock of the renowned English Racer. The first step to improve it by a cross with Eastern blood, appears to have been taken by James the First, who gave the enormous sum (in those days) of £500 for an Arab stallion, which, however, the Duke of Newcastle, in his work on Horsemanship, (great authority at that time,) wrote down, on account, chiefly, of his comparatively diminutive size. At the Restoration, however, there appears to have been a tolerably good breed of horses in England, which Charles the Second improved by an importation of Barbs and Turks, whose blood was engrafted on the original stock, already very considerably ameliorated by the services of a stallion called Place's White Turk, imported by Oliver Cromwell's Master of the Horse, who bore that name; and afterwards by those of the Helmsley Turk, followed by Fairfax's Morocco Barb. The change

* The exception is the English cart-horse, as will be stated hereafter.

was at this time so visible, that the Lord Harleigh of that day expressed his fears lest it might be carried to such an extreme as to extirpate the strong and useful horse, which, perhaps, the majority of his countrymen were very well satisfied with before. In the latter end of Queen Anne's reign, however, the first great trump turned up, to secure future success. This was a stallion, called Darley's Arabian, purchased in the Levant, by a Yorkshire merchant of that name, although without any real attestation of his pedigree, or country. The prejudice against Arabians, and other Eastern horses, the effect of the Duke of Newcastle's anathema against them, having now, for the most part, subsided, a good deal of their blood had been infused into the mares of that day, when another stallion, whose services were still more signal, accidentally made his appearance. We allude to the Godolphin Arabian, as he was called, purchased out of a cart in Paris, and consequently of uncertain caste, but evidently the horse of the Desert; who, as will be hereafter shown, may be said to have won the game. Although at first thought so meanly of, as only to be used as a teazer, yet, fortunately for the Turf, he lived twenty years after his services became notorious (by the accident of his being the sire of a capital racer, out of a mare which the stallion to which he was teazer refused to cover,) and, strange to say, no very superior race-horse has appeared in England, for many years, that cannot be traced to his blood. The success of this horse was much facilitated by the lucky coincidence of his arrival in England at a critical time, that is to say, when the stock from Darley's horse, and the several Arabs, Barbs, and Turks, together with the royal mares imported by Charles the Second, had been "crossed," as the term is, on each other, and had produced mares worthy to be the channel of imparting his own transcendent qualities to posterity. Taking it for granted, then, that the English race-horse is descended from Arabian, Turkish, and African (Barb) blood; and also taking into consideration the various peculiarities in the form and power of each of those kinds, requiring modification of shape, qualities, and action suited to the purposes for which they were intended, it cannot be denied, that a task of no ordinary difficulty was imposed on the English horse-breeders, and that they have executed that task with a masterly hand. If other countries furnished the blood, England has made the race-horse.

With the exception of one Eastern horse, called the Wellesley Arabian, the grandsire of a winner of the Oaks in 1826, also of Dandizette, who ran second for that stake in 1823, and was the dam of Exquisite, who ran second for the Derby in 1829, the English Turf has benefited nothing, during the last half century, from the importation of foreign blood. The fact is, that having once gotten possession of the essential constitutional parts necessary to form the race-horse, and which will be described hereafter, we ourselves have, by a superior knowledge of the animal, *and the means of availing ourselves of his capabilities*, not only by rearing and training, but by riding him also, brought him to a pitch of excellence which will not admit of further improvement. Superior as is the air of the Desert, which is said to be so free from vapors, that the brightest steel is not affected with rust, if exposed to it for a night, to that of our humid and ever-varying climate; and propitious as it must be to animals found, *as the horse was found*, in the greatest perfection when reared in it; yet were the finest Eastern horse that could be procured brought to the starting-post at Newmarket, with the advantage of English training to-boot, he would have no chance at any weight, or for any distance, with even a second-rate English race-horse. It may not, however, be uninteresting to point out what are the essential racing points originally imparted to the horse of our own breed by these foreign stallions and mares, and without which they never would have arrived at any thing approaching the excellence which they have, for the last century, attained.

COUNTRY LIFE.

How often do we hear country ladies bewailing their lot, complaining of the monotony of a country life, and envying the destiny of such of their acquaintance as live in the turmoil and excitement of a town. Would our fair readers but explore the rich treasures of rational and pure enjoyment that are so profusely scattered around a country-house, they would be more apt to condole with than envy their sisters of the city. Our object, in these pages, will be to awaken in your minds an interest in the various works of nature, so thickly strown around you; to direct your attention to the birds, which build their nests, and sing their varied songs of love and joy in every tree, and bush, and shrub; to the flowers, which deck with their thousand hues the sunny bank and the fertile meadows, the parched heath and the rippling brook; and above all, to teach your thoughts to ascend from the admiration of the creature to the contemplation of the Creator, and in all your observation of the works of nature, "to look through Nature up to Nature's God."

Each season has its glories and its wonders. First comes Spring—animated by her genial breath, the whole face of nature changes; that which is now wrapped in the gloom and sleep of winter, will soon awake to renewed life and vigor, and all this will take place at first slowly and gradually. *Now*, then, is the time to commence your observations, before the multiplicity of objects distracts your attention and bewilders your ideas. You must acquire a *habit of observing;* not merely of looking and of seeing, but of intimately, narrowly *observing;* for be assured, that an observant Polyphemus, with his solitary eye, obtains far more information in one day than an unobservant Argus, with his hundred eyes, in a whole month. It is surprising how your interest in your daily walks will be increased, when you have gained an insight into the history, the uses, and the various objects which you meet with. No walk, at least no *country* walk, can be devoid of interest to a mind desirous of acquiring information. You will ever be meeting with something new to excite your admiration, ever falling in with something fresh, to impart instruction and to afford amusement. These country walks will give vigor to the mind, and health to the body; that which before was too frequently looked upon as a toil, will now be regarded as a pleasure; you will often be induced to take exercise in the open air, and the result will be a buoyancy of spirits, and a lightness of heart, and a cheerfulness of temper, which all your in-door amusements, and all your previous formal walks had failed to produce.

PROTECTION OF ANIMALS.

It has often afforded me much pleasure to observe the care which a kind Providence has taken for the better preservation of its creatures, by apportioning their splendor and beauty so as best to accord with their safety. This is observable in many varieties of birds, the males of which are furnished with plumage of the most beautiful description, while the females are of a dull earthy color. It is not difficult to assign a reason for this, and one which always gives me pleasure to reflect upon; for if so much care is taken by our Heavenly Father in the preservation of an insignificant bird, may we not, with the utmost confidence, look to the same source for protection, if we rightly and sincerely apply for it?

If hen birds, who sit and are exposed to the view of beasts and birds of prey, and of man, had the same gaudy colors as the male, they would presently be discovered and destroyed; whereas, by having plumage of a dull brown, or earthy color, they can scarcely be distinguished from the ground on which they sit, and they thus escape observation and destruction. This is particularly shown in the pheasant, peacock, and duck tribes. What can be more beautiful than the male bird of the golden pheasant? while the plumage of the female is so dull that it appears to belong to another species. The males of the duck tribe are remarkable for their fine plumage, whilst that of the females is a quiet brown; and the distinction between the peacock and peahen is still more conspicuous. The same observation applies to the chaffinch, yellow-hammer, and many other birds; while the plumage of the male and female of the falcon, swan, raven, owl, and other species, who are able to defend themselves, is the same.

The same protecting care is shown in the plumage of birds which are much preyed upon, such, for instance, as the common partridge and lark, which are not easily distinguished from the earth on which they are

sitting, or, as Mr. White calls it, "cowering and squatting," while a marauding hawk is hovering over them. The common house and wood pigeons would fall an easy prey to that bird if it were not for the amazing strength of their wing, which enables them to outfly and get away from it; while swallows, trusting to their wonderful agility, mob the hawk with impunity. Warblers, such as the nightingale, red-breast, fauvette, wren, &c., on the contrary, are pretty secure from its attacks, by sheltering themselves in thick hedges and bushes, and the quail and corncrake by seldom leaving the long grass and standing corn. One would almost suppose that, owing to this beautiful economy for the preservation of the weaker birds, the hawk would be unable to procure its food; but when one examines the wonderful symmetry of its shape, the beauty and brilliancy of its eye, and the swiftness of its flight, it will no longer be a matter of surprise that some birds and animals should be unable to make their escape from it. The hawk *sails* over heaths and moors, and preys upon young hares and rabbits, as well as snipes and other small birds, and, I believe, upon frogs and lizards; and frequently he hovers in the air for a considerable time till something disturbs a bird, when he immediately pounces upon it.

In examining the formation and habits of the kangaroo, and the nature of the country in which it is found, we shall be forcibly struck with the truth of what has been remarked respecting the beneficent provisions observable throughout the animal kingdom for the preservation of the various creatures which compose it.

Kangaroos inhabit a country where there are enormous tufts of the coarsest grass growing in swamps or marshy ground, several feet in height, and at a considerable distance from each other; or else they frequent rocky or bushy ground. By means of the great strength of their tail and hind feet, they can make bounds in succession of from twelve to twenty feet in length, and several feet in height, from one tuft of grass, or from one rock or bush, to another, and thus escape from their pursuers. Nor is this all; for such is the strength and rankness of the grass in New Holland, or at least in some parts of it where the kangaroo most abounds, that if they produced their young in the manner usual with other quadrupeds, they would either wander and be lost in the high grass, or, in case the dam was obliged to leave them to provide for her own safety, it would not be easy for her to find them again. By means, however, of an abdominal pouch, in which the young reside, and which they only occasionally leave either for exercise or amusement, they are never separated from their dam, who can make her escape with them in her pouch.

I have, however, been assured that those kangaroos which have been domesticated and bred in this country, are gradually losing the use of the pouch as a place of refuge for their young, that the size and strength of the tail is diminishing, and that they more frequently use all four of their feet in running. If this be really the case, I cannot but consider it as a strong illustration of the care taken by a beneficent Providence of its creatures, in furnishing them with the means best adapted for their relative conditions and situations in the protection of themselves and their offspring, and diminishing those means when they become no longer of the same importance to them.

How soon would the breed of cuckoos be extinct if they made their nests and hatched their own young as other birds do! The very peculiar cry of the cuckoo would instantly lead every marauder to their nests, and we should be deprived of that note which all the world listens to with pleasure, and which forms one of the varieties of pleasing sounds which enliven our springs and summers. The instinct, also, which leads a cuckoo to deposit its egg in the nest of that bird whose young, when hatched, are so small that the young cuckoo can master them, and whose food is most congenial with its nature, is very surprising. Thus we find the young cuckoo in the nests of the water-wagtail and the hedge-sparrow, whose young he contrives to eject from the nest as soon as they are hatched, as it would be impossible for the old birds to supply nourishment for the cuckoo as well as for their own young ones, especially as the former, as he increases in size, has a most voracious appetite. I had an opportunity of witnessing this in the case of a young cuckoo which was hatched in the nest of a water-wagtail, who had built in some ivy on a wall close to my house. It required the united efforts of both the old birds from morning to night to satisfy his hunger, and I never saw birds more indefatigable than they were. When the young cuckoo had nearly arrived at his full size, he appeared, on the little nest of the water-wagtail, "like a giant in a cock-boat." Just before he could fly, he was put into a cage, in which situation the old birds continued to feed him, till by some accident he made his escape, and remained in a high elm-tree near the house. Here the water-wagtails were observed to feed him with the same assiduity for at least a fortnight afterwards. This cuckoo was very pugnacious, and would strike with its wings and open

its mouth in great anger whenever I put my hand near him.

I am not aware that any naturalist has noticed the circumstance, that those birds who are necessarily obliged to be a longer time absent from their nests in search of food for themselves or for their young, make infinitely warmer nests than those who are able to procure their food more readily. Thus we see the duck, and many aquatic birds who have a voracious appetite, and have often to go over a considerable space of ground in search of food, and are consequently a long time absent from their nest, cover up their eggs with a prodigious quantity of down and feathers, in order to prevent their being chilled. In like manner, the long-tailed titmouse, (*Parus caudatus.*) who, having from twelve to fifteen young ones to provide for, must necessarily be a long time together away from them in search of food, so that she cannot herself impart the necessary warmth to her brood by sitting on them, as most other birds do, not only lines her nest with a profusion of the softest feathers and down, but makes it almost in the shape of a ball, with a small hole in the side to enter at, so that the young are effectually protected from cold in their snug abode. The thrush, on the contrary, which can so readily procure worms on a lawn or in a meadow, so that it is not necessary for both the parent birds to be absent in search of food at the same time, lines its nest with clay or cow-dung.

The nest of the rook, also, which is in an exposed situation, has but little warmth of lining in it; but then the hen seldom leaves it, and is fed, during the period of incubation, by the cock. He also provides food for the young till the hen bird can leave them with safety to assist him in his labors.

I should not omit noticing the nest of the common house-sparrow, which is of a large size, and completely filled with feathers; and, though they have not so many young to provide food for as the long-tailed titmouse, they have a most voracious progeny, it having been calculated that a pair of sparrows, during the time they have their young to feed, destroy above three thousand three hundred caterpillars in a week, besides other insects. It is, therefore, I think, evident that a more than usual degree of warmth is necessary to be provided in the nest of the sparrow, to enable the parent birds to leave their young with safety in search of such a prodigious quantity of food for them.

FIRESIDE EDUCATION.

Human society is composed of families. A family consists of husband, wife, children. This is not an accidental or arbitrary arrangement. The family compact originates in the necessities of our nature; has existed from the creation, and, by the good providence of God, will continue till the end of time. Accordingly, all attempts to encroach on the obligations, as well as the privileges, of the family relationship, have proved less or more nugatory, and must ever inevitably do so. What is the fundamental object of the family compact, is extremely evident: a due provision for the affections, and for the nurture and education of children—the latter insured by the permanence of the matrimonial engagement. Thus, by what we must call a primary ordination, father, mother, children, compose a community distinct in its character, and which all must recognise as essential to the subsistence and wellbeing of civil society. We have considered it necessary to state thus broadly at the outset, what appears to be the primary principles of human relationship; for there are not wanting parties who would endeavor to rear systems of society in which the family compact is to have no place, and parental care is to be absolved from its duties—a dream of the imagination, which the common sense of mankind will ever reject as visionary, and consider, for all good purposes, to be impracticable.

Whatever be the benevolence of plans propounded for the rearing of children apart from the parental roof, it cannot escape notice that they proceed on a misconception of what education really is. In the treatment which nature dictates, the child is to be cared for in various ways, and for these various ways education, to a certain extent, under the immediate direction of parents, is indispensable; in a word, Fireside Education is necessary to form the perfect being.

Fireside education is thus a wide and comprehensive thing: its enlightened object is to transform a weak, uninstructed child into a healthy and accomplished man or woman. What a variety of considerations are necessarily engaged in this onerous duty! The child is to be cared for physically; that is, as regards food, warmth, clothing, exercise, and, it may be, medical attendance. He is to be cared for morally; in which is involved the suppression of evil passions, the cultivation of the affections, kindness to animals, love of honesty and truth, and wor-

ship of the Divine Being. He is to be cared for intellectually; that is, he is to be instructed in all useful knowledge, in order that he may with advantage perform his part in society.

Any routine of education which does not embrace all these particulars, is of course imperfect. Education, as respects mere physical training, may produce a man healthful in constitution, and handsome in appearance, accomplished, possibly, in walking, riding, or in the performance of manual operations; but he who possesses no more education than this, is at best only an elegant savage. Gladiators, the knights of old, boxers, rope-dancers, and similar personages, furnished examples of this proficiency. Physical, united with intellectual education, but without moral training, produces a still more dangerous character; it is persons so educated who compose a large section of clever and designing criminals, also ambitious and unprincipled men in different ranks of society. Physical, with intellectual education, is pretty nearly the entire amount of culture imparted at hospital seminaries. No doubt at these institutions the pupils listen to moral admonitions, and repeat answers to questions on religious subjects; but that is not moral education, in the proper sense of the term, and therefore they necessarily are deprived of one of the most important elements of youthful culture.

Moral education may be guided by books and verbal admonitions; precept and persuasion are of undeniable utility; but, strictly speaking, moral culture is valueless unless principle is confirmed into habit. A child, for example, may be taught to commit to memory answers to an immense variety of questions, psalms, hymns, and passages of Scripture; and he may be made to know at the same time that it is sinful to steal, lie, or injure his neighbor; yet with all this, and apparently a paragon of learning, he may be little better than a heathen, and have no proper sense of applying his knowledge to the regulation of his own conduct. The true explanation of the phenomenon is, that the whole course of moral instruction has been a deceptive make-believe. The power of memory was evoked: but memory is not principle.

In infant schools, which are a species of enlarged and well-conducted family circles, the feelings and propensities are subjected to a systematic training, greatly to the advantage of children; and where parents are incapable of properly conducting home education, infant schools are indispensable. Independently of these valuable institutions, however, there is a lesser or greater necessity for family intercourse, and lamentable is the fate of that child for whom no domestic hearth offers its cheering influence. The fireside may be homely, or it may be dignified; but whether it belong to poor or rich, it may be equally a shrine of the affections, a scene of happiness, a school of the heart.

A school of the heart! In these words we arrive at the true operation of moral principle. The heart must be touched; the feelings affected; the baser propensities subdued; the higher emotions quickened; and all made love and joy within. And how can this be done? Only by moral and religious principle being confirmed by training and exercise, in reference to companions, parents, brothers, sisters, and other relations, as well as the general circumstances by which we are surrounded. The very act of loving and of consulting the feelings of those with whom we are domesticated, strengthens the tendency to well-doing. Nor are the incidents which occur in a family without their value. Births, deaths, meetings of relations, misfortunes, things joyful and things sorrowful, are all means of moral culture. So likewise, within the domestic circle, are acquired habits of order and perseverance, ideas of personal intercourse and courtesy, along with much familiar but useful knowledge. Recollections of a youthful and well-regulated home form also a source of refined gratification in after-life. How frequently has it been confessed that the remembrance of a father's solicitude and affection has acted like a perpetual beacon, in warning from vice! Old remembrances, however, centre chiefly round the mother. She is the divinity of the child, and was all in all to him, before he knew of any other object of veneration. What hosts of remembrances of this dear departed shade! Her early attention to all his little wants; her anxiety about his personal appearance and behavior, as she used to send him forth every morning to school; her attempts to shelter him from rebuke and punishment—perhaps her privations, her sufferings, in widowhood; her heroic struggles to maintain appearances, and get her boy forward in the world; her delight, finally, in living to see him in that position of respectability which for years had been the object of her most fondly cherished hopes; the tranquil close of her existence and dying blessing—all this, and much more, may be said to form an inextinguishable inheritance of pleasurable recollection—a fountain of feeling perpetually welling out, and irrigating those dreary wastes of hard, every-day toil and thought, which lie irksomely in the path of life.

Nor are the benefits of family intercourse

in their immediate or remote consequences confined to the children. "We are very apt to imagine that the family arrangement is entirely for the sake of the young—that the children are exclusively benefited; and that, if it is disturbed or set aside, the young, the children, are the only persons who suffer. On the contrary, it appears to me that the old are as much interested in this divine institution as the young—that it is as beneficial to parents as to children—and that any departure from it must bring a penalty upon the parents equal to any which the children can suffer. We are accustomed to hear much, and very justly, of the obligations which children owe to their parents. But while they very wisely impress this on their children, people are very ready to forget, or not remark, that as the child owes much to the parent, so the parent owes much to the child; that while he has been the object and receiver of good, he has also been the minister of good: and every loving thought, every toil, every sacrifice on the part of the parent, has received from day to day a return—a real and most precious reward. Surely those persons judge very erroneously, who imagine that all the care, trouble, and expense they lay out upon their children is so much capital sunk, and from which no return is to be expected till the child has grown to maturity, or at least till he has reached the years of discretion. We are very apt to reckon nothing a blessing which does not come to us in a material form; and so we sometimes undervalue or overlook our highest privileges, because they do not address themselves to our eyes, and cannot be felt or handled by us. To any one who observes and reflects, it will, I think, be evident, that the parent is as much the better for the child as the child is for the parent; that infancy, childhood, youth, bestow as much on manhood, womanhood, old age, as they derive from them; that this is an instance of that general law, that we cannot do good to others without getting good from them: in this field it is impossible to sow without reaping; for the same soil which receives the seed from the bountiful hand, returns it with increase. What blessings, then, are children the means of conveying to their parents? In other words, how is it needful, for the sake of the father and mother, as well as of their offspring, that the family life should be jealously guarded?

"The celebrated Lord Erskine has told us that he never robed himself to plead at the bar, but he thought he felt his children pulling at his gown; and if the history of human thoughts were legible to us as it is to the eye of God, we should doubtless find that multitudes of the greatest men—men who were great in the good which they were enabled to achieve, which is the truest greatness—drew their strongest stimulants from the families God had given them; and that, on the other hand, myriads who have lived usefully and well had been saved from vices to which they were prone by the consideration that these would involve in ruin those who were dearer to them than their own life. I might add a great deal more to show that those persons are in a grievous mistake who fancy that, however necessary the parent may be to the child, the child is not necessary or beneficial to the parent. It appears to me, on the contrary, that parents who do their duty, and keep their eyes open, will acknowledge that they have been amply repaid, day by day, for all their anxiety, labor, and pains; that the pleasures and instruction, the incitements to good, the salutary restraints which their children have supplied, the thoughts they have suggested, the feelings they have inspired, were cheaply purchased even with the cost and care of a family; and that children are not, as men buried in selfishness esteem, a mere tax and burden, but truly a promise and a blessing, as they have pronounced them who lived in the ages of faith."

So much we have thought it desirable to say on the general advantages of fireside in preference to any other species of management for the young; and we now proceed to the more special object of the present sheet.

We take it for granted at the outset, that parents desire to see their children grow up healthful, intelligent, honest, orderly, good-hearted—beings able to perform their part creditably in society, and a comfort to all connected with them. Attention to them from birth cannot insure these good results; but it will go far towards doing so. It is, at all events, the duty of every parent to do the utmost in his power to rear his children properly, if only to avoid future self-reproaches for his neglect.

Revenge Extraordinary.—A wag having had a dispute with a man who kept a sausage shop, and owing him a grudge, ran into his shop one day as he was serving several good customers, with an immense dead cat, which he quickly deposited on the counter, saying, "This makes nineteen; as you are busy now, we'll settle another time;" and he was off in a twinkling. The customers, aghast, soon followed him, leaving their sausages behind.

CURIOSITIES OF ART.

The interest excited by any product of ingenuity or skill must ever be comparative. The musket of the sailor is a matter of wonder to the savage, the steam-vessel a marvel to the Chinese, and the electric telegraph a curiosity to the British. Five hundred years ago our forefathers would have been as much struck as the South Sea islander with the feats of the musket; forty years ago steamboats were subjects of wonder to our countrymen; and soon we shall be as familiar with electric telegraphs as we are now with spinning machines, gas-light, locomotives, and steam-frigates—all of which were marvels and curiosities in their day. Since invention is thus ever active and progressive, we can regard as permanent curiosities of art only such products as exhibit vastitude or boldness of design, great ingenuity and perseverance in accomplishment, intricacy and complication of parts combined with harmony of execution, minuteness of proportions with delicacy of finish, and similation of living agency by inanimate mechanism. In this sense we intend to present the reader with descriptions of some of the more remarkable results of human ability, confining ourselves particularly to those of a mechanical character.

The earliest efforts of mechanical ingenuity in Europe were chiefly directed towards the construction of clocks, watches, and automata. In all of these, weights and springs were the prime movers, and the skill of the mechanic was expended in rendering the movements of his work as numerous and complicated as possible. They had no idea of applying their art to the great manufacturing operations so characteristic of the present age; not that they were unskilful workmen, but that they were ignorant of that agency which has developed our steam-engines, spinning-mills, printing-presses, and other machinery. Steam force was to them unknown. Their sole great moving power was falling water—a power attainable only in a limited degree, and, when attainable, not often in a situation to be available. It was thus that ingenious workmen so frequently devoted a lifetime to the construction of some piece of mechanism, which, after all, was only valuable as an amusing curiosity. Among the more remarkable of these were their clocks and time-keepers, some of which we may shortly advert to.

REMARKABLE CLOCKS AND WATCHES.

The famous astronomical clock of Strasburg, completed by Isaac Habrecht about the end of the sixteenth century, deserves a prominent place in our catalogue. It has been recently renovated by a M. Schwitgue, after four years' labor; but its original movements are thus described in Morrison's Itinerary:—"Before the clock stands a globe on the ground, showing the motions of the heavens, stars, and planets. The heavens are carried about by the first mover in twenty-four hours. Saturn, by his proper motion, is carried about in thirty years; Jupiter in twelve; Mars in two; the sun, Mercury, and Venus in one year, and the moon in one month. In the clock itself, there are two tables on the right and left hand, showing the eclipses of the sun and moon from the year 1573 to the year 1624. The third table, in the middle, is divided into three parts. In the first part, the statues of Apollo and Diana show the course of the year, and the day thereof, being carried about in one year; the second part shows the year of our Lord, and the equinoctial days, the hours of each day, the minutes of each hour, Easter day, and all other feasts, and the Dominical letter; and the third part hath the geographical description of all Germany, and particularly of Strasburg, and the names of the inventor and all the workmen. In the middle frame of the clock is an astrolabe, showing the sign in which each planet is every day; and there are the statues of the seven planets upon a circular plate of iron; so that every day the planet that rules the day comes forth, the rest being hid within the frames, till they come out of course at their day—as the sun upon Sunday, and so for all the week. There is also a terrestrial globe, which shows the quarter, the half hour, and the minutes. There is also the figure of a human skull, and the statues of two boys, whereof one turns the hour-glass, when the clock hath struck, and the other puts forth the rod in his hand at each stroke of the clock. Moreover, there are the statues of Spring, Summer, Autumn, and Winter, and many observations of the moon. In the upper part of the clock are four old men's statues, which strike the quarters of the hour. The statue of Death comes out at each quarter to strike, but is driven back by the statue of Christ with a spear in his hand for three quarters, but in the fourth quarter that of Christ goes back, and that of Death strikes the hour with a bone in his hand, and then the chimes sound. On the top of the clock is an image of a cock, which twice in the day crows aloud, and claps his wings. Besides, this clock is decked with many rare pictures; and, being on the inside of the

church, carries another frame to the outside of the walls, whereon the hours of the sun, the courses of the moon, the length of the day, and such other things, are set out with great art."

Another clock, celebrated for its curious mechanism and motions, is mentioned by Thompson, in his continental travels. It is placed in an aisle near the choir of St. John's Cathedral, at Lyons. On the top stands a cock, which every three hours claps his wings, and crows thrice. In a gallery underneath, a door opens on one side, out of which comes the Virgin Mary; and from a door on the other side, the angel Gabriel, who meets and salutes her; at the same time a door opens in the alcove part, out of which the form of a dove, representing the Holy Ghost, descends on the Virgin's head. After this these figures retire, and from a door in the middle comes forth a figure of a reverend father, lifting up his hands, and giving his benediction to the spectators. The days of the week are represented by seven figures, each of which takes its place in a niche on the morning of the day it represents, and continues there till midnight. But perhaps the greatest curiosity is an oval plate, marked with the minutes of an hour, which are exactly pointed to by a hand reaching the circumference, which insensibly dilates and contracts itself during its revolution. This curious piece of mechanism cannot be supposed to be so perfect in all its motions as it was formerly; and yet it has suffered as little as can be expected in a long course of years, through the care and skill of those appointed to look after it. It appears, by an inscription on the clock itself, that it was repaired and improved by one Nourison in 1661; but it was contrived, long before that time, by Nicholas Lipp, a native of Basil, who finished it in 1598, when he was about thirty years of age. The oval minute motion was invented by M. Servier, and is of a later date. The tradition goes that Lipp had his eyes put out by order of the magistrates of Lyons, that he might never be able to perform the like again; but so far from this being the case, the magistrates engaged him to fix at Lyons, by allowing him a handsome salary to take charge of his own machine.

There are other celebrated clocks—such, for example, as that of Lunden in Sweden, and of Exeter, in England—which, from the number and complication of their movements and figures, may well vie with those of Strasburg and Lyons. But these we pass over, to notice two which were made some years since by an English artist, and sent as a present by the East India Company to the Emperor of China. These clocks, says a contemporary account, are in the form of chariots, in which are placed, in a fine attitude, a lady leaning her right hand upon a part of the chariot, under which is a clock of curious workmanship, little larger than a shilling, which strikes and repeats, and goes eight days. Upon her finger sits a bird, finely modelled, and set with diamonds and rubies, with its wings expanded in a flying posture, and actually flutters for a considerable time, on touching a diamond button below it: the body of the bird (which contains part of the wheels that in a manner give life to it) is not more than the sixteenth part of an inch. The lady holds in her left hand a gold tube, not thicker than a large pin, on the top of which is a small round box, to which a circular ornament, set with diamonds, not larger than a sixpence, is fixed, which goes round nearly three hours in a constant regular motion. Over the lady's head, supported by a small fluted pillar no bigger than a quill, are two umbrellas, under the largest of which a bell is fixed, at a considerable distance from the clock, and seeming to have no connection with it, but from which a communication is secretly conveyed to a hammer that regularly strikes the hour, and repeats the same at pleasure, by touching a diamond button fixed to the clock below. At the feet of the lady is a dog in gold, before which, from the point of the chariot, are two birds fixed on spiral springs, the wings and feathers of which are set with stones of various colors, and appear as if flying away with the chariot, which, from another secret motion, is contrived to run in a straight, circular, or any other direction. A boy, who lays hold of the chariot behind, seems also to push it forward. Above the umbrella are flowers and ornaments of precious stones, the whole terminating with a flying dragon set in the same manner. These gifts were wholly of gold, curiously chased, and embellished with rubies and pearls.

More interesting, perhaps, than any of these, and yet of the simplest construction, and of the most common material, are the electric clocks lately invented by Mr. Bain, of Edinburgh. The prime mover of these machines is the electric currents of the earth, brought to bear upon the machinery, as thus described by a party for whom one of the earliest was constructed. "On the 28th of August, 1844, Mr. Bain set up a small clock in my drawing-room, the pendulum of which is in the hall, and both instruments in a voltaic circle, as follows:—On the north-east side of my house, two zinc plates, a foot square, are sunk in a hole, and suspended by a wire, which is passed through the house to the pendulum first, and then to the clock. On the south side of the house, at a distance

of about forty yards, a hole was dug four feet deep, and two sacks of common coke buried in it; among the coke another wire was secured, and passed in at the drawing-room window, and joined to the former wire at the clock. The ball of the pendulum weighs nine pounds; but it was moved energetically, and has ever since continued to do so with the self-same energy. The time is to perfection; and the cost of the motive powers was only seven shillings and sixpence. There are but three little wheels in the clock, and neither weights nor spring, so there is nothing to be wound up." Many of these ingenious clocks have been since constructed, and an illuminated one, projected from the front of Mr. Bain's workshop, in Edinburgh, moves, as the inhabitants can testify, with the utmost regularity. One great advantage of this invention is, that, supposing every house in a city provided with the simple apparatus before referred to, one electric current could keep the whole in motion, and thus preserve the most perfect uniformity of time.

As a sequel to these curious clocks, may be mentioned some watches, remarkable either for the minuteness of their proportions, or the intricacy of their parts. In the Annual Register for 1764, it is stated that Mr. Arnold, a watchmaker in London, had the honor to present his majesty, George III., with a curious repeating watch of his own construction, set in a ring. Its size was something less than a silver twopence; it contained one hundred and twenty-five different parts, and weighed altogether no more than five pennyweights and seven grains. Another, still more curious, is mentioned by Smith, in his "Wonders," as belonging to the Academy of Sciences at St. Petersburg. The whole is about the size of an egg, within which is represented our Saviour's tomb, with the stone at the entrance, and the sentinels upon duty; and while a spectator is admiring this ingenious piece of mechanism, the stone is suddenly removed, the sentinels drop down, the angels appear, the women enter the sepulchre, and the same chant is heard which is performed in the Greek church on Easter eve.

To this list, if our space had permitted, we might have added accounts of some curious clocks constructed by Grollier and others, in which the motions were either hid, or so complicated as to deceive the observer; of some that were made to go by their own weight, or by the hidden power of the magnet; of some that were employed to indicate the force and position of the wind, the vigilance of sentinels, &c.; and of others which were applied to the movement of those intricate and curious instruments known by the name of planetariums and orreries. Had it not been for the same reason, odometers, for measuring distances travelled over, and set in motion by the limbs of the traveller, gas metres, and other self-registering apparatus, might have also come in for a share of description, as not only evincing great skill and ingenuity, but on account of the practically useful purposes to which they are applied.

BROOMS.

The best brush for our carpeted floors is a long-handled one, with rounded ends, the hairs very stiff, and about as long as those in a clothes brush. This, at all events, will suffice for the purpose six days out of the seven, so that only once a week, instead of every day, the use of the genuine carpet broom may be permitted. Two house-brooms should always be provided, one for the sleeping apartments, (which should be kept up stairs,) and one for the kitchen; and these, indeed *all* brooms, should have round ends; we deprecate those which are usually seen with ends sharp and square, that seem to have been invented expressly to chip the paint from the skirting boards.

Housekeepers, however inexperienced, it is presumed, are aware that whalebone is too frequently manufactured into brooms, which are sold as hair; nor will it be requisite to inform them, that the former material is far inferior to the latter in durability. It is not easy for an inexperienced eye to detect the fraud. The chief differences between hair and whalebone are, that the former is elastic, while the latter, if bent, retains the bend; that hair is round and whole to the end; whalebone, on the contrary, looks merely *shred*, and the points are split. A hearth-broom, for a common sitting-room, should always be composed of black hair, for the obvious reason, that being frequently used, it so often would require to be washed, if the hair were white. A hearth-brush should always be provided for the kitchen; a servant then will have neither excuse nor pretence to make use of the long-handled broom to sweep the bars of the grate—a practice too frequently adopted, to the speedy destruction of the utensil. For lofty staircases, a "Turk's head" is used, in order to detach cobwebs from corners that are too high to be reached by means of the usual house-broom.

THE WIFE TO HER HUSBAND.

The following admirable lines, from the pen of an American lady, a member of the Society of Friends, appeared some years ago in the Sunday Times newspaper. We are told that the poem was found in the house of a tippling gardener, whom it had the happy effect of winning from the haunts of dissipation to his own domestic hearth.

"You took me, William, when a girl,
Unto your home and heart,
To bear in all your after-fate
A fond and faithful part;
And tell me, have I ever tried
That duty to forego,
Or pined there was not joy for me
When you were sunk in wo?

No; I would rather share *your* tear,
Than any other's glee,
For though you're nothing to the world,
You're ALL THE WORLD TO ME.
You make a palace of my shed,
This rough-hewn bench a throne;
There's sunlight for me in your smiles,
And music in your tone.

I look upon you when you sleep—
My eyes with tears grow dim,
I cry, 'Oh Parent of the Poor,
Look down from heaven on him;
Behold him toil from day to day,
Exhausting strength and soul;
Oh look with mercy on him, Lord,
For thou canst make him whole!'

And when at last relieving sleep
Has on my eyelids smiled,
How oft are they forbade to close
In slumber by our child?
I take the little murmurer
That spoils my span of rest,
And feel it is a part of thee
I lull upon my breast.

There's only one return I crave,
I may not need it long,
And it may soothe thee when I'm where
The wretched feel no wrong:
I ask not for a kinder tone,
For thou wert ever kind;
I ask not for less frugal fare,
My fare I do not mind;

I ask not for attire more gay—
If such as I have got
Suffice to make me fair to thee,
For more I murmur not.
But I would ask some share of hours
That you on clubs bestow,
Of knowledge which you prize so much,
Might I not something know?

Subtract from meetings amongst men
Each eve an hour for me;
Make me companion of your soul,
As I may safely be.
If you will read, I'll sit and work;
Then think when you're away;
Less tedious I shall find the time,
Dear William, of your stay.

A meet companion soon I'll be
For e'en your studious hours,
And teacher of those little ones
You call your cottage flowers;
And if we be not rich and great,
We may be wise and kind,
And as my heart can warm your heart,
So may my mind your mind."

SEPTEMBER.

I BEAR a special love to sweet September,
Though people say partialities are wrong,
From youthful January to old December
No month I love with love so true and strong.
The year hath got its richest ripeness then,
Like womanhood when in its perfect prime
And comeliness, before the hand of Time
Hath lined the forehead with his furrowing pen.
September's lap is full, and plenty reigns
To recompense the toiler for his pains
And feed the poor. A pleasant look hath she—
Such as the children love to see upon
Their mother's face, when they her smile have won:
Let others choose their love—September pleases me.

MACKELLAR.

RECEIPTS.

To Destroy Cockroaches.—If your correspondents will try the following simple plan, I will warrant them that every beetle and cockroach will shortly disappear, and that the kitchen will not be again infested. Add about a teaspoonful of powdered arsenic to about a tablespoonful of mashed boiled potatoes; rub and mix them well together, and then crumble about a third of it, every night at bedtime, about the kitchen hearth; it will be eaten up, or nearly so, by the following morning. The creature is very fond of potatoes, and devouring them greedily, crawls again into its hole and perishes. I had occasion to have some alterations made in the kitchen stove six months after I pursued this plan, and found hundreds of wings and dead mummies of defunct cockroaches. Their disappearance was not attended with the slightest perceptible smell, and though five years have elapsed, not one has again been seen in my kitchen. In putting it into practice, any remaining crumbs should be swept up the next morning.—F. H. Horner, M. D.

We have tried the foregoing, and found it perfectly effectual.—*Downing's Horticulturist.*

To Remove the Turnip Flavor from Milk or Butter.—Dissolve a little nitre (saltpetre) in spring water, which keep in a bottle, and put a small teacup-full into eight gallons of milk, when warm from the cow.

To Perfume Linen.—Rose leaves dried in the shade, cloves beat to a powder, mace scraped; mix them together, and put the composition into little bags.

To Clean Flint-glass Bottles, Decanters, &c.—Roll up in small pieces, some white, brown, or blotting paper; then wet and soap the same; put them into the vessel with a little lukewarm water, shake them well for a few minutes, then rinse the glass with clean water, and it will be as bright and clear as when new from the shops.

Celery Sauce, for Roasted or Boiled Fowls.—Take a large bunch of celery, wash it very clean, cut it into little thin bits, and boil it softly in a little water till it is tender; then add a little beaten mace, some nutmeg, pepper and salt, thickened with a good lump of butter rolled in flour; then boil it up and pour it in your dish. You may add half a pint of cream, a glass of white wine, and a spoonful of catsup. For brown celery sauce, omit the cream, and use red instead of white wine.

Mrs. G.'s Famous Buns.—One pound and a half of flour, (a quarter of a pound left to sift in last,) and a half a pound of butter cut up fine together; then add four eggs beat to a high froth, four teacups of milk, half a wineglass of brandy, wine, and rose-water, each, and one wineglass of yeast; stir it all together with a knife, and add half a pound of sugar, then sift in the quarter of a pound of flour, and when the lumps are all beaten smooth, set them to rise in the pans they are to be baked in.

Biscuits.—A pound and a half of flour made wet with equal quantities of milk and water moderately warm, made stiff, and rolled out very thin; cut them to any size you please, prick them, and bake them in a moderate oven on a tin. No flour to be put on the tins or biscuits.

A Quickly Made and Cheap Cake.—Five eggs, leaving out two whites, and beaten separately, the whites to a froth; five ounces of sugar dissolved in three parts of a wineglass of water, put into a saucepan to boil, and pour the dissolved sugar, boiling, into the eggs; when nearly cold, mix in a quarter of a pound of flour by degrees. Three quarters of an hour in a quick oven will bake it.

A Plain Lemon Pudding.—The juice of three lemons, the peel of one rubbed off with sugar, six ounces loaf sugar powdered, (excepting what has been used for the lemon peel,) a good sized teacup-full of bread crumbs; while it is soaking together, beat up four eggs, leaving out two whites; melt one ounce of fresh butter, and mix all well together; line and edge a dish with puff-paste, pour in the above, and bake in a quick oven for three quarters of an hour.

A Baked Apple Pudding.—Butter a pie-dish and line it with crumbs of bread, then place a layer of apple (cut as for pie) in the bottom of the dish, sprinkle it with moist sugar, then a layer of crumbs, and so on alternately till the dish is filled, ending with a *thick* layer of crumbs; pour melted fresh butter over it, and bake for an hour.

To Make Blacking.—Three ounces of ivory black, two ounces of treacle, half an ounce of vitriol, half an ounce of sweet oil, quarter of a pint of vinegar, and three quarters of a pint of water. Mix the oil, treacle, and ivory black gradually to a paste, then add the vitriol, and, by degrees, the vinegar and water.

The Plough, the Loom, and the Anvil.

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FREE TRADE WITH ENGLAND,

AND ITS EFFECTS ON THE FARMERS AND PLANTERS OF THE WORLD.

THE more thoroughly it shall be examined, the more fully will it be seen that the doctrine taught by the patriot Jefferson, when he said that "we must now place the manufacturer by the side of the agriculturist," is in accordance with the common sense of mankind. Everywhere throughout the world the producer desires to have the consumer settle near him, and he "rejoices in the arrival of the blacksmith and the shoemaker, because they come to eat on the spot the corn which heretofore he has carried ten, twenty, or thirty miles to market, to exchange for shoes for himself and his horses. With each new consumer of his products that arrives he is enabled more and more to concentrate his action and his thoughts upon his home, while each new arrival tends to increase his *power* of consuming commodities brought from a distance, because it tends to diminish his *necessity* for seeking at a distance a market for the produce of his farm."—*Carey's Past, Present and Future*, p. 301.

The landowner who makes a lease, inserts a provision that no hay shall be sold off the ground, or, that if it be sold, an equivalent quantity of manure shall be returned. He desires to have the consuming ox take his place by the side of the producing man, because common sense teaches him that constant cropping of the land, returning nothing back to the great giver, must be followed by exhaustion of the land, to be itself followed by exhaustion of the man who cultivates it; while experience teaches him that where the manure is regularly returned back upon the land, its powers increase and crops become large, and the tenant grows rich and is enabled to increase in quantity and improve in quality the machinery of cultivation, to the advantage of himself and his landlord.

If we desire to find the true policy of nations, we need only to study what it is that the individual man of good practical common sense is prompted to do, and what he does when left to determine for himself his course of action. We never find such a man selling all his hay and buying no manure. We find, on the contrary, that he buys manure, and marl, and lime, and that his farm increases in its productive power the more he takes from it. If we look to his spendthrift neighbor, we see him selling hay and buying no manure, while the marl and the lime are permitted to remain where nature placed them, underlying the poor land from which he runs away, as may now be seen in Virginia and South Carolina.

England has marl and lime in abundance, and much of them she uses—and yet she employs fleets of ships in bringing manure—*guano*—from abroad. She knows the value of manures, and every individual man practises upon that knowledge, yet the community of England teaches to all the rest of the communities of the world, that they are to be enriched by bringing to her *their* wheat, and *their* corn, and *their* rye, and *their* oats, and *their* rice, to be eaten on *her* ground, giving her the manure yielded by the food of man, while wasting on the road that yielded by the food of animals—and her whole

colonial system is based upon the idea of compelling subjects to do that which free men would never voluntarily do. Therefore it was that these United States threw off her yoke, for the stamp tax, and the tax on tea, would not alone have produced the Revolution. With freedom came protection against the error of her system; with protection came wealth and strength, because with it came the power of returning to the land what was taken from the land. The result may be seen in the following remarks of a distinguished member of parliament, in a recent debate in the House of Commons.

"For what purpose do we keep 9000 troops in North America? [*Hear, hear.*] Is it to protect the colonists against the United States? But if they are loyal at heart they are strong enough to protect themselves; if they are disloyal, thrice 9000 men will not keep them down. [*Hear, hear.*] But suppose they were to separate from us, and to form independent states, or even to join the United States, would they not become more profitable as colonists than they are at present? [*Hear.*] The United States of America are, in the strictest signification of the word, still colonies of Great Britain, [*hear.*] as Carthage was a colony of Tyre, and the cities of Ionia and Sicily were colonies of Greece; for the word colony does not necessarily imply dependency, but merely a community composed of persons who have removed from one country and settled in another, for the purpose of cultivating it. [*Hear, hear.*] Now our colonies (as I will term them) of the United States are in every point of view more useful to us than all our other colonies put together. [*Hear, hear.*] In 1844 we exported to the United States produce and manufactures to the value of £8,000,000—an amount equal to the whole of our real export trade to all our colonial dominions, which we govern at a cost of £4,000,000 a year; while the United States costs us for consular and diplomatic services not more than £15,000 a year, [*hear, hear.*] and not one ship of war is required to protect our trade with the United States."

Such is the fact. The United States are more valuable to England than any colony, and the reason therefor is to be found in the fact that they became independent, and protected, in a small degree, their own industry. The farmer who lives at a distance from the blacksmith, the shoemaker, the carpenter, and the wheelwright, is a very poor customer to the storekeeper, while he who is surrounded by blacksmiths, and shoemakers, and tailors, and wheelwrights, and carpenters, buys largely of cloths, and perhaps of silks. The one wastes labor and manure, while the other economizes both, and every man thrives by the prosperity of his neighbors, while every man suffers from the improvidence and waste of those by whom he is surrounded.

The system of England is injurious to herself and to the world, because it tends to compel men throughout the world to waste in the work of transportation that labor which might beneficially be applied to the work of production—to compel men, and women, and boys, and girls, and horses, and wagons, to stand idle because of the want of employment for their days, and weeks, and months, when they cannot be employed in the work of the farm—and to compel the planter to give five bales of cotton produced by great labor bestowed on a very costly machine, in exchange for one bale of cotton converted into cloth by aid of a comparatively inexpensive machine, and therefore to remain poor, when, but for her interference, he might have two bales of cloth in exchange for three bales of cotton converted into cloth by men who ate upon the ground upon which it was produced the food required for their nourishment, giving back to the earth the refuse of its products, and thus enriching both the land and its owner. It is the system of exhaustion and impoverishment, and therefore it is that England requires colonies where people can be *compelled* to send their rice and their cotton, their wheat and their wool to her—the former to be eaten by the men who convert the latter into cloth—and therefore too it is that every colony and every country that enjoys "free trade" with England is in a state of ruin.

Of all the countries of Europe there is none that has been so closely connected in trade with England as Portugal. To gain a market for her wines the latter made the celebrated Methuen treaty, by which she abandoned her

manufactures, and placed the consumer at a distance from the producer. From that hour Portugal has declined, and she is now at the bottom of the list of nations. Her name is synonymous with poverty and wretchedness, yet she has a soil and a climate capable of yielding in abundance every thing needed for the supply of the wants of man, and that will do so whenever she shall determine to free herself from the yoke of England.

Canada possesses, it is said, the finest wheat-growing land on this continent, yet it is almost valueless, while inferior land on this side of the imaginary line that constitutes the boundary, changes hands frequently at prices five times greater than could be had for that which is better in townships immediately adjoining, as may be seen by reference to Lord Durham's Report, an extract from which was given in our last. (See page 179.) Why is it so? Some would say—because we elect our presidents and governors, while the Canadians do not; but the real cause is that the Canadian cultivator is dependent *entirely* on foreign markets, and he is compelled to waste in the work of transportation the labor that should be applied to that of production, and he loses his manure on the road and in the foreign markets to which he sends his products, while eaten up by commission merchants and ship-owners, and so must he continue to be while he remains a subject of England. The annexation of Canada to the Union would treble the value of every foot of her land, because the producer would then be, to a certain degree, protected in his efforts to seduce the consumers of his products—the shoemaker, the blacksmith, the iron founder, and the coal miner—to come and sit down near him.

Ireland is ruined. Her people have no manufactures, nor can they have any while subject to the control of England; and until they shall have them, they must continue to waste more time than would make all the iron and all the cloth made in Britain, while wasting on the road and in distant markets all the manure yielded by their products. With each step in her downward progress, Ireland becomes a poorer customer, and the time is probably not far distant when she will be emancipated, because of the cost of governing her being far greater than the amount that can be wrung from her by taxation.

India is ruined. Free trade with England destroyed her manufactures, and the richest of her lands have relapsed into *jungle*, while the miserable cultivator of cotton raises on the high lands poor crops that his equally miserable cattle are unable to carry or drag through the "rich black clay" that lies between him and the Ganges. In the following extract from a paper on India, by an enthusiastic advocate of free trade, may be seen the effects of the colonial system.

"Looking to our Indian empire, we cannot but be struck with the singular facilities which—in climate, soil, and population—it presents to the commerce of Great Britain. At first sight, it seems to offer every thing that could be devised, in order to induce to a commercial intercourse almost without limit. There is scarcely one important article of tropical produce which is consumed in this country, either as the raw material of our manufactures, or as an article of daily use, for the production of which India is not as well, or better, adapted than any other country; while its dense and industrious population would seem to offer an illimitable demand for our manufactures. Nor are there opposed to these natural and flattering elements of commerce any fiscal restrictions to counteract their beneficial results. Indian produce has long entered into consumption in the home markets on the most favorable terms; while, in the introduction of British manufactures into India, a very moderate duty is imposed. Yet, notwithstanding all these advantages, it is a notorious fact, deducible alike from the tendency which the supply of some of the most important articles of Indian produce show to fall off, and from the stagnant, or rather declining, state of the export of our manufactures to those markets—and, perhaps, still more so, from the extremely unprofitable and unsatisfactory result which has attended both the export and import trade with India for some time past,—that there exist some great and serious impediments to the realization of the just and fair hopes entertained with regard to our Indian trade."—*Economist.*

These men *think* that free trade with them *should* bring wealth. They *see*, however, that it *does* bring with it poverty, famine, and pestilence, and they cannot understand it. They do not yet see that it has been the object of their whole system to bring about a separation between the producer and the consumer, and thus produce a state of things in the highest degree unnatural. They are unable yet to see that it is to the fact that the system is unnatural, are due its costliness and its instability, requiring for its maintenance large fleets and armies and heavy taxes, and being liable to perpetual revulsions, producing ruin abroad and at home.

Let us turn to the West Indies, and what do we see there but ruin? It is ruin everywhere, and it must continue to be ruin in every country that is unable to protect itself.

We have said that every man profits by his neighbor's prosperity, while every man is injured by that which injures his neighbor. How is it with England? Does she profit by the ruin of her neighbors? Let the experience of the last twelve months answer the question. She has above a hundred millions of *unprotected* subjects, and the market of the *partially protected* United States is the only one to which she can look with hope in her distress, and the reason why she can do so is *that it has been protected.* Her people are in poverty and distress. Rags and nakedness abound, and famine and pestilence sweep off hundreds of thousands, while the land of the United Kingdom, properly cultivated, is capable of yielding abundant food and raiment to a population five times greater than is there collected. Her system is one of exhaustion abroad and at home. She taxes the world for its maintenance, and she wastes on fleets and armies five times more than the product of those taxes.

Free trade should exist throughout the world, and it would exist, were *the people* of the world left at liberty to manage their own affairs. Were the people of England and Ireland masters of their own destinies—were they so happy as to be as free as are those of the United States—fleets, and armies, and colonies would disappear, and the land would be carefully and universally cultivated, and the prices of labor and capital would rise; and then there might be free trade, for then would the system become as steady as would be that of this country, but for the perpetual revulsions in the affairs of the great broker who insists upon being the universal manufacturer and exchanger for the world, and breaks himself every fourth or fifth year, spreading ruin and desolation around, and then heaping maledictions on the people of other nations whom he has ruined. Free trade will come, with all its blessings, when that system shall be at an end, but not till then. Those who most desire that it shall come, should stand foremost in advocacy of the measures that will tend to bring it to an end, and should most desire to see those measures complete and effectual. Of all the nations of the world there is none that now can exercise so much power for that purpose as the United States. The tariff of 1842 was doing the work, and had it been established as the act of *the whole people*, this country would be this year producing almost a million of tons of iron, and consuming eight hundred thousand bales of cotton, and all the wool that could be produced, and the producers of iron, and coal, and cloth, would be eating the corn, and the potatoes, and the turnips, and the cabbages, and the veal, and drinking the milk of the farmer who would now be rejoicing in the universal prosperity, and praying to the Almighty Giver of all good things for good crops for the famished people of Ireland, instead of, as now, praying for the appearance of the potato-rot that he may find a market for his vast surplus of food. Concentration makes the food come from the rich soils of the earth, and with it men grow rich, and industrious, and moral, and they become more enlight-

ened and more free. Deconcentration drives men to begin on the poor soils of the earth, and with each step of its progress men become poorer, less industrious, less temperate, less moral, less enlightened, and more and more a prey to demagogues who desire to enrich themselves at their expense. The policy of 1842 was that of concentration. That of 1846 is that of deconcentration, as may be seen in the records of closing factories, and abandoned mines and furnaces.

WOOL AND WOOLLENS.

The following extract from a letter that has been communicated to us will have interest for our wool-growing readers:

"In consequence of the great commercial crisis in Europe the last year, with the political troubles of the present, this country has been filled with foreign woollen fabrics, on which great sacrifices are being made; a large portion of these goods belong to bankrupt estates, and they must be sold whether they return 25, 50 or 75 cents on the dollar of their value abroad.

"Very large sales of American woollen goods are being made at auction in New York, at prices far below their cost. It is perfectly settled that there are more woollen goods in the country than can be consumed the present year, and the manufacturers have wisely adopted the policy of stopping a portion of their works. A hard contest has commenced between the foreign and home manufacturers, which is as sure to result in favor of the latter as that the sun will pursue his wonted course. Although the money pressure has lasted more than ten months in this country, there have been no failures among manufacturers, while in Europe the failures have been for millions in the same time. These facts induce me to believe that the statement made by Mr. Lawrence, of Lowell, to Mr. Randall, (see 1st No. of *The Plough, Loom, and the Anvil,*) was not too strong, viz.: 'The business of manufacturing wool in this country is on a better basis than ever before, inasmuch as the character, skill, and capital engaged in it are such that foreign competition is defied.' This is strong language to be used in a country just starting into life in the cultivation of the useful arts."

From the foregoing it is palpable that the wool-grower must take his share in this contest. The low prices of goods, and suspension of a large amount of machinery, must reduce the value of wool below the cost of production. This is a temporary state of things, and we entreat the wool-growers not to do as they have formerly done in times of depression, break up their flocks and go into something else.

"Never give up," should be the motto of every American when engaged in a good cause.

Let them, on the contrary, set their shoulders to the wheel, determined *to take for themselves* the protection that is needed to enable them to compel the woollen machinery and the men who drive it to come and take their place by the side of their ploughs, and thus enable them to pay for their cloth in the spare, and now wasted, labor of themselves, their sons and daughters, their horses and oxen, their carts and wagons—and in potatoes, and turnips, and hay, of which the earth yields by tons—obtaining back from the consumer not only the cloth but the refuse of the products of the earth, by aid of which their poor lands may be made rich, while the rich ones are made richer by aid of careful cultivation and drainage.

Of all the labors of the farmer, there is none that would yield so largely as the cultivation of sheep, but there is none in which it is more necessary to have the consumer to take his place by the side of the producer. A steady

market for fresh meat would double the value of his flocks, but mutton is a meat that cannot be preserved. Beef, and pork, may be salted, but veal and mutton must be eaten where they are killed. Let the wool-grower then offer a premium to the mutton eaters of England, to come with their machinery and sit down by him, and he will, in a few years, make this country, as it should be, the great wool-growing, and the great wool manufacturing, country of the world, and then the necessity for protection will be at an end. Seeing what has been done, who can doubt that if the tariff of 1842 had been made the great national measure of the planters and farmers, the production and consumption of wool would be, even at this moment, almost double what it is.

There is not a wool-grower, nor a cotton-grower, nor a corn-grower, in the country, that would not pay towards having a road made to enable him to get to market in less time, and at less cost. Every man wants to get the consumer as near him, in point of time and expense, as possible, and yet the present policy of the country, advocated by both farmers and planters, is that of driving our present consumers to the west—there to become themselves producers—and replacing them by other consumers who are so distant that the cost of transport and exchange eats up the chief part of the product of labor.

Every man would pay for making a road by which to get his produce to market, *there to lose the manure, exhausting his land*—but when they are advised to bring the market to their sides, that they may *save the manure and enrich the land*, each man calculates how much his shirt would cost him at five cents a yard, and compare it with the six cents that he might for a time have to pay to the weaver in his neighbourhood, forgetting that when the consumer is on the land the land becomes enriched by his presence, because he enables the farmer to give his attention to the raising of those things of which the earth yields largely, whereas when he is at a distance he must be fed with those things of which the earth yields by bushels.

Wherever there exists a market for milk, and veal, and mutton, and eggs, and turnips, and cabbages, farmers grow rich. Let then the farmer labor to seduce the consumers of those commodities to come and take their place by his side. The loom and the anvil are the best aids to the labor of the plough.

THE MARYLAND INSTITUTE, FOR THE PROMOTION OF THE MECHANIC ARTS,

Announces to the public that its first exhibition of American manufactures will be opened at Washington Hall, in the City of Baltimore, on Tuesday, the 31st of October, 1848.

We further state that we will hold a Cattle Show and Fair, in connection with the Mechanical Exhibition, and that a suitable place will be provided for the exhibition of Stock, the Products of the Farm, Dairy, Garden, &c. Farmers, Planters, and Horticulturists are particularly requested to give their countenance and aid to this part of the enterprise. The exhibition of Stock, &c., connected with the Cattle Show will commence on Wednesday, the 9th November, and continue two days. The Ploughing Match will take place on Thursday, the 10th.

Adam Denmead, *Chairman.*

Board of Managers.

Joseph K. Stapleton,	Fielding Lucas, Jr.,
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William Peters,	William Fergusson,
William Minifie,	Thomas J. Clare,
Thomas Trimble,	Ross Winans,
Washington Page,	Elijah Stansbury, Jr.,
Amos Gore,	C. W. Bentley,

Samuel Sands, *Secretary.*

We regret not having had our attention called to the above in time to give the whole programme of the Institute and its exhibition, accompanied with such remarks of feeble encouragement as it might be in our power to express. Two things are certain—the object is highly patriotic and praiseworthy—and so far, it is in the hands of working men; and if they do not command success, we will venture to predict *they will endeavor to deserve it.* We hope this institute may never dwindle into a stock buying, stock-jobbing concern, or swell into a soap bubble, which owes its elevation to its lightness, and which nothing but the power of self-puffing could keep afloat. Let them not open a great *omnium gatherem* or curiosity shop, to serve as a place of advertisement for all who choose to stuff it to overflowing, from year to year, with the same things—but let them appoint committees, of high-minded, honorable, *qualified* men, in no way connected with or interested in the Institute as a money or patronage concern; and let these committees report, fairly and rigidly, as to each department, whether there be, from time to time, any real bona fide valuable improvements in particular productions of mechanical and manufacturing industry; and *in what these improvements really consist.* We have no time or space for another word, except to wish the Institute, guided as this is by plain practical men, may meet with all the success they anticipate and more.

THE FARMER'S PROTECTION STILL TOO GREAT.

We invite the attention of the farmers and planters of the Union to the following, which we take from one of the leading "free trade" papers of the day.

"The fall business opens rather slowly. There are many Southern and Southwestern buyers in town, but they do not evince much avidity in making purchases. The supply of domestic goods is very considerable, and the assortments varied and desirable; but the supply of foreign goods is not so abundant—the importation being not so large in proportion to the business as was expected. *It may be, that even the present tariff is too high to act beneficially either for the revenue or the welfare of trade.* The exports of domestic goods from this port for August are 3087 packages, against 1863 last year."

With the closing of cotton-mills, and woollen-mills, and furnaces, and rolling-mills, the price of labor, and of cotton, and of wool, has fallen, and the power of consumption has diminished, and we are seeking in foreign lands a market for the goods that we cannot retain at home, and we *therefore* import less. The advocates of the existing system are disappointed, but they are unable yet to see that every increase in the distance between the farmer and planter and their customers, tends to impoverish the farmer and his land at one and the same time, and they think that they have not yet gone far enough. With another step, more mills and furnaces will be closed, and more men will be driven to the west to raise food instead of remaining at home to consume it, and food and cotton will become cheaper, and land will become more rapidly impoverished, and the power of consumption will be still further diminished, and it will then again be found that "the tariff is still too high." The whole of the present policy of the nation tends to impoverish the cultivator and the land he cultivates, because it produces waste of labor and manure, and yet its leading advocates are the planters and farmers, who would be enriched by the adoption, as a great national measure, of the policy of concentration.

DRAUGHT.

The powers of horses and other beasts of draught have been, especially in Ireland, applied within a few years with much more effect than formerly. The same description of horse which, twenty years ago, pulled 6 cwt. or 7 cwt. with difficulty in that country, can now draw 15 cwt. without any violent exertion. The great improvement which has taken place in the level and formation of roads has mainly contributed to this advancement in the application of animal labor, and to a pretty general knowledge among carters of the plainer principles of traction.

Much difference of opinion prevails, however, among scientific men upon mechanical points affecting the principles of draught, especially where four-wheeled carriages for a high velocity are concerned. In England, great prejudice prevails in favor of wagons of ponderous size, requiring teams of four, five, six, and eight horses. In Scotland, where economy is more consulted, and in Ireland, where want of capital prevents a vast majority of farmers from employing any description of cart, which is not cheap, simple, and fit for every turn of work, the one-horse, light, two-wheeled cart is almost universally used. The reasons severally urged by the advocates of the four and two-wheeled vehicle are as follows:

The favorers of the wagons of various kinds, so much in use in the southern parts of England, maintain that the horses, by working in team steadily together, though they may draw lesser loads in this combined way, last longer than if working singly under two-wheeled carts, which often press intolerably upon their backs, and shake them extremely on uneven roads.

"They insist, also, that those in the carts are, from their unvarying efforts, sooner tired, and the wear is consequently greater than in wagons, in which they can occasionally relieve each other; that the whole load being above the axletree in the carts, it throws so much weight upon the horse, in descending hilly roads, as to endanger his safety, while it equally impedes his exertions in the ascent; and that, while the one horse is compelled to use his utmost strength to overcome any sudden obstacle, the power of a team is, in a similar case, only applied to one half of the load, which, in the wagon, rests equally on both pair of wheels: thus supposing a ton to be loaded upon a cart, and that a short rut in the road is to be surmounted, the whole, being upon one axle, must be dragged out at once; but, were the same weight upon a wagon, it being divided upon the two axles, is drawn out at two separate pulls, the first of which clears the fore-wheels before the hinder fall in."

The advocates for carts contend—

"That there are but few articles, except long timber, which may not be conveyed on a carriage with two wheels equally as well as upon one with four; that single-horse carts are easier loaded and unloaded, handier for almost every purpose, and that six or eight may be driven by one man, with the assistance of a boy; that they are also less destructive to the roads than wagons, especially in hilly roads, where the wheels of the latter require to be locked; that they carry more in proportion than either wagons or carts drawn by two or more horses, and are consequently more economical."*

On heavy roads full of ruts, on very long journeys, and with full loads, wagons are probably most advantageous; but, in ordinary cases, and especially where quick movements are required, as in general farm-work, besides being expensive and a load in themselves, they occasion a great waste of draught power. The nearer that the horse is to his load the better, consequently the English mode so frequently practised, of yoking from three to five horses to a plough or wagon, in a line, one after another, is the worst possible. In proportion to the distance at which animals of draught are removed from their load, is the loss of power. It is hard, then, to understand upon what principles—they certainly are not mechanical—this extravagant waste of labor is systematically permitted. We are safe in assert-

* British Husbandry, p. 160.

ing that three horses, (supposing these in both cases to be of similar strength and form,) with Scotch carts, which are partly drawn and partly borne on the back, would pull as heavy a load as four horses would attached in line to a four-wheeled wagon. The loss of one in four has been ascertained at the collieries in Durham, when the horses were probably yoked in the more favorable manner of our mail-coach horses. The experiment is thus stated:

A two-horse cart carried - - - -	36 bushels,	weighing	29½ cwt.
A three-horse cart carried - - -	48 "	"	39 "
A four-horse wagon carried - - -	74 "	"	60 "

Whereas now a one-horse cart carries 24 bushels, weighing 19½ cwt., and travels twenty-six miles in twelve hours.*

The same principle applies in some degree to the case of two horses harnessed tandem to a Scotch cart; here is some loss of power: the two horses abreast would do more, and with perfect equality of labor, which does not hold in the other case, for, in descending a hill, the whole weight rests upon the back of the shaft-horse, while the other is totally relaxed; or, if the driver, through stupidity or drunkenness, allows the leader to pull, the tendency of his draught is to drag the other on his knees by increasing the pressure on it; when ascending a hill the leader often draws too much, while the shaft-horse declines from his pull, and on a level, if the leader be lower than the wheel-horse, his traces, instead of being in line with those of the shaft-horse, form a considerable angle, and tend to bear the load downwards on his back. If the cart be without a regular load, the driver becomes utterly careless, and perhaps allows a spirited and willing leader to draw the wheel-horse, the cart, and the driver, who falls asleep after his dose of whisky, as long as his energies permit.

Hence, although the fore-horse frequently throws the whole labor of draught upon the horse behind, yet, by exerting his force solely in pulling, without bearing any portion of the weight, and by the starts and jerks to which he is subject, he is almost always found to be more distressed on a journey, or by any continued work, than the horse on which the burden falls more constantly and equally.†

A horse of the Clydesdale breed was employed during fourteen years by Sir Charles Stuart Menteith in drawing coal wagons upon the ill-made turnpike road in the county of Dumfries, from Ayrshire to Dumfries. His usual load of coal was 35 cwt. in a common light-road wagon, weighing 13 cwt. He travelled twelve miles a day in four-mile stages. He never lay down during the last eight years, except twice, when he was sick. From the experience which Sir C. S. Menteith has had in the use of animal power upon common roads, he is of opinion that the most economical mode of employing horses in draught is to give every horse his own carriage, in order that he may depend solely upon his own exertions, as it is difficult to find either man or beast always willing, and capable of making uniform and continuous efforts.‡

Railroads (says Sir C. S. Menteith) of cast-iron, nine inches wide, somewhat concave, are laid down in the long ascent between the river Clyde and the Forth and Clyde canal at Glasgow, which enables one horse, in a single-horse cart, to draw from two to three tons, though the rate of ascent in some parts of it is one foot of rise for every fourteen feet of distance. This plan of railroad for ascents has been adopted at Glasgow more than

* British Husbandry, p. 160.

† Low's Elements, p. 133.

‡ The same spirited and judicious proprietor also employs one-horse wagons, for his extensive lime works, which take three tons on a stage of three miles and a half, generally of gentle declivity, with occasional ascents of one foot in thirty, on which he has placed sandstone railroad, with iron plates, six inches wide, for the wagon wheels. The friction break diminishes the draught down any of the more rapid descents.

twenty years. If the employment of one-horse wagons, weighing 12 or 13 cwt., was adopted in conveying coal through the streets of London, one horse would do the work of two. At present four immense horses draw three chaldrons, or four tons one hundred weight of coal in a wagon weighing two tons, so that the shaft-horse is obliged to draw a weight of six tons in turning out of one street into another, which is the greatest cruelty a poor dumb animal can be subjected to. At the same time, railroads of cast-iron, similar to those in use at Glasgow, should be laid down for the wheels of carts or wagons upon the narrow streets from the river Thames to the Strand, which would enable one horse to draw two tons up these streets, instead of employing six horses, according to the present practice for drawing four tons of coals upon the same streets in their present state.

Where three horses are used, they should be yoked abreast, if the breadth of the road will permit. In ascending a hill, it is evident that the power of draught will be increased by drawing from the locality of the axle, and not from the forepart of the shafts; but, on a smooth level road requiring no effort to lift the wheels over any obstruction, (to overcome such, with any wheel-carriage, the inclination of the traces downwards, from the collar to the axle, will facilitate the effort,) horizontal draught is the best. The average description of road must of course regulate this point.

The French two-wheeled carts are extremely long and narrow, probably from being much used in the carriage of timber; these are, undoubtedly, more easily drawn than those which are short and broad. But, in France, owing to the wretched state of the by-roads and farm-lanes in winter, a team of seven (horses and oxen combined) in a row is yoked to draw a load of wood or a tonneau of cider to the market, weighing 35 cwt. only. The farmers contend that the lanes are frequently too narrow to permit two of the beasts to be yoked abreast, and, though this objection does not apply to the *roulages* (see *Carts*) on the great roads, the same injudicious system is pursued, and, if it were not for the admirable training of the excellent horses employed in this kind of work, and the general sobriety of the two carters who conduct the entire team, great and partial distress would be more frequently experienced by the cattle.

In either cart or plough, horses should have their necks perfectly free; the system of tight-bearing reins, even for coach horses, especially on ascending ground, is very questionable, and never pursued in France or Germany. In the former country, the horses are at full liberty to stretch out their necks as they please, and this freedom, in mounting a hill, or on a level, if the pull is considerable, greatly aids their efforts, by rendering their weight most available in traction. When they are thrown on their haunches by being reined up, their power of draught is more confined to their muscular action, and their weight of body does not tell.

The Germans in harnessing coach-horses fall into the opposite extreme from ourselves, for they tie down to the pole the heads of their wheel-horses, to make the utmost of their weight at a dead pull. The free action of the head and neck in heavy draught is very important; in slow and heavy farm work, there is no occasion for bearing up the horses.

In coach work, especially when the draught is light, there are strong reasons for keeping up the neck in an unnatural position, viz. to allow the driver greater power in rapidly directing the horses' movements, and to assist those of infirm limbs in keeping their feet.

The best composition for greasing wheels is that recommended by a celebrated French chemist, viz. eighty parts of grease and twenty parts of blacklead (plumbago) reduced to very fine powder, and most intimately and completely blended together. This is used at the French mint for locks, &c., and is surprisingly durable. A very small quantity suffices.

CHAPTER II.

On the Profession of a Butcher—The Patriarchs—The Priests and Heads of Families under the Law of Moses—The Greeks—The Romans—The Modern Jews—England—Edinburgh—Chester—Whether a Butcher may serve on a Jury in a Case of Life and Death—Whether the Employment be likely to influence the Moral character of the Man.

Having shown in the former chapter that it is lawful for man to take away the life of animals for his own sustenance, it is next to be considered by whom that life is to be taken away.

In the appointment of sacrifice by God, in the case of Adam on his transgression, he who had brought "death into the world and all our wo,"* must have been the first who took away life with his own hands. So, also, in the case of the sacrifices of Abel and of Noah. Whether any part of the victims, in these several cases, was eaten by the offerers, it is not stated. The first express mention of an animal killed solely as food, is when the three angels visited Abraham on their way to Sodom to destroy it, when "Abraham ran unto the herd, and fetched a calf tender and good, and gave it unto a young man; and he hasted to dress it. And he took butter and milk, and the calf which he had dressed, and set it before them; and he stood by them under the tree, and they did eat." (Gen. xviii. 7, 8.) Here, Abraham, who had, no doubt, been used to kill animals for sacrifice, was probably the *butcher*, the assistant *cook*, and the *servant* to wait upon his heavenly guests. In the case of Jacob and the two young goats, of which his mother made savoury meat for Isaac, to pass for Esau's venison, they were probably killed by Jacob. Do we, in these cases, feel any horror at this office of the patriarchs, and impute any cruelty of disposition to them?

Under the law of Moses, in the daily sacrifice of the tabernacle and the temple, the victim was sometimes slain by the priests, and sometimes by the inferior ministers; and, at the feast of the passover, each head of a family was at once priest to kill the sacrifice, and the butcher to slay for the food of the household.

Amongst the ancient Greeks, it was, likewise, the office of the priests to slay the victims for sacrifice, and of the head of the family or his sons to kill for food. Many instances may be found in Homer; as, where Agamemnon kills the lambs, the blood of which was to be the seal of the treaty made with the Trojans.

> And Agamemnon, drawing from its sheath
> At his huge faulchion's side, his dagger forth
> * * *
> He said, and pierced the victims; ebbing life
> Forsook them soon; they panted, gasp'd, and died.
>
> Cowper's *Homer, Iliad*, b. iii. l. 301—326, 2d ed.

Again, when Nestor sacrifices to Minerva, his own sons kill the victims, cut the flesh in pieces, and broil it.

> The royal youths then raising from the ground
> The heifer's head, sustain'd it, while she pour'd
> Her ebbing life's last current, in the throat
> Pierc'd by Pisistratus, the Prince of Men.
>
> *Odyssey*, b. iii. l. 568—571.

* Milton's Paradise Lost, b. i. 1, 3.

And, again, when Achilles entertained the messengers of the other Grecian generals :

> Achilles, then, himself
> Advancing near the fire an ample tray,
> Spread goat's flesh on it, with the flesh of sheep
> And of a fatted brawn; of each a chine,
> Automedon attending held them fast,
> While with sharp steel Achilles from the bone
> Sliced thin the meat, then piereed it with the spits.
> Meantime the god-like Menœtiades
> Kindled fieree fire, and when the flame declined,
> Raked wide the embers, hung the meat to roast,
> And taking saered salt from the hearth-side,
> Where it was treasured, shower'd it o'er the feast.
> When all was finish'd, and the board set forth,
> Patroclus furnish'd it around with bread
> In baskets, and Achilles served the guests.
>
> *Iliad*, b. ix. l. 350—364.*

The same practices also prevailed amongst the Romans.

At what period the office of killing animals for food became a separate trade, it may be difficult, if not almost impossible to determine: probably at different times in different countries, and in different parts of the same country. It is the province of *civilization* to make trades or professions; for, as the wants, either real or imaginary, of men increase, and there is a greater demand for any article, it becomes expedient for persons to confine themselves to fewer objects, by which means much time is saved, and business is executed with the greater nicety. Thus, in any district, or town, or parish, it is better for one man to confine himself to make clothes, or shoes, or to make houses of stone, or brick, or wood, or to kill animals for all the rest, rather than for each person, or each head of a family, to practise all these employments. Thus, no doubt, arose the first *butchers*. And, from killing for others, they might soon get to kill their own animals, to sell out in small portions to such persons or families as might not be able to use a whole animal while it was good.

In 1 Cor. x. 25, we hear of meat being "sold in the *shambles*." The word *makellon*, which is here translated shambles, is formed from the Latin word *macellum*, which signifies "a *market*-place for flesh, fish, and all manner of provisions, a shambles, a butcher-row." (Ainsworth's Dictionary.) "If we recollect that Corinth was at that time a Roman colony, we shall cease to wonder that a public place in that city was named in imitation of the Latin *macellum*, and that St. Paul, in writing to the Corinthians, should retain the use of a word, which in that city had acquired the nature of a proper name." (Parkhurst's Greek Lexicon.) "The original of the name is said to be this :—One Macellus, a very wicked and profane man, being condemned to die, a place was built in his house by Æmilius and Fulvius for selling provisions, and from his name it was called *macellum*. Into these places the priests sent to be sold what was offered to their idols, if they could not dispense with it themselves, or thought it not lawful to make use of it.† Herodotus says, that the Egyptians used to cut off the heads of

* See, also, *Odyssey*, b. xiv. l. 58, &c., and l. 504, &c.

† This is the practice with the modern Jews; when they have killed a beast, and find it unclean according to their own laws, they sell it to Christian butchers for general sale.

A little before the overthrow of the papal power at Rome, in February, 1797, "the Jews held a synod at Leghorn, in which the Rabbies of all the several cities throughout Italy agreed, that their Sabbath should be kept on Sunday, that their people should eat pork and other meat killed by Christian butchers, that their beards should be shaved, that married women should wear their own hair, and that the different tribes should in-

their beasts that were sacrificed, and carry them into the market to sell to the Greeks; and if there were no buyers, they cast them into the river." (Gill, quoted by Burder in his "Oriental Customs," vol. 2, p. 365.)

Among the ancient Romans there were three kinds of established *butchers*, namely, two colleges or companies, composed each of a certain number of citizens, whose office was to furnish the city with the necessary cattle, and to take care of preparing and vending their flesh. One of these companies was at first confined to the providing of hogs, whence the member of it was called *Suarius;* and the other was charged with cattle, especially oxen, when the member of it was called *Pecuarius* or *Boarius*. Under each of these was a subordinate class, whose office was to kill, prepare, &c., the member of which was called *Lanius*, and sometimes *Carnifex*. The market-day was every ninth day. Brissonius, Modius, and others, mention a pleasant way of selling meat, used for some ages among the Romans: the buyer was to shut his eyes, and the seller to hold up some of his fingers; if the buyer guessed aright, he was to fix the price; if he mistook, the seller was to fix it. This custom was abolished by Apronius, prefect of Rome; who, instead thereof, introduced the method of selling by weight. Nero built a noble edifice at Rome for the shambles; on which occasion was struck that medal, whose reverse is a building supported by columns, and entered by a perron of four steps; the inscription MAC. AUG. S. C. *Macellum Augusti Senatus-consulto.* (See Chambers's Cyclopædia.)

Miss Starke, in her "Letters from Italy," speaking of the present times, says, "I have frequently seen the Tuscan cattle, when destined for slaughter, adorned with chaplets of flowers, precisely as the ancients used to adorn their victims for sacrifice. The Roman butchers, likewise, still wear the dress and use the knife of heathen sacrificing priests," vol. 2, p. 11.

Amongst the modern Jews, to exercise the office of butcher with dexterity, is of more reputation than to understand the liberal arts and sciences. They have a book concerning shamble-constitution; and, in case of any difficulty, they apply to some learned rabbi for advice; nor is any one allowed to practise this art, without a license in form from the high-priest, which gives the man, upon examination, and evidence of his abilities, a power to kill meat, and others to eat what he kills; provided he carefully read every week for one year, and every month the next year, and once a quarter during his life, the constitution above mentioned. (See "The Encyclopedia Britannica," art. Butcher.) Communicated, also, by a learned Jew rabbi of the present day.

Of the history of butchers in England, the writer, after some investigation and inquiry, has been able to learn but little. The laws relating to them, which form a part of it, will be given in a subsequent chapter, assigned to that purpose.

The butchers were incorporated by King James the First, under his letters patent, bearing date the 16th day of September, in the third year of his reign in England, (1606,) and of Scotland the nine and twentieth. They were incorporated by the name of *Master, Wardens, and Commonalty of the Arts or Mystery of Butchers of the City of London*, the fraternity

termarry with each other: thus were the most material articles of the Jewish law dispensed with; while the Grand Seignor (if I am well informed) annulled about the same time many of the laws of Mahomet. These circumstances, united with the fall of the popedom, furnish the thinking mind with ample scope for reflection."

Miss Starke's *Letters from Italy*, 2d edit., vol. 2, p. 140, note.

being very ancient.* (See Strype's edit. of Stow's Survey of London, &c., vol. 2, b. v. p. 211.) It is the twenty-fourth in rank among the livery companies, and is governed by a Master, four Wardens, elected annually, sixteen Assistants, and one hundred and ninety-three on the Livery. They have a very handsome hall, the inside of which is finely wainscoted, in Pudding Lane, near the Monument. Their arms are *azure*, (blue,) two Axes *saltierwise*, (in the form of St. Andrew's cross,) *argent* (silver) between three bull's head *couped*, (cut evenly off,) *attired or*, (with the *horns gold*,) a boar's head *gules*, (red,) between two *Garbes* (*wheat-sheaves*) *vert* (green.)

At Edinburgh there is a company of butchers, or *fleshers*, which is the tenth of the fourteen incorporated companies of tradesmen, out of which the fourteen deacons are chosen, which form a part of the town-council, and out of which one of the commissioners for parliament is chosen, and out of which the Lord Provost may be chosen. So that a butcher at Edinburgh may arrive at the highest civil honors.

There was a company of butchers at Chester in the year 1328, since, from the Harleian Manuscript of the Chester Whitsun Plays, in the British Museum, it appears that *The Temptation* was played by *the butchers*.

It seems to be generally understood, "that our legislature has affixed such an imputation of proneness to shed blood upon persons who slaughter brute creatures for a subsistence, that by the laws of England no butcher is permitted to serve on a jury when sitting on the life of a fellow subject." ("Pantalogia," art. Butcher. See also Tryon's "Way to Health, Long Life, and Happiness," vol. 1, p. 348. "Domestic Encyclopedia," art. Butcher. "Literary Miscellany," No. 18, p. 49.) Mr. Young, in his "Essay on Humanity to Animals," seems to think it to be the general opinion, that a butcher should not be admitted as *evidence* in a case of life and death: "It seems to be a very general opinion, that the English law will not accept the evidence of a butcher in any trial wherein life is concerned, under the idea that butchers are, from the nature of their business, apt to be rendered less feeling and humane than other classes of men." He seems to acquiesce in this judgment; but adds: "This opinion, however, respecting the evidence of butchers, is, I believe, a vulgar error; but it serves at least to show what is the sense of a great number of persons upon the subject in question," (chap. i. p. 5, 6.) Both ideas, I believe, are erroneous; for I cannot find any thing of the kind in Burn's "Justice," under either of the articles, Butchers or Jurors.

Thus far, then, the way seems to be cleared before us. But it is well worthy of consideration, whether there is any thing in the employment of a butcher which really tends to dispose the mind to cruelty, either towards man or beast. Tryon, in his "Knowledge of a Man's Self," &c., which is the second part of "The Way to Long Life," &c., p. 335, says, "Butchers, whose employment is violent, bloody, and cruel; which practices, actions and motions of the human body, by the repeated strokes of violence, and by the conversations† of their school-fellows in all base lessons, language, and methods; never fail to stamp the signatures of brutality and inhumanity,

* The Butcher's Company was fined as "adulterine (that is, being set up or instituted, without royal license) in the twenty-sixth of Henry the Second; that is, in the year 1180. See Brayley's *London and Middlesex*, vol. 2, p. 343—419.

† At an ordinary, at a public house in a market town, frequented by a butcher known to the writer of this, at which about eight butchers and two tanners, besides other persons, are occasionally present, there is a rule, that, whoever makes use of an *oath* is to forfeit *sixpence*. In upwards of a year, the butcher mentioned above never heard but one oath sworn there, and that was by one who did not usually dine in that room.

and diffuse their own propertys to the intellectuals, so that the invisible qualitys are infected, and the spightful envious powers advanced to the government, and are forthcoming on all occasions, as is manifest by their common discourses and ordinary conversations. And it is for the same reason, that not only this trade, but all employments which communicate with and handle gross unclean materials, or that frequently oppress any of the inferior animals: the practicers thereof are sure to have all their sanguine, soft tempers sully'd; such know nothing of the planissing hammer or its uses; but, like anchor-smiths, do all by the fierceness of fire and laborious violent strokes. The next trade or employment concerned about the dead bodies of the creatures are the tanners, whose business it is to make their skins useful. These tradesmen are but one degree above butchers: they are for the most part bold, gross, and unclean in their methods and orders of life, much like the materials and things they work in, handle, and communicate with.* Now, the next beautifying trade belonging to the skins of beasts, are the leather-dressers of various sorts, according to what skins they are, as curryers and those traders who are one degree before the tanner, because they are the second beautifyers. However, these are a surly, bold, impudent sort of people, much like the original matters they are employ'd in, and the ingredients they use in their art. The next sort of tradesmen are still higher graduated, as shoemakers,† glovers, and all other small arts belonging to the said trades," &c.

That a person's occupation, and the objects by which he is surrounded, and the light in which he is accustomed to see them, that is, the thoughts with which he contemplates them, have much influence upon his disposition and character, I believe to be very true. But these, if of an unfavorable tendency, may be counteracted by other objects, by other pursuits, and by other thoughts, and, above all, by religion, by bringing every thought, word, and work, in subservience to the will of God. That the occupation

* In Acts ix. 43, and x. 6 and 32, we find that Peter, when at Joppa, lodged and tarried many days with one Simon, a tanner. Peter, therefore, did not think this man objectionable on account of his business, but, probably, selected him for his host on account of his being a Christian and an eminently pious man. Christ's instructions to his disciples in what kind of houses they were to abide, when they went on their missions, (Luke x. 5—8,) will give us an idea of what must have been the house and character of Simon. Let it be observed, also, that it was at the house of this tanner that Peter had the vision of the vessel full of all manner of living things, and when the *voice from Heaven* said to him, "Rise, Peter, *kill* and eat," (x. 13.)

† The fraternity of shoemakers have certainly given rise to some characters of great worth and genius. The late Mr. Holeroft was originally a shoemaker, and, though he was, unhappily, at the beginning of the French revolution, infected with French principles, yet he was certainly a man of great genius, and, on the whole, a moral writer. His dramatic pieces must rank among the best of our English dramas. Robert Bloomfield wrote his poem of "The Farmer's Boy" while employed at this business, and, for modest worth and humanity, the members of any profession might feel happy in the acquaintance of the shoemaker and the poet.

Dr. William Carey, Professor of Sanscrit and Bengalee, in the College of Fort William, Calcutta, and the able and indefatigable translator of the Scriptures into many of the eastern languages, was originally a shoemaker in Northamptonshire. Having, in early life, a taste for reading, he cultivated it with considerable success, and being particularly expert at learning languages, he bent all the force of his mind to that pursuit, and made himself acquainted with the Latin and Greek, and several modern languages, before he went to India; where, by pursuing the same course of unexampled assiduity and success, he has well entitled himself to the honourable appellation of "Father of the Oriental Versions," (see the Fourth Report of the Cambridge Auxiliary Bible Society, 1815,) as he has had the merit of giving the "*first impulse* to the great work of the translation of the Scriptures now carrying on" with so much success in India, as well as of contributing more than any other individual to the continued progress of this noble work. See "*A Sermon on the Nations imploring the Word of Life*," by the Rev. John Scott, of Hull, 1811.

of a butcher has not too frequently a tendency to harden the disposition, I will not pretend to deny; but that it is of a worse tendency than many others, which are not held in equal abhorrence, I can by no means grant; and the example of many most respectable and humane butchers is a proof of it. The cries of the animals, and the sight of agonies and of the effusion of blood, make the greatest impression upon minds guided by feeling rather than by principle; but

> the poor beetle that we tread upon,
> In corporal sufferance finds a pang as great
> As when a giant dies.
>
> SHAKSPEARE'S *Measure for Measure*, Act iii. Scene 1.

And he who kills the smallest bird, or the most minute insect, perhaps, occasions as great a portion of pain to the object, as the butcher who kills an ox. Those, therefore, who live upon what they call vegetable diet, must not flatter themselves that they do not destroy animal life, since almost every vegetable abounds with insects, though perhaps too minute to be seen without a magnifying glass.

The Hindoos, for the most part, live on vegetables, that they may not take away life. A story is told of a Hindoo, who obtained a microscope from a European; and, on looking through it at some article of his food, destroyed it. On being asked his reason, he said it was to prevent himself, or any one else, seeing the animals it had discovered to him.

The author of the "Literary Miscellany," No. 18, puts the surgeon on the same footing with the butcher, and supposes that he is equally excluded from serving on juries. With respect to this point, the surgeon is excused from serving on juries, as he is from serving the offices of churchwarden and overseer, on account of his useful and uncertain profession, being liable to be called upon at any moment, on cases of the greatest humanity and exigence. As far as my experience goes, I have no scruple in saying that some of the surgeons I have known have been amongst the most humane of the human race. In respect to the butcher, let us appeal to facts. It is said that his shedding the blood of animals will dispose him to shed that of his fellow-creatures. Have the greater part of the murders committed in this kingdom, within the memory of man, or within the scope of records, been perpetrated by butchers, to justify the assertion or the supposition? Do the Newgate Calendar, and the various calendars of prisoners, if preserved by the various clerks of the peace for our several counties throughout the united dominions, record more names of cruel butchers than persons of any other profession? Have more murders been committed by butchers than by soldiers or sailors, whose profession, unhappily, leads them to the shedding of human blood? Yet that does not prevent our considering a soldier or a sailor as the tender friend, the humane citizen, and the polished gentleman. What shall we say of the duellist, the gentleman, the man of honor, who can go out in cool blood, take away the life of his friend, and be afterwards received in civil society? If a butcher is not fit to sit on a jury in a case of life and death, what shall we say of the counsel who pleads against the prisoner, the jury who find guilty, and the judge who condemns? If the occupation of a butcher be cruel, what are we to say of those who set him to it, who purchase his meat so cruelly slaughtered, and who send their animals to him to be slain? It is a maxim in law,

> Qui facit per alteram, facit per se.

"He who does a thing by another does it himself;" and, in a case of murder, he who is privy to it, is considered guilty as well as the perpetrator. What shall we say of the fishmonger, who cuts up some of his animals alive, merely to make them, as it is supposed, taste better?

AGRICULTURAL CLUB OF NEWCASTLE COUNTY.

We have often said, and oftener thought, that these sociable monthly meeting clubs at each other's houses are attended with more active and better influence than annual shows, where many men come more from idle curiosity and to hear what is going on in the political world, than from any hope or desire to receive or impart information. In fact, the greater part come from a distance, and go too soon to admit of much inspection or deliberation.

We had lately the pleasure to meet the agricultural club of Newcastle County at the residence of that exemplary farmer Mr. Sauder, and know not when we passed a day so agreeably. His farm of 150 acres is distinguished for the great length and beauty of its hedges, as well as for the heavy crops of grain it produces, and for good management—twenty-five bushels of wheat to the acre is not uncommon with him, at least has been repeatedly reaped. His land now being made ready for sowing, waiting for one more harrowing before it is seeded, is in much better order and finer tilth than many of what are called "garden spots" in some States, but as we hold it to be more friendly to indicate defects than to bespatter with praise what every one ought to accomplish, we may, without offence we hope, notice the *absence of an ice-house*, which if once a man enjoys, brings with it so many little nameless comforts, that he could never afterwards live without it. And again, there is a defect *almost universal*, but in this case the more unavoidable because the barn was already built to his hand, when he bought the farm. We allude to the common construction under which the litter is taken from the barn, and exposed in the open air to sun, wind and rain. Every man, who has a barn to build, should so construct it as to have his horses and cattle above the stercorary or manure heap. Into that, all the litter should be thrown and all the urine find its way. There it should be kept free from light and air, and in circumstances altogether the most favorable to putrefaction. For what these circumstances are, see Doctor Baldwin's interesting communication in this number of *The Plough, the Loom, and the Anvil;* and for an exemplification of the principles of construction here recommended, see, if you have a chance, Mr. Webster's stables at Marshfield, or otherwise in the barn at Mr. Newall's near Boston, which, above all we have seen, is most perfectly arranged for plainness and simplicity in the structure itself, and for the greatest attainable economy of space and labor, in stowing away and in administering the food and the manure. There is in neither case, we believe, a *tank* for saving the liquid manure, but there is constantly provided in the right place the various materials for catching and absorbing it. The senior Editor of this paper has had the honor to be unanimously elected a member of the Newcastle County Agricultural Club—to the announcement of which he very briefly returned his grateful acknowledgments, adding, that though he had opened the way, as a feeble pioneer, thirty years ago, such had been the progress of knowledge in all that practice has developed, that now he felt satisfied that what the planter and the farmer most needed was *The Loom and the Anvil* near the *Plough*—that is, consumers numerous and thriving to ensure a steady demand for the products of the plough; and secondly, what they have a right to demand from the government was as much for scientific discipline of the *laborer* of the country, as is now given for scientific instruction in the art of human destruction. What the effect of this last was, he said, had been testified by General Jessup, a man of wide experience and admitted abilities, who had publicly declared, that by means of the officers instructed at the expense of the people, the whole militia of

the United States might be converted in sixty days into well-disciplined soldiers—and why, asked Mr. Skinner, might not science do as much for the great, beneficent and all-supporting art of agriculture? Because, said he, agriculturists have not the thought and the courage to enforce upon public men the primary attention due to the agriculture of the country. Hence among other shameful instances of the disregard of the plough, we might refer to the fact that the agricultural committee of the Senate, on which little Delaware had the honor to have a member, never held a single meeting during the last session of Congress!

The meeting passed very pleasantly, and adjourned to hold their next at Mr. Bryan Jackson's near Newcastle. We may add, without being invidious, that the party was animated and enlightened by the presence of that indefatigable veteran in the cause, Doctor J. W. Thompson, whose name and zealous exertions are associated with the wonderful progress of agricultural improvement in Delaware above all other States, as we think we may aver—and of that brave soldier in the same march—him of "wheat lands," whose word is ever, not go boys, but come boys. He also now buys and uses *tons of guano*, where once he could not buy a horse collar—and all by *thought*—and by *action.—Mem.* He takes and *reads* the agricultural journals.

At the meeting of the Agricultural Club, as above mentioned, at Mr. Sauder's, the following testimony was adduced in favor of

PENNOCK'S DRILL AND THE ADVANTAGES OF DRILLING OVER BROADCASTING.

Reedsville, Mifflin County, Pennsylvania, July 21, 1848.

S. and M. Pennock:

Gentlemen,—I have this day threshed and measured the wheat grown on an acre of land, one half of which was drilled with one of your machines, the other half was sown broad-cast and harrowed in the usual manner. The result is as follows:—the half acre drilled $1\frac{1}{4}$ bushels seed per acre, 13 shocks measured 12 bushels and 2 quarts. Half acre broad-cast $1\frac{3}{4}$ bushels seed per acre, 8 shocks measured 7 bushels 18 quarts.

The quality of the ground was exactly the same, and treated exactly alike in every particular previous to seeding.

Difference on the half acre in favor of the drill $4\frac{1}{2}$ bushels, added $\frac{1}{4}$ bushel saving of seed, makes $4\frac{3}{4}$ bushels more than broad-cast.

Yours, very respectfully, Abner Thompson.

We the undersigned were present and saw the land measured, cut the grain, and assisted in threshing the same. And do hereby certify to the correctness of Mr. Thompson's statement

James Reed.	H. G. Morris.	Alexander Reed.
D. C. Miller.	William Steeley.	Geo. Ashby.

We cannot put our hand at the moment on the account of Doctor Charles Noble's experiment in Delaware, with the drill against broad-casting—but the result was about as follows—he having taken the precaution to weigh the wheat and the straw. He got eight bushels more from the acre of wheat drilled at the rate of $1\frac{1}{4}$ bushels of seed than from the acre of broad-cast on which two bushels had been sown—with less weight of straw from the drilled acre—and this result is, we understand, in correspondence with the experience of Major Jones, of Wheatlands. From others who may have made trials we should be glad to know the results. We have now done our duty by giving both sides. After all, as we have said, the consideration of *more farmer-like* appearance, suggested by Major Jones, ought to have and will have its weight with every man who entertains that ambition for excellence in his profession, which is itself a strong guarantee of success, and at least a proof of what all men of right mind will covet—a character *for deserving success!*

IN WHAT DOES GOOD FARMING CONSIST?

Premiums have been offered by societies for essays which shall best point out *how to make poor land rich.*

To us this proposition seems to be almost as vague as it would be to ask for precise rules to estimate the cost of a house, without saying whether it was to be of wood or stone, or knowing the abundance or scarcity, distance or proximity of the materials, and cost of labor. So much depends on circumstances, and these are so undefinable, that means may be recommended, accessible and expedient for one, that it would be folly for another to employ. Yet there are some general maxims applicable under all circumstances, but these again are so obvious that it requires neither premium nor penetration to discover them; as, for instance, may it not be affirmed at once that the requisites for good farming, and for fertilizing land, consist in—1. Divesting the land of all *superfluous* moisture. 2. In the application of an adequate quantity of fertilizing substances; and, 3. In good tillage, to let in air and the necessary moisture, and to keep down weeds and all extraneous growth, so that the strength of the land and the power of the manure may be exclusively appropriated to the crop?

Such are the great leading principles of all good farming. But when you come to details, and begin by laying down a certain prescription, to which, as to the bed of Procrustes, every tiller must conform, without reference to the infinitely various circumstances that belong to different men, you cannot take a single step before you are met by the fact, that, as the man says in the play, "circumstances alters cases." One doctor, without examination of the symptoms, and of the means at hand, prescribes doses of lime, at a rate more or less according to a vague description or estimate of the condition and quality of the land, and without knowing whether it does not possess already enough of that ingredient, its unproductiveness being the result of deficiency in other essentials. The poor man goes in debt to buy lime, of which the land had enough already, his crops continue to fail, and he is ruined, because the doctor did not know all the symptoms of his case.

Another doctor orders barn-yard manure, and it is applied accordingly; but being made of wheat straw merely passed through the body of his cattle, it comes out as worthless as it went in, and his land being yet deficient in lime and other essential elements of fertility, his crops continue to fail, and he again is ruined.

Thus it happens, as it has often happened to the letter, that "doctors differ and the patient dies."

Each case must depend on its own circumstances, and to arrive at any thing like certainty, these must be defined. The farm must be described in its general geological features, and in its locality and natural resources, especially how far from the place for selling its produce, and what the modes of conveyance, and the means of the owner are, &c. Is lime at hand or distant, suppose the land to need it? Can manure be bought, and at what cost of time, labor, and money can it be made available? or are the means at hand, such as marsh mud, marl, &c., to make manure? How can any essayist lay down his rules for the government of any individual farmer, without reference to all these things? Hot water and bleeding may do in some cases, but not in all. How many victims perished because Doctor Sangrado's pride would not let his practice run *counter to his book?* Not a book on making poor land rich, but on what, in like manner, and no more, depends on the symptoms and circumstances of each particular case, viz. on making a sick man well. But as a general rule—one

which may be laid down as of universal applicability—such as will always be followed with results that may be considered natural, and alone worthy of regard, for making poor land rich, is so to shape the policy of the government, as to draw the Loom and the Anvil—the hatters' shop and the tailors' shop, the tanner and the shoemaker, and all the mere fashioners and consumers of agricultural produce, as near as possible to the Plough!

Insure consumers able and willing to buy, and so near that the farmer shall lose little in the work of transportation and exchange, and the wants of the living men, women and children, will be sure to bring the food out of the ground. A thousand bulky and perishable articles will be needed, that the land would produce, if the market were in reach, and the land and the land-owner will grow rich together, and with wealth will come schools and increase of knowledge, which is power, and with improved knowledge, again will come improved farming, as is seen in Scotland, ay, and all the countless refinements and blessings that belong to the most advanced civilization.

Here then is the way to make poor land rich. But, how are the consumers to be drawn near to and around the producer? Certainly not by sending our raw materials away to other and distant countries, to be manufactured there by people who consume the products made by the slaves and paupers of European despotisms? Does it not follow from all this that agricultural societies and institutes, *organs* of the landed interest, when inquiring into the condition of the farmer and the planter, should go a little deeper into the subject, and look for the *law*—the principle—that governs the case? As for taking a specific ten or ten hundred acres of land to make them rich, every one knows, that for *such as have the means*, the way to improve poor land is by thorough draining, heavy manuring, and good tillage, but without strong assurance of a remunerating market, our lands will be neither thoroughly drained, heavily manured, nor well tilled. Look at the rich swamps and forests undrained and uncleaned in Virginia and the Carolinas, where all are producers, and no consumers, except at a ruinous distance!

Since writing the above, we find in that excellent old paper, *The American Farmer*, for which, in its infancy, we maintained correspondence with such men as Madison, and Jefferson, and Taylor, and Garnett, in the South, and Quincy, and Pickering, and Lowel, and Parsons, in the North—in it we find the following from a man with whom farming is a pursuit of honor, because he makes it *one of intellect!* not of mere habit or routine.

"I see you have offered handsome premiums for the best essays upon the improvement of worn-out lands, their length not to exceed ten pages of the American Farmer. If I were to enter the lists, (which I shall not,) mine would be comprised in less than ten lines. I would recommend one hundred cart-loads of compost, made from the stable or cow-yard, or one hundred cart-loads of marsh mud, from a salt-water river, which I deem equally good, and five hundred bushels of shell marl from a marl bank, the properties of which had been proved, to the acre. My friend, Mr. Maddox, of your post-office, was here on a visit last summer; he saw corn growing on my lands which had been marled twenty years ago, and deemed it equal to the improved lots around Baltimore."

One hundred cart-loads of compost to the acre, says Judge Carmichael—that would be, for, say twenty acres, (a small corn-field for Maryland,) two thousand cart-loads; now to make two thousand cart-loads of compost would require how much labor? how many cattle? And then for the marsh mud—suppose a man has no marsh, and how many have?

Another correspondent of the same journal, on the same subject, says:

"Some time ago it was stated in the papers that the American Peace Society had offered a considerable sum as a premium to the individual who would favor the world

with an essay on the origin and cause of the late war with Mexico, and the probable result. An individual put in boldly for the prize as follows, with what force of reasoning, I do not pretend to determine.

"1st. Origin and cause of the war—Texas.

"2d. Result of the war—Taxes.

"Now, friend Editor, in noticing the very liberal premiums offered for the best essays, not to exceed ten pages in length, on the renovation of worn-out lands, I was induced to believe that one might be prepared not quite so brief as the above, but contain the whole matter, as it were, in a nutshell—something like the following:

"Borrow some money if you can; if not, sell a part of your land, for money you must have as a starting point to renovate worn-out land.

"Clear your ground of all bushes and stones.

"Plough thoroughly and reduce it as much as possible.

"Then put on lime at the rate of fifty bushels per acre for corn.

"Then bone at the rate of ten bushels per acre for oats.

"Then guano at the rate of two hundred pounds per acre, with all the manure that can be made from the fodder and straw for wheat.

"Give it a liberal supply of grass seed, and the thing is done, as I know by

EXPERIENCE."

"Experience" has hit the nail on the head. Money is wanted, in the first instance, and, if employed with equal judgment, will tell as well in farming as in other things; but how is that to be had? There's the rub! How can you raise money on land where, as in Virginia, all are sellers and no buyers? The way to raise it is this: Concentrate population around the plough, as in New England, where men clear a ton of stone from six feet square of land, to plant their orchards, and to make potatoes and carrots, and where $2000 of public money lay for years to be loaned at six per cent., and found no borrower. That's the way to improve poor land.

Let the hundreds of millions we import be manufactured at home, and then the farmer and the planter will be sure to *sell* to those of whom he buys, and both will be done at an immense saving in the cost of transportation and exchange.

THE CALAMITIES OF WAR—ON WHOM DO THEY FALL?

IN the name of heaven, what can this subject have to do with Agriculture? Such, no doubt, is the query that will be propounded by many sincere individual friends, as well as most societies formed for the *promotion of agricultural improvement.* If in fact we were to judge from the indifference manifested by such societies, as to the legislation and the burdens of government, we might conclude, that, in their opinion, the people who follow farming and planting for a livelihood have nothing to do but to learn how thick to sow, and how wide to plant, and for the rest, stoop to the burdens imposed on them, and go their way like asses or mules, wherever their rulers choose to ride or drive them.

Nine-tenths of the people in the country, laboring at the plough, probably believe, at this moment, that they are not *paying one dollar* of tax to keep up the costly military and diplomatic establishments of the government, merely because a tax-gatherer does not make his regular visit, with a bill of particulars, and threaten to execute his horses or his wagon if he does not "down with the dust." How then does he suppose the sixty millions of dollars for the war debt, and the fifteen millions annually for army and navy, and thousands for *navy and army schools*, are to be paid? Do these millions of money rise, does he suppose, like fogs or mushrooms, out of the ground, or descend like dews from the heavens? Would it be honest in us, under the persuasion we feel, not to advise the cultivators of the soil, that four-fifths of these millions, think what they may, come *out of their pockets*, and would remain in their pockets were these debts not incurred? It is the humbuggery of indirect taxation that lulls him into ignorance of

what he really pays. And what, after all, does the farmer and planter get by war? Is not *that* a proper question for agricultural societies? Instead of having nothing to say or do with politics, it is exactly in such societies that the *bearing of the laws on the landed interest* should be discussed, unless it be true that rulers, lawgivers only, should be enlightened, and the ruled kept in ignorance! We don't mean miserable party politics and scrambling for place, but the politics that *belong to and bear upon the plough*. The question, for example, whether the laws should encourage the fabrication, in this country, of the raw materials produced in the country, so that the proportion of consumers should be constantly increasing in relative numbers to the producers? The question whether the art of cultivation may not be as much benefited by government appropriations for appropriate instruction in that, as the *art of war* has been improved by the same means; and whether the former would not much more conduce to the solid prosperity and true glory of the nation than the latter? Why are not these proper questions for societies organized for the express purpose of looking after, guarding, and promoting the landed interest of the country? Nothing but the cowardice that is generated by ignorance and the habit of submission to wrong, prevents such questions from being entertained, until the true foundations of agricultural rights and prosperity are understood and established.

Of the effects of war, its character and consequences, a picture lies before us, sketched by a master-hand, which our conscience tells us, as the friend of agriculture, we ought to exhibit to our readers of *all* parties, for in our labors to bring into juxtaposition "the Plough, the Loom, and the Anvil," and to show their mutual and friendly connection with each other, we profess to be of *no party* but the *party of the plough*.

PICTURE OF WAR.

"One of the most Christian of modern poets, Cowper, has finely said:

> War is a game at which, were subjects wise,
> Kings would not play.

"This thought, however just, was by no means an original one; for in all ages the truth was plain, that kings and the great only are the gainers by wars, and that the more successful they are, the more do they ruin the mere people, whose substance and whose lives they waste only to enslave them. Such is, to the body of a nation, the sole consummation of successful enterprises against their fellows; so much havoc as they allow their government to commit upon the wealth or lives of other communities, so much do they fling away of their own; and just so far as they lend their strength to ambitious rulers to subjugate other countries, just so far do they arm those conquering rulers with power to be the scourge of their own freedom. It is an unfailing retribution, which the Almighty himself has appointed; the plague which he sends to punish, not princes or presidents, but the still guiltier populace, who, instead of sympathizing with those of their own condition, on whom everywhere falls the weight of war and its woes, have wickedly lent their strength to afflict and enslave their innocent fellow-men, the poor inhabitants of some weaker country. Then it is that, making war itself, and the slavery which it draws after it, his vengeance, He turns to his instruments and executioners, the bad kings or magistrates whom a criminal people have armed for the wanton destruction of humankind. It is the people who are, in all such cases, guilty, for what can even kings do if their people choose to gainsay it? But great as is their crime, their folly, everywhere, when they permit needless wars, that folly and that crime are of course greatest in the citizens of a free, a popular government, who,

happy themselves, can have no excuse for going abroad to distress others, and, free themselves, should know how dreadful the offence when they strike at the independence of other nations.

"Of all republics war is the bane. It stops all arts but those of destruction, all industry but that of death. The husbandman quits his own happy field to ravage a foreign one, or perhaps manure it with his blood. Public works are suspended; all private improvement ceases; trade declines; the laws must learn to be silent; morals are forgotten; religion hides her face. The whole of a people must cease benefiting themselves or others, and apply the entire public force to injuring another nation. Meantime, while profitable industry has lessened, taxes have grown, yet, grow as they may, they never fail to leave a long arrear of debt, the poor man's only share of glories for which he perhaps bled, and his sons shall sweat—glories which, in reality, seldom consist, for the nation itself, in any thing more than the Christian thought that they have desolated and destroyed quite as much as they have been desolated and destroyed in return. Add to all this, idleness, licentiousness, lawlessness, and that horrid *taste for human blood*, which nations, like wolves, contract, when once they have lapped it. Let any man consider of all this, and then, figuring to himself all this, deepened and deepened, by war after war, conquest after conquest, into one wide habit and rage of national rapine and slaughter, let him, if he can, think coolly of an American statesman who can preach to us this detestable career as that which we must run, and can strive 'to prepare the hearts of our people' for this execrable policy."

HEMP.

What is the condition of and prospect for this branch of American husbandry?—What is needed in the way of implements and processes for cultivating and preparing it, and in legislation for ensuring a market?—Will Mr. Anderson please give us a memoir on the subject—who better, if so well, qualified as he or Mr. Sanders?—What has become of the *great desideratum* machine, so strongly recommended by the American Institute some few years since, from St. Louis, we believe?

I have recently rotted hemp, and produced a superior and uniform quality, by a new process; that process I will proceed to explain, believing firmly that if it be applied to the sliver of hemp, designed for fine yarn, an equal thread can be uniformly and economically obtained.

It is known that the glutinous matter causes the adhesion of the fibres; to remove that glutinous matter, the hackle and milling machine have been resorted to with rather uncertain results, and great loss of material; that process I call the mechanical, and if I prove that the same results can be attained by a chemical process, then I shall think I have rendered some service to the manufacturer of hemp.

Hemp has been drawn and spun in a wet condition, and yet it has been so spun without an effort being made to decompose the incrusting matter. I propose to destroy the binding matter, by *heat and moisture*, which can be effected in about twenty-four hours. The rough hand of hemp is first lapped, and then passed through a drawing head and received into a can; the can filled with the rove of hemp is immersed in a vat of water, the water slightly impregnated with the sulphate of iron; so soon as a thorough saturation has taken place, the can is withdrawn from the vat of water—it is allowed to drain, retaining only so much of the water as the hemp will hold in solution; and in this way, by the action of still air, heat is quickly engendered, and in twenty-four hours a complete disintegration of the glutinous matter is effected. Should there be found too much moisture, when ready for the spindle, that could be removed by pressure on the hemp in the can, having openings in the bottom for the excess of water to pass out.

James Anderson.

NOTICEABLE FACTS IN LATE ENGLISH AGRICULTURAL PAPERS.

Hops from a brewery make better hot-beds than horse-manure.

Potato Disease.—In the London Gardener's Chronicle of the 8th of July, the highest authority, it is stated that the evidences of disease among the potatoes have reached the editor in so many cases as to "make it evident that the danger to the general crop is serious."

Analysis of Plants.—At a special council of the Royal Agricultural Society, on motion of Mr. Pusey, M. P., seconded by Lord Portman, the council voted

"The grant of a sum not exceeding £300, to be placed at the disposal of the Analysis Committee, for the prosecution of Professor Way's analyses of the Ashes of Plants, in continuation of the results on that subject already published in the Journal of the Society. Mr. Pusey took that opportunity of remarking, that valuable as the researches published in the Journal had hitherto been, on inquiries connected with geology, entomology, chemistry, and other sciences connected with agricultural improvement, he was happy to say that a field of inquiry, no less interesting and important to the farmer, on the anatomy, physiology, functions, and diseases of live-stock, had been opened by the valuable lecture already delivered before the members in London by Professor Simonds, and which was then in the press, illustrated with numerous wood-cuts, for the new number of the Journal; and he had no doubt that Professor Simonds's lecture, about to be delivered at the York meeting, would be found no less important and interesting than its predecessor."

How much more profitably our American Institute and other societies might thus appropriate some of their surplus cash, now funded in "five-per cent. stocks!"

Draining.—The following item is very interesting, as going to show that, in our pine and cedar boughs, we have a valuable material for draining in many places where no other exists.

No drains answer their purpose better than some we have seen on the farm of Mr. Summers, a plain farmer near Nottingham, in Maryland, made with several pine poles laid side by side along the drain, and covered with pine or cedar boughs, and then covered over with earth, in such a manner as to present no obstacle to the passage of the water below, or of the plough above, nor any break in the surface of the land:

"Lord Portman favored the council with an interesting statement of the result of his draining forty acres of meadow-land, twenty-four years ago, with young Scotch fir boughs, obtained as the thinnings of his plantations. The boughs were cut in June and July, when the trees were full of their sap and turpentine; and, being laid longitudinally in the drains of the meadow, at a depth of three feet, to within eighteen inches of the surface, they were covered over with clay and turfed down. His lordship having recently had occasion to make a cut across the meadow in question, for hydraulic purposes, he had the satisfaction of finding that, after a period of twenty-four years, every drain was found to be doing its work admirably; and the boughs, instead of being decayed, were found in perfect preservation, and the wood had become firmer in the substance, and harder to the cut of the knife. Mr. Fisher Hobbs had the pleasure of fully corroborating Lord Portman's statement of the value of fir boughs for the purpose of draining in strong clay or marl, some of his own drains, formed of them, having stood from fifteen to twenty years. He had found, however, that, unless the boughs were cut while full of turpentine, the wood would soon decay."

Since writing the above, we have seen it stated in the American Farmer that Charles B. Calvert, Esq., an enterprising and, above all, an inquiring and investigating farmer, has thoroughly drained some of his most valuable land by a means, as to materials, at the command of many who have all their lives given up many acres of their richest land to mud and mire, for want of enterprise to begin, or thought upon the means of reclaiming it. We

are glad to preserve the following evidence of the energy and success of a different sort of man. These are the sort of men, as Doctor Thompson says, who ought to be in the management of our public affairs, so far as the landed interest is concerned; but such men generally stand no chance in competition with a young limb of the law. Is it not time, by-the-by—do not the times seem to invite the farmer and planter to lay aside and put their foot upon mere narrow, mercenary, calculating party spirit, and every other spirit, which blinds them to the paramount claims and importance of their own pursuit?—to elevate their views above the murky atmosphere in which the little designing demagogue would keep them always blinded, and endeavor to discern the true foundations of agricultural prosperity for every country? And who can doubt that that consists in the circumstances which most invite and make it easiest for men of all employments to come together—to concentrate and combine for maintaining mutual and friendly assistance and dependence among all the industrial pursuits that contribute to the sustenance and comfort of the community? But we are forgetting Mr. Calvert's simple mode and entire success in draining, thus described in that capital journal, the old American Farmer:

"On the southern front of the mansion, contiguous to the lawn, there is a field of between fifty and sixty acres now well set in clover and orchard grass, from which a luxuriant crop was mowed this season, and a second crop is now growing. This field, a few years since, was a deep and almost impenetrable swamp, in which, in the dryest seasons, the cattle were mired, and not unfrequently had to be prized out. This melioration was brought about by a series of open ditches and covered drains, which collects and vents the water at all times, and by which an unsightly and unwholesome quagmire has been converted into a fertile meadow, adapted alike to the growth of grass and to every other product of the farm.

"There is another field of about equal dimensions, which has been also drained, and about three-fourths cleared, which, when completed, will be among the most productive fields on the estate, as its soil has been enriched by the decomposition of vegetable matter for uncounted years. The mode of making covered drains as practised by Mr. Calvert, is eminently worthy of note, as it is both economical and simple, and, therefore, cannot fail to commend itself to all who, like him, may consider it a matter of moment to achieve great ends at the least possible cost. After digging and graduating the drains, so as to ensure himself of their capacity to pass off the water into the open ditches, he fills them up with pine-boughs to such a height as that they will not interfere with the operation of ploughing, and then covers up to the surface with the earth which had been excavated. From experience, these drains answer every purpose of more costly ones, and bid fair to endure for a quarter, if not the third, of a century. The facility with which Mr. C. has demonstrated, how easy a matter it is to make sound, dry, arable soils out of inaccessible marshes, is as notable as praiseworthy, and cannot fail, we should think, to stimulate hundreds of landed proprietors to reclaim lands of a similar character which they may have on their respective estates, and thereby enhance their value and secure their families against those autumnal diseases which make such inroads upon their constitutions and health."

Glass Milk-Pans, says Mr. Colman in his Report on European Agriculture and Rural Economy, made of bottle glass, are much approved, and with proper care are in no danger of being broken. They recommend themselves by their cleanliness and incapacity of rust, or corrosion, or decomposition. If our agricultural societies would offer a handsome premium for the first exhibited, or if the American Institute would engage one or two hundred of a manufacturer, we could have specimens exhibited, and the advantages are so obvious in the particulars recommended by Mr. Colman that they could not fail to come into general use.

It is surprising how long, under the force of habit and prejudice, the best things are kept out of use.

We can remember well when ochra was cultivated for the sake of the berry, to get in it the best substitute for coffee; but nobody then and there thought of making out of it the best and most wholesome of all soups and

most convenient, Gumbo soup; and so it may be said, as we find in an English paper, of

"*Steel Pens.*—Who does not remember the time when a steel pen cost as much as a dozen quills? Who is ignorant of the marvellous reduction that has taken place in the market-value of these tiny bits of steel? Sixpence a piece, sixpence a dozen, sixpence a gross—thus have they come down in value. All this could not have been done but for the application of machinery. Men's hands, employed in cutting and pressing and shaping the pens, would never have permitted this cheapening to have gone to such an extent. And yet there are actually more men employed in the manufacture than when machinery was less used. The machinery, in fact, *has created a demand*, which requires large numbers both of machines and of men to supply. Some of the steel-pen manufactories of Birmingham are very large establishments, containing ranges of highly finished machines, and giving employment to large numbers of workmen. One of these manufacturers (Gillot), in his advertisements, states his yearly produce at *millions of dozens:* and there is no reason to doubt that it does not reach that extraordinary pitch."

Let us have glass milk-pans, if only for greater cleanliness. If some glass-bottle manufacturer would only introduce them, we will guarantee him custom. To return to what is said above about steel pens and the tendency of machinery to create demand for labor, so it would be with a variety of other small manufactures that might be established in country villages and county towns in Maryland and Virginia, if the laws of the state and of the Union would give the encouragement and security they ought to the natural tendency of men to combine and come together for all the purposes to which individual strength and means are inadequate. These manufactories once in operation would create business for themselves, while they would thicken population and give support to all around. There is scarcely a village in Maryland or Virginia, on a good water-power, that ought not to have *small factories*, a number of which, scattered here and there, would be much better for the country than the *centralization* of vast masses in large cities. For example, take ANNAPOLIS, *the seat of government of Maryland—why not a manufacturing town?* Why should not Annapolis support various manufactories where steamboats and railroads run every day? where living and house-rent are so cheap, the means of education at hand, and the population as exemplary and virtuous as any in the world; so much so that, within our knowledge, the front doors of hotels were left unlocked all night? Were such advantages enjoyed at the *seat of government* of a New England city, such an estate as Strawberry Hill would be worth $100 an acre at least, and every man, woman, and child, would be well and prosperously employed. Into all these things we hold it to be our duty to look, for it is on *these* things that agriculture depends. Why should not all the works of the loom and the anvil, needed for that place and vicinity, be *made there*, and the farmer, and the weaver, and the smith exchange with each other? It could not succeed, say some, because it has *no water-power;* and that would be true if water had no power, except by its gravity in the act of falling over a wheel. But is it forgotten that steam has taken the place of water, and that by the application of heat, one inch of water may be so evaporated, and a mechanical force evolved equivalent to fourteen pounds and three quarters raised to the height of 1700 inches. If, as is known, the application of steam to machinery has drawn manufactories from the line of water-courses into large cities, what is to prevent the use of steam for manufactories of every sort at Annapolis? Would not the greater cheapness of living, and of land and houses, and sites for factories, more than counterbalance any additional cost of transportation? If cotton and coal can be sent to Harper's Ferry and to Laurel and the Savage factory, why not to Annapolis? *Our* business with such questions is, as they affect the interest of the farmer and planter. As such, we shall examine them again and again.

INSPECTION OF TOBACCO IN VIRGINIA.

We find the following in the "Southern Planter;"—judging by what we have seen we should doubt whether it has ever been signed and presented, however universal may be the impression that the legislation called for is needed. Neither do we suppose that if presented it would be heeded, so inert is the *agricultural* class, and those who represent it, in State Legislatures and in Congress.

In the Senate of the United States, that body so select and so double-refined in public spirit and patriotism, we have good authority for saying, that up to very nearly the last day of one of the longest sessions of Congress which has ever happened, the Committee on Agriculture had *never held a single meeting!* nor do we believe that for this gross and scandalous neglect of an appointed duty, they will ever hear one word of reproach from any agricultural society, or from any other paper or individual in the Union—except in the still small voice that here speaketh. How can it happen otherwise than that a class which is thus guilty of self-neglect and abasement, will be neglected and trodden upon by all other interests.

To the General Assembly of Virginia.

Your petitioners, a majority of whom are planters of tobacco and citizens of county, respectfully invite your attention to the Tobacco Law, and ask an amendment of the same. Many years ago, the legislature prohibited the exportation of inferior tobacco. When this law was passed, it became necessary that the inspectors or some other officers should have the power of pronouncing judgment upon tobacco when inspected, and of deciding what was fit for exportation, and what deserved the flames. In this way originated the power conferred upon the inspectors of passing and refusing tobacco. The exportation of refused tobacco is not now prohibited, but it is now exported to the different markets of the world as freely as passed tobacco. The reason, then, for allowing the inspectors the right of passing and refusing tobacco, has ceased. This power was given to the inspectors under circumstances no longer existing, and its continued exercise is at war with the liberality of the age. We also maintain, that it is injurious to the planters, who have the same right to ask that the proceeds of their labor shall be exempt from unnecessary condemnation as those who follow other pursuits. No one denies the expediency of having tobacco inspected. It is proper that the hogshead be taken off, the tobacco broke, and samples drawn out and exhibited. When this has been done, the buyers and planters are competent to make their own contracts, uninfluenced by the judgment of the inspectors. We think that the inspectors should be inspectors *only*, and not *judges* as well as inspectors. No tobacco can pass unless the inspectors deem it "sound, well conditioned, merchantable, and clear of trash." The refusal of tobacco by the inspectors (who are selected because of their integrity and knowledge of tobacco) is equivalent to a public declaration that such refused tobacco is not "sound, well conditioned, merchantable," &c. Refusal brands tobacco with discredit, and impairs its market value. To deny this, is as erroneous as to assert that the standing of a man in society is as good after trial and conviction as before. If all the horses brought in Virginia, for sale, were examined by legal inspectors, who were competent judges, and who were required to refuse all horses not deemed by said inspectors to be "sound, well conditioned," &c., can any one believe that horses known to have been inspected, and marked as refused, would sell as readily, and command as much, as they would if there were no inspection and no refusal? Again, the words "well conditioned and merchantable" are so vague and indefinite, that the inspectors cannot act upon any uniform rules in deciding what tobacco ought to pass, and hence tobacco is refused at one warehouse which would have passed at another. Why subject tobacco to refusal, when other products are exempt?

Wheat varies in quality and appearance, yet the miller and seller make their own contracts without the need of inspectors to enlighten their minds or bias their judgments. There are no inspectors whose duty it is to refuse any of the iron made in Virginia, or the cotton or woollen goods made here, nor are those who follow the various mechanical trades liable to have the proceeds of their labor disparaged by the refusal of competent judges, acting in obedience to law. Western hogs and horses brought annually into Virginia are liable to no legal condemnation. We see no reason why the planters should be regarded with distrust and suspicion. They ask no exclusive favors, but they desire to be relieved from injustice. Their tobacco needs no commendation from the inspectors, and should receive none of their censure. Let tobacco stand or fall upon its own merits. The reputation and character of Virginia tobacco should be confided, not to the inspectors, but to the planters themselves, who are the appropriate guardians of their staple. No refusal is necessary as a stimulus to improvement, or a penalty for neglect. Prompted by self-interest, the planters will always endeavor to make good tobacco, and prepare it properly for market. When they make indifferent tobacco, it is more their misfortune than their fault, and misfortune deserves no punishment. Other reasons might be argued in support of the proposed amendment, but we forbear, and content ourselves with expressing the hope that it will be the pleasure of the General Assembly to amend our tobacco law, as has been here indicated.

THE QUEEN-BEE AT HOME.

The community of bees is an example of a pure monarchy, unrestrained by any checks on power, yet never deviating into despotism on the one hand, or anarchy on the other. Some years ago, while our gracious queen was making a royal progress through her northern dominions, we witnessed a no less interesting sight of the progress of a queen-bee, in the glass-hive of an ingenious friend and lover of nature at his country retreat. The hive was of that construction which opened from behind, and showed the whole economy within. In a few minutes, the queen made her appearance from the lower part of the hive. Her elongated body and tapering abdomen at once distinguished her. She moved along slowly, now and then pausing to deposit an egg in one of the empty combs: and it was most interesting to perceive how she was constantly accompanied by nearly a dozen of bees that formed a circle around her, with their heads invariably turned towards her. This guard was relieved at frequent intervals, so that, as she walked forward, a new group immediately took the place of the old, and these, having returned again, resumed the labors in which they had been previously engaged. Her appearance always seemed to give pleasure, which was indicated by a quivering movement of the wings. The laborers, in whatever way occupied, immediately forsook their work and came to pay homage to their queen, by forming a guard around her person. Every other part of the hive, meanwhile, presented a busy scene. Many bees were seen moving their bodies with a tremulous motion, by which thin and minute films of wax were shaken from their scaly sides. Others were ready to take up this wax and knead it into matter proper for constructing cells. Frequent arrivals of bees from the field brought pollen on their thighs for the young grubs, and honey, which they deposited in the cells. All was activity, order, and peaceful industry. None were idle but the drones, who seemed to stroll about like gentlemen.—*British Quarterly Review.*

MEANING OF THE TERM "BLOOD."

A good deal of pains has been taken to define the meaning of the term "blood," as applied to the horse called thorough-bred. Osmer, an old but accredited writer on the Horse, pronounced it to be a certain elegance of parts, derived from air, climate, and food, which, being suitable to the true natural conformation of the animal, enables him to perform extraordinary feats of activity and motion, coupled with great endurance of the highest bodily exertion; and hence the expression, "he shows a vast deal of blood," means nothing more than that he is a truly formed race-horse. Where, he asks, is the blood of the Ostrich, whose speed is so great, that it can "laugh at the horse and his rider?" "If the good qualities of the race-horse," says he, "depend upon blood, we could not, as we often do, see one horse very good, and his own brother, with equal advantages of good keep and training, very bad." It was the opinion of this writer, that it has been to the folly of expecting, that what is termed high-blood, in the Eastern horses, unaccompanied with essential form, will produce a racer, so many failures in the attempt to breed race-horses have occurred; that the virtue of what racing men call "blood," has been too much insisted upon, not being sufficiently influenced by the fact, that it can never be considered as independent of form and matter. We conceive there is a great deal of truth in each of the foregoing observations. Blood cannot be considered independently of form and matter, inasmuch as the excellence of all horses must depend on the mechanism of their frames, which, if duly proportioned, and accompanied with superior internal, as well as external organization, gives them stride, pace, and endurance. The quickness of repeating this stride also, and the power of continuance, will depend upon vigor of muscle, capacity of chest, and strength of the constrained lungs. The result, then, of this argument is, that when we speak of some of the celebrated stallions of former days having transmitted the good properties of their blood, or high Eastern descent, to the race-horses of the present time, we can only imply, that they have imparted that true formation of parts, that firmness of bone and sinew, and that general superior organization, competent to give facility of action; together with great powers of respiration, which will enable horses to last under the severest trials of their powers. In fact, their excellence is in a great manner mechanical. Were it not so, indeed, did they not excel each other according to the degrees of difference in their form and shape, and all the constituent parts, full brothers and sisters would prove of equal goodness on the race-course, health and condition being on a par. But this is very far from being the case; and, again, if it depended on blood, the same horse would run alike on every description of ground, which we know rarely happens; but of this we may be assured, that it is a superiority of muscular substance, united with justly proportioned shape, and not innate blood, which enables a horse to bear to be pressed, on any description of ground, still more so upon such as is severe, as several of our race-courses are.

Yet, if there must be this elegance of form, these nice proportions in the limbs, or moving levers of the race-horse, how is it that so many of those called "cross-made," *i. e.* plain, and apparently disproportioned horses, possess the power or parts conducive to speed and action? If blood can be defined the peculiar elegance in the texture of the external parts, how happens it that several very ugly horses and mares have at all times distinguished themselves on the turf? Are there certain occult causes, not discoverable to the eye, that produce this excellence, to which the rules and laws of action appear to be opposed? On these points it may be observed, first, that the force and effect of muscular motion is nearly beyond our ken; and, secondly, such horses are really not misshapen, inasmuch as they are hidden virtues in the

mechanism of their internal frames, which the eye cannot detect; and where deficient in one point, they are recompensed by additional powers in others. They possess the essential points, although not so elegantly displayed; and this, we believe, is the case with other animals than the horse; although, generally speaking, true symmetry in all is attended with corresponding excellence in their useful properties, and adaptation to the purposes of man.

Those persons who insist upon an innate quality in what is termed "blood," are led to believe that there is something in the *nature* of a thorough-bred horse, which enables him to struggle in a race far beyond his natural capabilities, and which is distinguished by the term "game." We do not think there is. We learn from experience that horses often allow themselves to be *beaten* by others which are inferior to them, from sheer ill temper; but their efforts to *win* a race, we consider to be merely limited by their physical powers, the effect of a proper arrangement of their parts; and that the operation of the mind, or spirit, has nothing at all to do with it. The hero at the Olympic Games had, and the champion of the British boxing ring may have had, feelings which, from the superiority of their nature, and the fact of their character, interest, and future happiness, being all involved in the event, might have induced them to struggle even to the very verge of life; but the same sense of honor, and the same spirit of emulation, cannot be ascribed to the race-horse.* If his own acting powers be unequal to those of others opposed to him in the race, he yields to that superiority, although it must be admitted, that what are called sluggish horses will not try to exert themselves to the utmost, unless urged to it by the spur and whip; and others, when spurred and whipped, slacken, instead of increasing, their speed. The final result of this discussion then is, that when, as has been previously suggested, we speak of such horses as King Herod, Highflyer, or Eclipse, having transmitted their blood to the past and present generations of running horses, we can only admit that they have transmitted that true formation of parts necessary to enable them to run races at a prodigious rate of speed, and to endure the severity of training for them.

EASTERN HORSES.

Although we have spoken in disparagement of horses of the East as racers, upon the same terms with those of our own breeding, we are willing to allow them the merit of being the parent stock of all our racing blood; as it is quite evident the indigenæ of our own country, or of those European ones which approximate to it, would never have produced the sort of race-horse now seen on the British Turf. The nature and character, indeed, of the horse of the Desert are peculiarly adapted to an animal who, like the race-horse, is called upon to put its physical powers to the severest test to which nature, aided by art, can submit. In the first place, the Arabian horse possesses a firmness of leg and sinew unequalled by any other in the world. This excellence, which he owes to climate, arises from his having larger muscles and *smaller bone* than other horses have;—muscles and sinews being the sole powers of acting, and on them depend the lasting qualities of an animal going at the top of his speed. Bones being the weight to be lifted, serve only to extend the parts; and it is evident, that such as are small, but highly condensed, like those of the deer, and the horse of the

* The Race-Horse appears to be animated by an instinctive spirit of rivalry and ambition to excel. Hence cases have been known where they have seized the rider of their opponent when in the act of passing near the winning-post. On Potter's course near Baltimore, Bachelor and another race-horse, grazing in the field, were seen to walk deliberately to the starting-post, take a fair start, and each to do his best for a mile! There are many things in this world not dreamed of in our philosophy, and there are many birds and animals, from which man might take lessons, if he would, in manners and in morals.—*Eds. P. L. & A.*

Desert, are, by occupying less space, and containing less weight, more easily acted upon by muscular force, than such as are large and porous, and for a greater duration of time, without fatiguing the acting powers. But the excellence of the Arabian horse, or horse of the Desert, does not end with his highly condensed bone, and flat and wiry leg, so much esteemed by the sportsman. All the muscles and fibres of his frame are driven into closer contact than those of any other breed; and, by the membranes and ligaments being composed of a finer and thinner substance, he possesses the rare quality of union of strength with lightness, so essential to the endurance of fatigue in all quick motions. He thus moves quicker and with more force, by reason of the lightness and solidity of the materials of which his frame is composed; and when, to these qualifications, are added the peculiar and deer-like elegance of his form, and extraordinary share of muscular power for his inches, he appears to furnish all the requisites of the race-horse on a small scale.

We have already accounted for the present breed of English race-horses being no longer susceptible of improvement from any foreign blood. But it is worth inquiring into the reason of the improvement of the horse of the Desert, and indeed of all the countries of the East, not advancing towards perfection, as that of our own breed has done. No doubt, it was intended that we should improve upon animal nature, as we improve our own, and nowhere has the attempt been so successful as upon our varieties of domestic cattle; but the horse of the Desert now, if he have not retrograded in his good qualities, is the same animal that he was nearly two centuries back. With the exception of the Wellesley Arabian, said to have been bred in Persia, (but the assertion is unaccompanied by proof,) who measured fifteen hands two inches high, all the rest that have been imported have been little better than Galloways, which must be attributed to two causes; first, the want of being forced, as our own horses are, in their colthood, by high keep; and secondly, by adhering too closely to the indigenous breed, or that whose blood is unmixed, by which means it has dwindled. Accurate observers must have noticed, that the greater part of the horses brought to this country as Barbs and Arabians have exhibited a palpable deficiency in the points contributing to strength, and the want of general substance is apparent at first sight. It is true that, of late years, their estimation has so diminished in this country, that no great pains have been taken to procure stallions of the highest caste, and scarcely any mares have been imported, and several of those sent over have been accompanied by very unsatisfactory pedigrees. We are, however, inclined to think that, as the immediate descendants of such horses are found quite inefficient as race-horses, and but few of the second or third generation have turned up trumps, unless as a rational experiment, the breeding of *race-horses* from Arabians is at an end.

In corroboration, however, of the good qualities of form and texture of this comparatively Lilliputian breed, we give the following extract from a letter of the late Captain Gwatkin, head of one of the Honorable India Company's studs, on the subject of crossing the English thorough-bred horse with foreign blood, dated Hauper, Bengal, September, 1828, to show, by their rate of going, their great endurance under the combined pressure of weight and speed; for to have run these lengths in the time specified, their height only averaging fourteen hands one inch, and of course unfavorable to speed, in addition to the ground being sandy, and therefore void of elasticity, the pace must have been severe from end to end of the course. Unfortunately the ages are not given, or a still better judgment would be formed of the lasting powers of these little animals under more than average weight.*

* See *Old Sporting Magazine*, vol. xxiv. New Series, p. 12.

RUN AT BENGAL.

	Name.	Weight. st.	lb.	Time. m.	s.	Distance.
	Patrician,	9	0	5	34	280 yards, less 3 miles.
1807.	Antelope,	9	0	6	4	2¾ miles.
1809.	Patriot,	9	6	6	46	3 miles and 325 yards.
	Sulky, (sent to England,)	9	0	6	25	3 miles and 325 yards.
	Oddsbobs,	9	0	ran second in the above race.		
1818.	Sir Lowry,	7	4	4	0	2 miles.
1820.	Nimrod,	8	10	4	6	2 miles.
	Sultan, (not 14 hands,)	8	12	6	16	3 miles.
1826.	Paragon, (sent to England,)	11	0	4	20	2 miles.
	Esterhazy,	11	7	3	42	1¾ miles.
	Cavalier, (not 14 hands,)	8	7	4	4	2 miles.
1827.	Champion,	11	7	3	44	1¾ miles.
1828.	Barefoot,	8	4	6	7	second heat of 3 miles.
	Cornet,	8	4	Ran second to Barefoot.		
	Chapeau de Paillie,	8	3	2	58	1½ miles.
	Redgauntlet,	9	0	5	6	2½ miles.
	Botherem,	9	3	2	58	1½ miles.

RUN AT POONAH.

1827.	Pyramus, (not 13 3,)	9	0	4	8	2 miles.
1828.	Dragon,	8	8	4	4	2 miles.

RUN AT BOMBAY.

1827.	Slyboots,	8	5	4	2	2 miles.
	Gaslight,	9	0	6	16	3 miles.
	Creeper,	8	6	4	2	2 miles.

RUN AT BARODA.

1827.	Harlequin,	8	4	6	9	3 miles.

RUN AT MADRAS.

1828.	Orelio,	9	0	4	0	2 miles.

We have reason to believe, that the best use to be made of Eastern horses would be for the production of the English hunter, by the best-shaped hunting mares, nearly thorough-bred. By the help of the dam, and our present improved system of keeping young horse-stock, there would be little fear of the produce not coming to a good size, even in the first generation, as it is, for the most part, the property of these horses to beget stock larger than themselves; but by crossing the female produce in the second with our large thorough-bred horses, hunters for heavy weights might be looked for, with every prospect of success. We know that the virtue of the blood, or constituent parts, of the horse that was no racer, (Marske, the sire of Eclipse, for example,) has produced a racing son, by acquiring proper formation of parts from the dam; and if to the fine form of the English hunter could be added the firmness of leg and sinew for which the Eastern horse is so conspicuous, but in which the English hunter is too often deficient, in conjunction with the larger muscles, more highly condensed bone, and well known powers of endurance of the Eastern horse, not omitting his action, which is generally first-rate, but of which a proper judgment could be formed previously to the choice of the stallion, a great improvement upon our present race of hunters would be effected; and all such as were known to be thus bred would meet a ready sale. It is a well-known fact, that some of the most brilliant hunters England ever produced, were got by Arabian stallions; and one, by Lord Clive's Arabian, was one of the best horses in Leicestershire, in Mr. Meynell's day, over every description of country. He was the property of the late Mr. Childe, of Kinlet Hall, Shropshire, who is said to have been the first to introduce the present very spirited style of riding after hounds. A powerful Toorkoman stallion would not, we think, fail in getting hunters out of good English mares. That breed is the largest of any of the Eastern horses, owing to being reared on better land.

One word more on the subject of the Eastern horse, as connected with the English Turf. Owing to the doubts and uncertainties that hang over the pedigrees and countries of the most celebrated stallions and mares which laid the foundation of our present breed of racers, it is impossible to determine to which individual breed, whether to the Turkish, the Barb, the Arabian, or the Persian, are the greater advantages derived from them to be attributed. They appear to us to be pretty equally divided. To the Byerly Turk we are indebted for the Herod blood, (sire of Highflyer;) to the Godolphin Arabian, said to be a Barb, for the Matchem blood, the stoutest of any; to the Darley Arabian, (the sire of flying Childers,) for the Eclipse blood; and to the Wellesley Arabian, believed to be a Persian horse, to the only real advantage gained to English race-horses, by a foreign cross, in later years. It must, however, be observed, that the most famous horses of the last century, such as Childers, Old Crab, Eclipse, and King Herod, did not appear on the Turf before they were five years old; which leads us to suppose, that the failure of horses subsequently bred, as they themselves were bred, from Oriental blood, and trained at an early age, may in great part be attributed to the fact, of the immediate produce of such horses requiring more time to come to maturity, or even to a certain degree of maturity, than those, like our present breed of race-horses, farther removed from such blood; and the cause may be attributed to climate. It is reasonable to suppose, that the produce of stallions and mares bred in the Torrid Zone, would come slower to perfection in a damper and colder country than it would have done in its own; and we may infer from this, that, in proportion as horses were brought earlier to the post, and races shortened in distance, Eastern blood got into disrepute.

As to the comparative speed of Arabian and English race-horses, England is not the arena on which it can be fairly decided, inasmuch as the total change of food, system, and climate must operate more powerfully on the Arab brought to England after a certain age, than on the English horse taken to India under similar circumstances, for reasons too obvious to require to be mentioned. It may, however, be stated, on the best Indian authorities on this subject, that the best Arab on his own ground has not a shadow of a chance against an imported English racer, in any thing like a good form. The celebrated race on the Calcutta course, between Pyramus and Recruit—the former the best Arab of his year, the latter a second-rate English race-horse by Whalebone, the property of the Marquis of Exeter—settled this point, inasmuch as allowance was made for the comparatively diminutive size of the Arab, it being what is termed a give-and-take match, or weight for inches, in which Recruit carried 10 stone 12 pounds, and Pyramus only 8 stone 3 pounds, an extra allowance of 7 pounds having been given to him as an Arab.

"Pyramus," says the reporter of this race, "is as good an Arab (he had previously beaten all the best Arabs in Calcutta for the gold cup) as has appeared for many years. His condition was undeniable; the distance was all in his favor; and he was ridden with superior judgment; so that the result of his match with Recruit may be considered to have established this as an axiom, that no allowance of weight within the bounds of moderation can bring the best Arab, even in the climate most congenial to him, upon a par with an English thorough-bred horse of moderate goodness. In addition to all these circumstances in favor of Pyramus, it must be remembered that Recruit only landed on the 28th of May, (the race was run in January,) after a voyage of five months." This statement is borne out by one of the articles of the Auckland Cup, the annual gift of the Governor of Bengal, in which,

for the year 1840, English horses were weighted at 2 stones 7 pounds beyond that carried by Arabs.

BREEDING THE RACE-HORSE.

Amongst the many things in the history of Ancient Greece that have called forth the admiration of mankind, the celebrated games of Olympia claim the foremost place. Independently of their religious association, and advancement of literary spirit, they were highly serviceable to the country; and none proved more so than those at which horse-racing was introduced, which appear to have been completely established in the 25th Olympiad. That the improvement of the native breed of horses was the chief object of the Government, is beyond all doubt, as it has been that of all others who have given encouragement to racing; and it is equally apparent, that the Thessalian courser, so highly extolled by Pindar, and likewise so terrible in war, was the result of a foreign cross. So essential, indeed, was this object considered in Greece, where horses were very scarce even after the time of Pindar, that it is stated, on the authority of Aretius, in a note on Pindar's second Isthmian Ode, that there was a general law in Greece, requiring all who were able to breed horses. The state of perfection their horses had approached at this early period is beyond the power of conjecture; but in Great Britain, from the highly cultivated knowledge of the mechanical structure of living bodies, with the junction of best shapes—although, but for the stimulus given by racing, this knowledge would have been comparatively in its infancy—the horse has arrived at the highest state of perfection of which his nature is capable; and in whatever country and in whatever climate his racing powers are put to the test, he has scarcely found a rival, excepting under very disadvantageous circumstances. It is true, his *lasting* qualities were doubted, and he was challenged to rebut the charge; and the following was the result. On the 4th of August, 1825, two second-rate English racers, Sharper and Mina, contended against the most celebrated Cossack horses from the Don, the Black Sea, and the Ural, in a race of the cruel length of forty-seven miles. At starting, Sharper and Mina ran away with their riders more than a mile, and up a steep hill, when the latter horse broke down, and pulled up. Half the distance was run in an hour and forty minutes. In the last half, only one of the Cossack horses was able to contend with Sharper, who, notwithstanding every foul advantage was taken by changing the weight, and dragging along his opponent by a rope, won his race in gallant style, performing the distance in two hours and forty-eight minutes. At starting, the English horses carried three stone more weight than the Cossacks; and during the latter half of the race, the one Cossack who remained in it was ridden by a mere child.

From the export trade to the Continent of English horses, and particularly those of full blood, joined to the low price of horse food during the last twenty years, and on which there is not much prospect of an advance, occupiers of land cannot turn their attention to a much surer source of profit than that of breeding horses, provided they go judiciously to work. But, unfortunately for the speculators in this branch of rural economics, too much is left to chance and experiment, and thus horse-breeding becomes absolutely a matter of speculation, instead of a matter of judgment. It is true, those noblemen and gentlemen whose studs have become eminent on the Turf, cannot be included in this charge; but, even with the benefit of great experience, and various other advantages, the utmost exercise of their judgment is required, to ensure even a prospect of success against such a field as they have to contend with. Having said this, we will lay down a few practical rules for the breeding and rearing the various kinds of horses now used in Great Britain, commencing, as before stated, with that of the Race-Horse.

HOW AGRICULTURE IS AFFECTED BY LOCAL PREJUDICES.

Doctor Lee, a New England man, as we believe, or at the least a New-Yorker, and formerly editor of the Genesee Farmer, is now a resident of Augusta, Georgia, as editor of the Southern Cultivator, which he conducts with his well-known ability.

Speaking, then, from personal observation, as to the comparative estimation of the laboring man in the North and the South, he remarks in the July number of the Cultivator:—

"So far as we have been able to discover, laboring white men are treated with equal, and in some instances *superior* consideration at the South, as compared with their treatment at the North. We dined not long since in company with the President of an agricultural society, wealthy merchants, members of the bar, and planters, at the table of a gentleman, who had at the time a couple of white laboring men employed in digging ditches. Under similar circumstances at the North, few gentlemen or their wives would have seated these *ditchers* at the dinner-table with their company; nor would the white laborers have expected it, or been offended to eat by themselves. On the occasion alluded to, these worthy men, albeit none the less worthy for having a little adhesive soil on their clothes, took their plates at the table in a way so perfectly easy to all the guests, as well as themselves, that we saw, to our surprise, no evidence of condescension on the one hand, nor of assumption on the other."

Now this, we must confess, Southern men as we are, seems to us to be going it, as the saying is, "with a rush!" It is one thing to entertain, as gentlemen do everywhere, kind and respectful and benevolent feelings for the honest laborer, whatever may be his trade or occupation; but it is quite another to bring in ditchers, with the "adhesive soil on their clothes," and place them among ladies and gentlemen at a dinner party, even, as we should think, for the convenience and comfort of the ditchers themselves. There is reason in all things, "even in roasting eggs!" but it shows conclusively, as the Doctor says, that "laboring white men *are* treated with equal, and in *some* instances superior, consideration at the South, as compared with their treatment at the North." How far such instances are common, is not stated; nor do we conceive them to be necessary to the establishment of the general fact that honest white labor is treated in the South with that respect which is everywhere due to it. To whatever influence it is to be ascribed, there is no part of the globe where more kindness of heart and of treatment is evinced towards inferiors in rank and fortune by their superiors in both, than in the Southern states.

Not many days since, we were agreeably surprised by a visit from a large planter of Louisiana, residing near St. Francisville; and a Northern gentleman being present, who justly appreciates the Southern character, though opposed on politico-economical grounds to their "peculiar institutions," we asked our Louisiana friend about the "allowance" to his slaves; not that we did not know, for we had learned it on his estate, but that the facts might be brought directly to the notice of our Northern friend. The answer was, that the regular allowance, besides milk and vegetables, was as much meal as they could eat, and *four pounds* of meat, of the best sort, per week; and if that were not enough, his orders were to give more—"to give enough, but to permit no waste"—*sugar and coffee every day.*

The gentleman's word was as conclusive to our mind, of the exact truth of the statement, as if it had been proved by a thousand of those carefully drawn up "affidavits" prescribed in some parts of the country, to guard against lying and fraud in all cases where premiums of a few dollars are in question for the best half acre of sugar-beets or carrots.

(From the London Gardeners' Chronicle, by Professor Lindley.)

ANALYSIS OF COTTON,

WITH REMARKS ON THE SOIL AND CLIMATE ADAPTED TO IT.

Since our paper on the chemical analysis of Cotton wool and of Cotton soils was written, we have received an Analysis of New Orleans Cotton Wool, and of the seed of the same kind of Cotton made by an American chemist, which, we believe, has not yet been published. This is interesting, not only on its own account, but as showing the great value of employing the seed as a manure for the Cotton plant.

One hundred parts of Cotton wool, on being heated in a platina crucible, lost 85·89 parts. The residuum, on being ignited under a muffle till the whole of the carbon was consumed, lost 12·735, and left a white ash which weighed nearly 1 per cent., or 0·9347. Of this ash nearly 44 per cent. was soluble in water. Its constituents were as follows:

Carbonate of potash (with a trace of soda)	44·29
Phosphate of lime (with a trace of magnesia)	25·34
Carbonate of lime	8·97
Carbonate of magnesia	6·75
Silica	4·12
Sulphate of potassa	2·90
Alumina	1·40
Chloride of potassium, Sulphate of lime, Phosphate of potassa, Oxide of iron (a trace) } and loss	6·23
	100·00

Analysis of Cotton Seed.

One hundred parts, treated as before, lost 77·387, and the residuum, after being burned under a muffle, left 3·936 parts of a perfectly white ash, the composition of which was as follows:

Phosphate of lime (with traces of magnesia)	61·34
Phosphate of potassa (traces of soda)	31·73
Sulphate of potassa	2·65
Silica	1·68
Carbonate of lime	·47
Carbonate of magnesia	·27
Chloride of potassium	·25
Carbonate of potassa, Sulphate of lime, Sulphate of magnesia, Alumina and oxide of iron } and loss	1·63
	100·00

With respect to these analyses, we may for the present observe, that the seeds yielded nearly four times as much ash as the Cotton itself did, and at the same time contained a much larger proportion of phosphoric acid and of lime. In this respect the quantity of both these substances is greater, as shown by the American analysis, than in that of Dr. Ure. Whether this may be owing to different kinds of wool having been employed, or to differences in the modes of analysis, can only be known when the analyses have been repeated by chemists with different kinds of Cotton.

In resuming our observations on soils, it is first of all necessary to observe that, though no one will dispute the paramount importance of the chemical constituents of the soil, yet these may be considered in some respects to be only of comparative value, as it is equally necessary to attend to the physical state of the soil, and to both in connection with the climate of particular localities. The mechanical state of the soil, its greater or less degree of porosity or of tenacity, enabling the roots to spread with more or less facility, so as to fix the plant steadily in the earth, at the same time that they supply it with a large portion of its nutriment, is necessarily of great importance. But as a considerable portion of the food of plants is supplied by the air, its

different states and due supply require also to be attended to, in addition to climate; no chemical composition or mechanical state will compensate for unsuitableness of climate. We all know that our oaks are as little likely to flourish within the tropics, as South American palms in our meadows, and no one now expects that our rich variety of orchids would flourish, if, supplying them with every requisite of site, of soil, of culture, and even of temperature, we denied them a moist atmosphere. And yet a few years only have elapsed since it was considered a rarity to flower these *air-plants;* and also since mountain rice was attempted to be cultivated here in the open air, because it came from a cool climate, and was said to be cultivated without irrigation. But it was forgotten that, during the season of cultivation in its native mountains, rain falls almost every day, and the air is in a state of continual moisture. So, also, in the culture of cotton, a certain state of the soil, both with respect to its chemical composition and its mechanical state, may be well suited to one situation, and yet not be desirable in another, chiefly from a difference in the condition of the atmosphere. For instance, a certain degree of porosity of the soil may retain and bring just enough of water within reach of the roots, and yet if the atmosphere became more damp, the soil may require to be made drier by drainage. Again, if in another situation the air is more dry, and evaporation necessarily greater, both from the surface of the earth and from that of the leaves, a soil more retentive of moisture will be more suitable than one which is more open, and which thus allows moisture to escape, not only by evaporation but by drainage. These varieties may be observed not only in the soil and climate of different localities, but even in the same locality at different seasons of the year, especially in a country like India, which, in the language of meteorologists, is in many parts one of extremes. As plants obtain from the ground their water, holding in solution saline and earthly particles, and are dependent upon the air for the elements of organic matter, it is evidently essential to pay equal attention to both, for it is difficult, nay impossible in most cases to say whether the soil or the climate has the most influence upon successful cultivation, and it is nearly as useless, to use the words of Mr. Neill, as "attempting to decide which half of a pair of scissors has most to do in the act of cutting, or which of the factors 5 and 6 contribute most to the production of thirty."

With respect to the practical inferences deducible from the chemical analyses, we may first quote the opinion of Mr. Piddington, that carbonate of lime was essential to good cotton soil. Subsequently he observed that the American, the Mauritius, and the best Singapore soil contain a considerable per centage of vegetable matter, and some part of it easily soluble in cold water, while the Indian soils contain very little vegetable matter, and this wholly insoluble in water; but that the best contain a far larger proportion of carbonate of lime, and, some of them, their iron in a different state from the others. The lime, though not indispensable, he supposes, may be highly useful; but he ascribes greater value to the presence of vegetable matter. For a soil in Bengal, which contained but exceeding minute portions of lime and carbonaceous matter, and in which he cultivated cotton, worth from 9*d.* to 11*d.* per lb., as an experiment, for seven or eight years, during which he had always good and often abundant crops, he ascribes this effect to the plants having been constantly manured with the black, peaty earth, so abundant in the jheels (pieces of water) of India, and of which an average good specimen contains 26.00 per cent. of vegetable matter, and 15.00 per cent. of carbonate of lime, yielded chiefly by the small shells contained in the above deposits.

Mr. E. Solly, as the result of his analyses, remarks, "that the goodness

of the soils from Georgia depended, probably, far more on the mechanical structure than on the chemical composition, and that the presence of lime or any other substance would appear of far less importance than that the soil should be, not too rich, but of a light and porous character, so that the delicate fibres of the roots might penetrate easily in all directions." This opinion is probably not far from the truth wherever the climate is most suitable to the cultivation of cotton.

Dr. Wight, after practical experience of some years, states that where it is in his power to choose, he prefers "a deep dark colored, light, almost sandy loam, and if it has been long out of cultivation so much the better." The black cotton soil in which so much of the cotton of India is grown, and which is generally considered the best for the purpose, is remarkable for its power of retaining moisture; while of the red soil he says, "again I am informed that in some parts of the country, for example in the Vizagapatam district, the finest cotton crops, both as to quantity and quality, are raised on red soils, and the redder the better for the purpose." But the suitableness of these several soils we must consider in connection with climate.

COMING TO THE POINT IN AN INTELLIGIBLE, PRACTICAL WAY.

In the Kent County Maryland Farmer's Club, a discussion seems to have been entertained as to the proper time for sowing wheat. In a certain club ycleped a "*Farmer's Club!*" at which we erewhile attended, occasionally, for curiosity and amusement, and with certainty of information when such as Doctor U. and C. H. A., &c., happened to be there—otherwise, those in attendance were any thing but farmers—you might have attended to hear the question discussed, what is *the right time to sow wheat?* but in a few minutes, as soon as the everlasting talkers could get off on a tangent, you would in vain endeavor to guess *what* was the question at issue. Now we like a discussion that ends in something plain and practical like the following:

"At a meeting of the Agricultural Board of the Agricultural Society of Kent county, on the 8th inst., the opinion of members was asked in reference to the proper time of seeding wheat:

Mr. Ricaud thought all wheat should be seeded as early after the 15th August as practicable.

Mr. Smith agreed that Mediterranean wheat should be seeded so early, but other wheat may be advantageously seeded up to 10th October.

Dr. Kennard—The proper time for all wheat is from 20th August to 10th September.

Mr Wilkins concurred in opinion with Dr. Kennard.

Mr. Westcott—From 1st August to 20th September, season suiting and ground being in proper order, which are considerations of controlling influence.

Mr. Price—All wheat should be seeded from 20th August to 10th September.

Mr. Spencer thought nothing was to be gained by seeding before the 1st September.

Mr. Constable—Decidedly in favor of early seeding, from 20th August to 20th September.

Mr. Ringgold—Has seeded early for two years past, thinks his wheat seeded from 1st to 15th September best; seeded a portion of his crop last year as early as middle of August.

Judge Chambers—Seeded on the 16th August as long since as 1837 with singular success. The best wheat he had this season was seeded in the middle of August, which is the favorite period with him."

But against the unanimous opinion of these nine practical farmers, in favor of early seeding, what is to be said of the opinion and practice of Judge Carmichael, also a closely observing farmer, who sows late to avoid, and seldom suffers by, the ravages of the Hessian fly? He says—

"I never sow wheat till the cool weather in October disarms the Hessian fly, by which I seldom suffer."

The witnesses live in neighboring counties.

THE TRUE SOURCE OF THE FERTILIZING POWER OF MANURES, OR, THE EFFECT OF SHADE.

THE following is that sort of communication which we take pleasure in spreading before inquiring readers, who pay to the journals they patronise, not the poor compliment of merely subscribing their names and paying, (*which some forget to do!*) but that which is to every editor of true ambition much more gratifying, that of *reading and studying what he takes the trouble to furnish.* For ourselves, our humble aspiration has ever been, not so much to count the number of subscribers as to give in new ideas *subjects for thought* to those we have; for however slow we might be to imitate, who may not admire the pride of the French cook, who threw himself upon his sword because the fish for his royal master's dinner had been spoiled in the cooking?

We regard the following as, to a certain extent, original; and highly important in the practical uses that may be made of it. There is not an observant farmer, in the habit of noticing all he sees connected with his profession, but may remember some facts corroborative of Doctor Baldwin's theory. We remember, when a boy ourselves, delighting in assisting "the people" on Saturdays in the light work of hay-making, that the noble-minded and noble-hearted proprietor, who was truly a *father over all*, black and white, always made them select *poor* spots in a neighboring field on which to *cure and stack the hay*, and these spots, merely from the effect of the stacks having stood upon them, were sufficiently fertilized to bring heavy crops of corn and tobacco. Yes, *these are* the sort of communications that impart ideas that excite thinking, and that are well worth to the reader the annual price of the journals in which they are kindly permitted to appear:

Winchester, Virginia, August 25, 1848.

DEAR SIR,—I submit for your consideration a few practical observations upon the subject of manures, or the aliment of plants, made during an attempt to renovate a large tract of impoverished land in this county. I consider the residue of putrefaction the only manure. All substances, animal, vegetable, and mineral, either liquid or solid, which are capable of undergoing the putrefactive fermentation, form, by the chemical changes peculiar to that process, a fertilizing residue. This residue is the *only* pabulum of plants. No substance whatsoever, not excepting animal excretions, can be properly considered a manure until it has been subjected to putrefaction. To perfect this, it is indispensable that most substances should be favorably located. Close, dark, cool, damp locations, with a slight contact of air, most favor it. Light, heat, much moisture, and a free circulation of air, retard, and in many cases entirely prevent, the putrefactive process. I believe that the quality of the manure does not depend so much upon the chemical composition of the substances subjected to putrefaction, as it does upon the manner of perfecting that process. Manure made in vaults is admitted to be the best, and manure in stables better than that of barn-yards. Straw, which has remained in vaults or ice-houses one winter, when ploughed under in the spring, proves to be a very valuable manure; taken from the rick it is no manure. The earth itself is capable of being converted into the best manure. If densely shaded, it will undergo chemical changes, apparently similar to those which vegetable and animal matters do when they are converted into manure; namely, it is changed in color, consistence, and fertilizing qualities. This fertilized earth is known as vegetable mould, or virgin earth, to be the best of all manures. It has hitherto been considered the residue of vegetable decomposition. I furnished you with the facts in June last, which convinced me that this definition was erroneous. I now wish to direct your attention to a few additional facts. Vegetable matters upon the earth's surface exposed to a free circulation of air, appear to be decomposed by a different chemical process, termed mouldering, which forms a trifling carbonized residue *destitute* of fertilizing qualities. And this is the case, also, when ploughed under and deprived of contact with the atmosphere. Unless they be previously saturated with water, or lime be added, they do not undergo the putrefactive fermentation; but by

mouldering become useless, if not pernicious, to after vegetation. The astonishing fertilizing effect of vegetable matters, when thickly covering the surface of the earth for a length of time, cannot be accounted for by their decomposition, for the quantity of the residue of clover, leaves, or straw, would not be sufficient, even if it were always equal in virtue to the best Peruvian guano. Straw spread thickly upon the poorest land—"land completely exhausted of alkalies"—will enrich it by the time it becomes decomposed; ten times the quantity ploughed under will produce no perceptible benefit. If the manure of straw be owing to the six per cent. of phosphate of lime which it contains, why is it that sixty per cent. placed in the earth imparts no fertility to it? But that the fertility of the earth is not attributable to the decomposition of the straw, is proved by the fact, that any substance incapable of decomposition will produce precisely the same effect. I do not entertain a doubt that the wonderful fertilizing effect of all substances covering the surface of the earth for some time, is to be attributed to shade and shade *only*, and that the degree of fertility imparted to the soil may always be estimated by the density and duration of the shade. That shade is a most powerful and efficient agent, is exemplified by the rapid destruction of the timbers and floors of buildings without cellars, when the precaution of preserving ventilation beneath has been neglected. That it can be most profitably employed by the farmer in fertilizing the surface of the earth, I know from experience; for lands densely shaded one year, *with any substance whatever*, will always prove to be more durably enriched than lands well manured. Any number of acres may be rendered productive by it (without labor or expense) in as short a time as it usually takes to prepare manure and apply it to a few acres. No method which has been hitherto suggested for the renovation of large tracts of worn-out land is so practicable, cheap, and effective.

Yours, with great respect, ROBERT T. BALDWIN.

THE AGRICULTURAL CONVENTION AT BALTIMORE, IN MARYLAND.

THE last few months have been remarkably fruitful of *conventions*. If their dignity and worthiness were measured by the scale of real usefulness, in reference to the objects for which they were called, among the most honorable would be esteemed the *convention of agriculturists assembled at Baltimore on the 5th of last month*. Yet of all that have occurred, it was probably the smallest in point of *numbers*. But, if to be measured by the spirit, intelligence, character, and patriotic designs of those in attendance, then was it worthy of the noble occasion for which it met. Where the yeast is so good, a small quantity will leaven a large mass; and thus may it be hoped the proceedings of this meeting will prove to have been one of those small, but lively sparks, which, falling on combustible matter, spreads rapidly and wide its renovating influence—not one of those devastating conflagrations that sweep as with the besom of destruction the accumulations of honest industry, but one of those to which the farmer on the river-shore has sometimes recourse in spring-time to destroy the poisonous growth and rubbish of the marsh, to be succeeded by sweet and nutritious herbage. May we not hope that this *farmers' convention* will be the harbinger of reform in particulars that affect not merely the profits, but the character and standing of the profession, insuring for it among themselves (where reform must always commence) a higher sense of self-respect, and a more *perfect combination* to command consideration from others, and especially from men in public life, who much need to be reminded that the *interest of*

the plough is that which, of all others, has the first claim on their attention? Surely, as is well said in the American Farmer,

"It is time that the agricultural community should take measures to protect their interests, as from long neglect, though numbering three-fourths of the entire population of the country, they have less weight in state and national councils than almost any other class. We say to them—*the time for action has arrived.* Whilst millions are expended yearly for the promotion of other interests, nothing has been done to improve the condition of those engaged in agriculture."

For our humble selves, we are free to confess, that, highly and unaffectedly as we profess to respect the intelligence, character, and designs of every member in attendance on this occasion, we should have little hope of any permanently profitable results, were it not that we anticipate, as the consequences of the wholesome excitement to which such conventions should lead, a higher appreciation and more determined enforcement of the claims of agriculture to take precedence over all other pursuits, when provision is to be made for instruction or encouragement by public authority and public means. More we have not room to say at present, except very briefly to add that the convention proved to be here what its members are known to be at home—one of *working men;* and that, during the *short time they could be kept together*, (too short, as usual,) much important matter was cut out for future consideration and action, besides the formation of a *State Agricultural Society* at the suggestion of Mr. Dobbin.

On the meeting of the convention, John Glenn, Esq., on the nomination of Mr. Calvert, and by the unanimous acquiescence and wish of the body, was called to the chair. Mr. Glen is president of the Farmers' Club of Baltimore County, under whose auspices the convention met, and, though a professional man, whom all sides are eager to retain in all important cases of doubtful issue, he yet finds time to give his countenance to all undertakings to meliorate and improve the condition and prospects of agriculture; but he belongs (we say it not without deliberation) to the *most liberal* of all callings and professions, in our humble judgment.

As "The Plough, the Loom, and the Anvil" is *stereotyped*, to enable us to meet the demand for the thousands of copies which, it seems likely, will yet be wanting, it has to go early into the hands of the stereotyper, and thus this is the last moment to send forward any thing for the October number. We can only give, therefore, what follows from the Baltimore American, the morning after the adjournment of the convention; but we must take room to add, that, while so many drones remained sleeping at home, that active working bee, in the hive of agricultural industry, Major Jones of Delaware, favored the convention with his presence and good counsels. Nor can we suppress the thought, as it arises at the moment, that, while so much solicitude was evinced for the procurement, on the best terms, of a supply of guano, it would not have been *mal apropos* to have passed a vote of thanks to George Law, Esq., of Baltimore, for his active, persevering, and most disinterested, and even generous agency, in diffusing the substance over the country, and with it a knowledge of its properties. But the process may be said to have resembled that of boring and splitting granite rocks with gun-powder, so unbelieving are farmers; yet all mysteries become plain enough when *well explained*, and thus all *now* understand the value of guano, and the cry is how shall we get it on fair terms? For this let us wait the report of the committee appointed at the judicious and well-timed suggestion of Mr. Farquhar, of Montgomery county.

"The committee appointed to nominate officers for the State Agricultural Society, submitted the following report, which was adopted, and the gentlemen named declared to be elected officers of the State Agricultural Society:

President—Chas. B. Calvert, of Prince George's county.

Vice-Presidents—John Glenn, Baltimore city; H. S. Key, St. Mary's county; Gen. J. J. Chapman, of Charles county; Col. H. Capron, of Prince George's county; George Weems, of Calvert county; Wm. C. Syles, of Ann Arundel county; Dr. A. Thomas, Howard district; A. Bowie Davis, Montgomery county; David W. Naill, Frederick county; William A. Dodge, Washington county; Dr. Samuel Smith, Alleghany county; Geo. Patterson, Caroline county; Wilson Carey, Baltimore county; R. McHenry, Harford county; Rev. Mr. McIntyre, Cecil county; Wm. S. Constable, Kent county; Jas. T. Earle, Queen Ann's county; Samuel Hambleton, Talbot county; Jos. Pearson, Caroline county: Dr. J. E. Muse, Dorchester county; Dr. William Williams, Somerset county; John U. Dennis, Worcester county.

Corresponding Secretary—Geo. W. Dobbin.

Recording Secretary—Samuel Sands.

Treasurer—Geo. M. Gill.

Curators—Wm. W. W. Bowie, N. B. Worthington, J. C. Welsh, Z. Barnum, and Chas. R. Howard.

"On motion of Mr. Davis, the convention then adjourned *sine die*, and the State Agricultural Society immediately thereafter organized, the President. Mr. C. B. Calvert, taking the chair, and returning his thanks for the honor conferred on him.

"On motion of Mr. Crane, the papers throughout the state were requested to publish the proceedings of this body.

"The chair then proceeded to appoint the several standing committees called for by the laws of the Society.

"Mr. Dobbin submitted a resolution calling for the appointment of a committe to report on insects injurious to husbandry common in Maryland. The resolution was adopted, and the committee appointed.

"The Society then adjourned to meet on the evening of the 8th of November next."

We shall doubtless have the official report in the American Farmer.

THE IRON TRADE.

In our last, we stated our belief that if all the furnaces and rolling-mills of the Union, created since 1843, were closed, and the product of iron thus reduced from 700,000 to 350,000 tons, we should not import above 80,000 tons to take the place of the other 350,000, and for the reason that the payment of 80,000 tons produced abroad would be more onerous than that for the 350,000 produced at home, and we have just met with a statement that tends strongly to confirm this idea.

The import of iron into New York in the first half of the following years has been as follows:

	1846.	1847.	1848.
Bar Iron, tons, - - - - - - - -	6690	14,259	13,600
Pig do. - - - - - - - - -	7700	19,500	23,960

Here we see that the whole increase is but 23,000 tons, and that would perhaps give from thirty-six to forty thousand tons for the Union. We have thus gained by the tariff of 1846 the use of that quantity, but we have closed rolling-mills that would have produced a far greater one, and we have prevented the building of furnaces that would be now making 200,000 tons per annum, and of rolling-mills that would be yielding 100,000 tons of rails to be used for enabling the farmer and planter to get his products cheaply to market.

The price of iron has diminished, but the power to purchase it has diminished far more, because *the farmer is the man who pays the freight*, and every increase of the distance between him and his customers diminishes his power of consumption. He it is that should labor to bring the loom and the anvil to take their place by the side of his plough, and he it is that will do so, when he can learn to appreciate the fact that he must pay all the freight, and all the commissions, and all the insurance, and all the waste, that takes place in the passage of his food and his wool, or his cotton, on their passage to and from the place where his wool and his cotton are converted into cloth, and his food converted into iron.

STEAM POWER.

WHY NOT EMPLOYED MORE EXTENSIVELY FOR AGRICULTURAL PURPOSES IN THE UNITED STATES?

Written for the Model American Courier, by the Editor of the Plough, Loom, and the Anvil.

If the many thousand dollars which Congress begins to expend, under retence of satisfying the just demands of Agriculture, for its annual compilations of facts, and statistics, sliced with long sharp scissors from the journals of the day, and commonplace letters about feeding hogs on corn, cooked and uncooked, were appropriated in premiums for scientific discoveries in the principles, processes and implements of agriculture, and for *new* applications of steam and other powers to the cultivation of the soil, we should accelerate and illustrate the progress of American Husbandry, and the genius and talents of our countrymen would be put in a way to acquire enviable renown and profitable results in field practice. One has only to step into any one of the various manufacturing and mechanical establishments in our large cities, and there see the great variety of purposes to which steam is applied, from the boring of a 32-pound cannon, down to the smallest and most minute operation; and he cannot fail to be struck with the advantages which result to all trades and professions, from *concentration* of population and mind.

One of the sources of greatest loss to the farmers of the United States, is the want of some cheaper means of *draining land.* Ride where you will, through the old States, and you will see thousands of acres of the best land waste for want of thorough ditching and draining. The absence of population, occasioned by our encouragement of foreign labor, and consequent want of consumers near the plough, is generally enough to account for this waste of the richest lands. Still, it would not exist to the extent that it does, if the operation could be accomplished, as we are persuaded it might, if Yankee ingenuity could be stimulated by the certainty of adequate reward, for the invention of some mode of applying steam, or even horse power, economically and skilfully, to the purposes of ditching and draining.

In the account of the great Fair lately held in England, where the mere catalogue of implements exhibited made more than 200 pages of letter-press, we find the following account of *draining implements, and harrows.*

We are quite aware that, generally, for the uses and circumstances of American farmers, we are ahead of the old country in the way of implements, and that those which have been invented there, when imported, have, in many cases, been reformed and modified, to make them better suited to our purposes; but this is no reason why, when new ones are invented, our Agricultural Societies and implement makers should not import them, if only to be thus modified and improved.

"Draining Implements.—Of these, Messrs. Mapplebeck and Lowe, of Birmingham, contributed several; as did also Mr. H. Clayton, of 21 Upper Park-place, Dorset Square, London. Under this head we must not omit to mention a model of a very powerful machine invented and manufacured by Mr. Joseph Paul, of Thorpe Abbot's-hall, Norfolk, which is thus described by the inventor. This machine may be worked with three or more horses, and by a *single operation will cut a drain from three to five feet in depth at the rate of four feet per minute, leaving it in a finished state, with a perfectly level bottom for the tiles to rest upon.* It is also calculated for raising subsoil to the surface for the purpose of claying lands, [why not then in our marl pits?] and when used with four horses, will raise from 4 to 5 cwt. of clay per minute; and on stony soils it may be made equally efficacious, although the operation would be somewhat slower. It may be used to the greatest advantage when the surface of the soil may have become so hard, either by frost or dry weather, as to render it impracticable to accomplish the cutting of drains by manual labor. The utility of this implement, when it is required to cut drains on clover lands in course for wheat crops, and from which the first crop has been taken, is clearly seen; as the clay, from being immediately spread over the surface, becomes thoroughly pulverized, and

comes into immediate operation for the succeeding crop, while, from the rapidity with which the work is accomplished, the second crop of clover is not retarded in its growth. Price £50, exclusive of royalty, [or copyright,] which must vary under the circumstances in which it may have to be used. We had previously heard something of the working of this machine; and have no doubt, from the ingenuity and respectability of Mr. Paul, as a large, practical farmer, that his description of its capabilities and powers are fully borne out by facts. Mr. Paul has applied the same principle to a separate machine for deep subsoiling and pulverizing the land to the depth of 20 or 30 inches, and at the same time bringing up such portion of the subsoil, to be distributed on the surface, as may be deemed expedient. Price 30 guineas.

Although the above machine, at 50 guineas, would be too costly for our farmers generally, yet if a single machine were had, or a good drawing, it would soon be improved, probably as the English drill machine was improved by Mr. Pennock, and others have been by the unfettered and active ingenuity of American mechanics. And besides, if it will cut a ditch at the rate of from 3 to 5 feet deep and 4 feet long in a minute, or 240 feet in an hour, or 2400 feet in ten hours, a man might make a good business in taking it from farm to farm, and working by the perch. What we insist on is, that such things should be systematically watched for and imported. In England great improvements are stimulated by the certainty of great rewards in the price of meat and grain; let us then, if we cannot offer the same inducements, because we do not force those employed in manufacturing for us to come here with their looms alongside of our ploughs, let us, we say, at least keep a sharp look-out to take advantage of the fruits of this more universal and powerful stimulus to agricultural improvement and agricultural machines in the mother country. Such, for another example, as is noticed in the same account of the recent agricultural exhibition in England. The reference is to

THE NORWEGIAN HARROW.

Of these we noticed perhaps 100 varieties, from the powerful drag to the light seed harrow, and from the common oblong to the diamond, zig-zag, circular and serpentine form. The Norwegian, or revolving spike harrow, seems to have lost none of its former value, if we may judge from the increase in the number and quality of those exhibited on this occasion. Mr. Richard Stratton, of Bristol, alone, had five of different dimensions, chiefly invented by G. E. Frere, Esq., of Roydon, in Norfolk, but improved by himself. The chief improvement in their construction (speaking of the machine generally) consists in the facility with which they may be raised and lowered at the land's end; and on this point none pleased more than that of Mr. Samuel Smith, of Northampton, thus described by himself as the inventor, improver, and manufacturer:—"This implement is made principally of wrought-iron; it has four wheels—two cast-iron and two wrought-iron; it has likewise a strong wrought-frame, and four rollers full of spikes, the spikes on the front roller being two inches longer than those on the other three, so that it may mount the large clods more easily. The front axle-tree is made to oscillate, so that the wheels always take a level boring; it is also provided with a very powerful lever, by which it can be raised or lowered at pleasure. Price, at Northampton, £20." The following letter to Mr. Stratton so satisfactorily explains the nature and operation of one of these machines, that we do not hesitate to give it a place in our report.

"To Mr. Richard Stratton, Bristol.—*Sir:* When I received the Norwegian harrow, last winter, I was disappointed with it, believing it to be too heavy, and finding my workmen unwilling to use it. This opinion I shortly expressed to you at the time. I have now, however, a very different story to tell. It is not too heavy; and it is as absolutely requisite for the efficient cultivation of my land as a plough and the common harrow. Without it,

I could not have sown my oats, barley, or *mangold wurzel,* nor have brought my ground into proper order for potatoes and turnips. This *is no exaggeration, whatever.* During the late dry weather, as soon as I had ploughed the land, I ran the Norwegian harrow over it once. It broke the clods to pieces, and left *a fine light bed beneath. No drags or harrows would have accomplished anything to be compared to it, and most certainly not without ten times the work:* though I do not believe it could have been done *at all* without it. The men who used it were astonished at the work, and praise the machine in *unbounded terms.* I lent it to many of my neighbors, and their opinion of it does not differ from mine. One says he could not have got his land fit for potatoes, nor have sown his barley in a satisfactory manner without it; another says it is worth £50; and others, that it was worth to them at least a guinea a day. All their workmen concur with them in their praise of it. I could relate many instances of entire failure to bring land, not differing in its quality from mine, into cultivation during this season; and of instances of *days* being occupied to do work which the Norwegian harrow accomplished in a *few hours.* It is the only occasion I am acquainted with, when a general concurrence in the value and importance of a *new instrument was universal,* without qualification or exception; and when the workmen were actually delighted to use it. There is always a prejudice among ploughmen against a new implement; and that any such feeling should have been silenced by the most obvious and manifest efficiency of the Norwegian harrow, is the strongest testimony that could be given of its great value.

"Your very obedient servant, "THOMAS FALCONER.

"Wootton, Christ Church, Hants, May 23."—Price 15*l.* 10*s.*

A CHIP OF THE OLD BLOCK, AND A GOOD ONE,

Is this LIEUT. W. D. PORTER, son of Commodore David Porter! An article in the Washington Union says:

"During his residence at Tuspan, Mexico, as governor of the province, Lieut. WILLIAM D. PORTER made a coast survey of sixty miles, and a topographical survey of the same distance inland, the results of which he promptly furnished to the commander of the squadron in the Gulf. On his return to the United States, in command of the schooner Mahonese, he brought with him some thirty or forty of the native plants of the provinces of Tuspan and Chicintepex, among which are several valuable fruits and vegetables; also a variety of birds, some of which are known in natural history as 'the Curacoa;' these are about the size of a full-grown turkey, and are easily domesticated.

"The plants, &c. have been deposited by Lieut. Porter, with the National Institute, and will prove a valuable addition to its already very extensive collection."

One of the most expressive and beautiful compliments that was ever penned by a great statesman to a brave warrior, was that paid by Mr. MADISON, in his annual message, to COMMODORE DAVID PORTER for his valiant defence of the Essex frigate, where he fought to the last under disadvantages, such as attend a man who combats against two, with one hand tied behind him. We remember to have heard the noble hero say, that, during the engagement, in which a ball passed through his old black straw hat, three officers and men were shot dead at his feet while he was in the very act of conversing with them. It was a contest as unequal as that at *Buena Vista;* but one in which the superior could hold his inferior at his own distance. Porter had no chance to grapple his enemy, as the gallant Taylor had, else the result might have been equally fortunate, as it was an equally glorious display of patriotic and invincible courage, and the annals of war can supply nothing more so.

We cannot risk marring, by attempting to quote from memory, the compliment so sententious and beautiful, from the polished pen of the illustrious Madison; but, in proof of the value which brave men may well attach to *such praise* from *such men* in *such places*, we may add the remembrance of hearing Porter say, that it well repaid him for the mortification of not being able to come to close quarters with his wary enemy.

Porter was among the most constant and eager readers of, and a frequent and highly interesting contributor to the old American Farmer. His correspondence was highly valued by the editor for its versatility and humor and intelligence. Among other direct contributions to the stock of agricultural and horticultural materials, we are reminded by the above extract that *he too* sent to Mr. Skinner, then editor of the old American Farmer, some large fowls, in size between the barn-door fowl and turkey, called in South America *Powees*, if we remember rightly.

They were sent out to Mr. Oliver's country seat, Harewood, and were seen there for some years after, but we believe never increased their family, and got badly frosted in the feet.

We have often adverted to, but never dwelt, as our knowledge of their services and our feelings would prompt us to do, on the very many good offices rendered to *American agriculture* by American *officers of the navy*. It would be impossible to display a higher or more enlightened spirit than many of them have done from that bright era in our naval history, illustrated by such men as Decatur, Rogers, and Porter, and Hull, and Bainbridge, and Jones, and down to the last point of that time when most agreeable, social, official,* and editorial relations, made us familiar with their doings for the good of the plough. We need hardly add that we shall always be prompt to brighten the old chain, individually, and as editor now of "The Plough, the Loom, and the Anvil."

A VISIT TO MR. VAIL'S SHORT-HORNS.

We embraced lately, with much pleasure, an opportunity to visit, under the kind attentions of their spirited owner, Mr. Vail's large and superior herd of *short-horns*, near Troy, in New York. Professing to be something of judges, we venture to say that a large portion of the herd would pass muster at the best exhibitions in England—as why indeed should they not, since many of them are individuals imported with great care as to family and quality, and at very heavy expense? Infusing the blood of the Whitaker stock with that of the celebrated Bates stock, whose excellence has been repeatedly proclaimed in English agricultural annals, Mr. Vail has manifested a laudable solicitude to maintain the excellence of his herd, and will have at his command choice materials to meet the wants of those who may desire to convert their surplus corn and grass into the greatest quantity of beef in the shortest time. Still we should doubt whether his stock may not be increasing beyond a remunerating demand for good things in *this country*, and, were we not afraid of intruding, would recommend that he keep a look-out to maintain a commanding position, so to regulate matters that the means of supply should *follow*, not *precede* demand.

* The senior editor of the Plough, Loom, and Anvil would now have been the oldest purser in the navy, except S. Hambleton, Esq., (one of the best practical farmers in Maryland,) if he had not left the service after the war, and after having been appointed postmaster of Baltimore, also by Mr. Madison, he may be proud to add, on the ground of personal acquaintance, confidence, and friendship. One of the best essays that has ever appeared in the annals of American agriculture was Mr. Madison's address to the Agricultural Society of Albemarle, especially in *vindication of the use of oxen*. Ah! those were times to be remembered!

AGRICULTURE AND MANUFACTURES.

"We are glad to learn that the dispute between the lessees of the Dowlais Iron Works and the Marquis of Bute, as to the renewal of the lease, has been adjusted, and that the works on which thirty thousand persons are dependent, will be continued."

"We must now place the manufacturer by the side of the agriculturist," said Mr. Jefferson, in his letter to Mr. Austin, of Boston, in 1816. We were reminded of it on reading in a late English paper the above extract, placed at the head of this, for the sake of hanging on it, as on a peg, a few reflections.

Thirty thousand persons dependent, in England, on one *iron work!*—as many persons as there are men, women, and children, living in all Cumberland, or Dauphin, or Armstrong, or Schuylkill county, Pennsylvania! and yet we have lately seen that a large quantity of *English* railroad iron, perhaps from these very English works, has been landed at *Jersey city* for the use of a railroad to be laid down in Jersey state! Now, can any farmer of Pennsylvania or New Jersey fail to see that it would be better in this case to have the manufacturer placed alongside of the agriculturist, even though for a time, until that industry should get a fair foot-hold, he should be obliged to pay a little more for his hand-hammer and his nails?

Suppose the whole country were to demand a tariff that would insure the production, in our own country, of all the iron we need, must not the farmer benefit by the diversion of so much labor from his own pursuit, and by the presence and close proximity of so many consumers as must now be employed in producing it abroad?

Let us contrast for a moment the number here said to be *dependent on* a single iron works in England with the number *employed* in some of the important manufactures of Pennsylvania, as, for instance:

In woollen manufactures - - - - - - - - -	2,909
In cotton manufactures - - - - - - - - -	5,522
Two hundred and thirteen furnaces and one hundred and sixty-nine forges - - - - - - - - - - -	11,552
In these great branches, total - - - - - -	27,983

Well, suppose these thirty thousand persons dependent on one English iron work were to get their provisions from America, would it not be still better, both for the American farmer and the English manufacturer that they should be brought here as nearly as possible to his plough, that so the expense attendant on the sale and purchase should be as much as possible saved to both? and thus the farmer would save both money and time for the improvement of his great machine of production, and the operative would be able to get more for his labor.

Here we may appropriately invoke the attention of the reader to a few pages of a work that has lately appeared under the title of "The Past, the Present, and the Future," on all of which it casts a rich flood of light for the benefit of all who would understand the *true* causes of the *dispersion* of American agriculturists and the decline of American agriculture—a decline resulting, as we now perceive, and as we have before said, not so much from want of knowledge as from political causes; that is, from defects in national legislation, as irresistible, while they exist, as would be the falls of Niagara against the efforts of a man who should attempt with a straw to arrest it in its descent. We must ascend to and dry up the *source* of the evil.

We should feel ashamed to draw so often from Mr. Carey's book, if we

could elsewhere find so well presented the great truths which ought to be engraved on every farmer's mind.

"Ask the farmer of Pennsylvania why he does not associate with his neighbors to erect a furnace, and his answer will be, that three years since all the iron-masters were nearly ruined: that iron is now £10 per ton; but that before a furnace could be built, it would be down to £5, and their capital would be sunk. He, too, would say that charters were needed, and that charters could not be obtained.

"Here lies the secret of dispersion. Here is to be found the cause of the impossibility of concentration. The people of the United States have no power over their own actions. They waste annually more labor in hauling *their products to market*, and *their consumers from market*, to the west, there to be employed in raising more food and cotton than would build markets for themselves. They waste on the roads the manure yielded by the products of poor soils, and they leave on the rich ones the manure that has accumulated for ages, and that would render their poor ones rich, and, while they shall continue so to do, they must scatter themselves over the far-west; they must leave home, and friends, and school-houses, behind: they must continue to be hewers of wood and drawers of water on the poor soils, instead of becoming rich on the fertile ones; they must continue to obtain bushels where they might have tons; they must continue to do as do the people of India: cultivate poor soils and find themselves bogged in the rich ones, through which they have to drag their products to market.

"The annual loss to the people of the Union from the want of the power to concentrate themselves on the rich soils, is far more than the value of the whole exports of England *to all parts of the world*, and, were she to give them the whole, the gift would be injurious. It would tend only to scatter the people more widely, for concentration would then be impossible, and *without that the earth cannot be made to yield*, and, unless it be made to do so, the poor soils cannot be made rich. *Population makes the food come from the rich soils*, while depopulation forces men back to the poor ones.

"The number of states employed in producing cotton is ten. The whole product is about two millions of bales, and the average is therefore about two hundred thousand bales per state. To prepare a state for producing that quantity, and the food that is to be consumed by the men who raise it, has cost hundreds of millions of dollars. To place in that state machinery requisite for its conversion into cloth would cost ten millions of dollars, *or less than the amount annually wasted:* of labor for want of employment at home; of labor and manure in transporting the product to market; of labor and manure in transporting men to new lands; of crop from the want of hands to pick it; of freights, because of the increased demand for ships and wagons; and of prices, because of the surplus in the markets of the world; and *less than half the amount annually wasted*, because of the necessity for cultivating poor soils while rich ones lie idle.

"The cost of transporting the hides and the food to the shoemaker, his awl and his lapstone, is great, and all the manure is lost, and lost for ever. The cost of bringing the awl and the lapstone to the hides and the food is small, and all the manure is saved; and the great machine is improved, because the manure is saved and the shoemaker wants a house; and the house wants timber and stone, by the furnishing of which the land is cleared. A large portion of the people of the United States are busily employed in carrying the hides and the food to the awl and the lapstone, and in driving people who might use the awl to other places, where they must raise more hides and food.

"What is the remedy for this state of things? The answer is easy: England must be made to raise her own food, and she must be made to let other nations consume theirs. The resistance of the United States put an end to the navigation laws. Their resistance killed the right of search; their resistance killed the corn laws; their resistance will kill the colonial system, and give freedom to India and Ireland, to *the people* of England, and to themselves.

"To their resistance is due the fact that England has already turned her attention, in some degree, homeward; but the work is not half done. To make a short war, it must be a strong one. No set of men can now feel any confidence in erecting iron-works, cotton-mills, or woollen-mills; and until all shall feel full confidence, the little capitalists cannot get to work, and the business must remain in the hands of great ones, who can run great risks; and, while that shall be the case, but little will be done. Almost all that exists in the Union is the work of the millions of little men engaged in improving the great machine, and when they, the little farmers, and little mechanics, and little shopkeepers, shall get to work, the production of iron, and of cotton and woollen cloth, will go ahead as rapidly as farming has done, and then concentration will take place, and the rich soils will come into cultivation, and every county in the Union will have its iron, or its cotton, or its woollens exchange, and then land will double in product and in value. There is not one county that could not supply the stone, the timber, and the labor necessary for building a furnace or a mill, and the money necessary for the purchase of ma-

chinery: thus making a place of home exchange. Once built, further capital is not needed. The grower of corn, and hay, and oats, and wool, and the young men and young women who have labor to sell, perform their exchanges at the factory, which becomes a little bank in which each man buys a share while accumulating means to build a house or buy a farm, selling it again when the house is built or the farm is bought. Throughout the Union, south of the Hudson, there is scarcely a single county in which there is not more capital unemployed than would build such a place of exchange; and scarcely one in which, for want of such a place, there are not more people idle than would suffice to carry it on. Were each county to help itself, all would be helped.

"*Wealth is Power.* The people of the United States have the wealth. That wealth has given them power, dispersed as they were, to do much. Concentration will give them greater wealth and greater power. Their twenty-one millions produce at this moment a greater quantity of commodities than the people of England, while they build twice as many houses; make twice as many roads; apply thrice the labor to the improvement of land; build four times as many school-houses and churches; and print ten times as many newspapers. The machinery of production is greater than that of England, and all they now want is better machinery of exchange. Let the farmers and planters have this, and population will increase with greater rapidity than ever, for young men will stay at home and marry instead of going to the west; and tens of thousands of mechanics, and of coal and iron miners, will seek the United States; while laborers will come by hundreds of thousands, and every man will furnish a mouth to be fed, instead of, as now, furnishing hands to produce food. They will then be consumers of corn, and wool, and cotton, instead of producers—customers instead of rivals. Corn and cotton will be produced at less cost of labor, and wages in corn and cotton will be higher; while cloth and iron will be cheaper, and the farmer will cease to have to pray for bad crops in Europe; while the planter will find in the increased demand for his product consequent upon the higher wages of England and of Europe, a certainty of a good market for all he has to spare. Coffee, and tea, and sugar, will then be paid for in cotton cloths, and the men who make the cloth will be customers to himself and to his brother agriculturists of the north, who will use more cotton than at present; while Brazil and Cuba will want more cloths, because they will have a better market for their sugar. Every diminution in the machinery of exchange tends to give more time for improving the great machine of production, whether for cotton or sugar, wheat, rye, oats, or hemp; to increase the quantity produced; to increase the wages of the laborer and the profits of the capitalist, landed or moneyed; and to increase the comfort and happiness of all.

"Let but the people of the United States set the example of a determined resistance to the system, and it will be followed by all Europe. French artisans will then seek America and Germany, and France, too, will have to raise her own food. Her swords will be changed for ploughshares, and her forests will disappear, while her coal mines will be opened. She, too, will learn the art of concentration, and with each step of her progress, the few will become less and the many greater.

"The people of the United States owe this to themselves, and to the world. They enjoy a higher degree of happiness than has fallen to the lot of any other nation, and they should desire to aid their fellow-men in England, in Ireland, in Germany and in India, and by helping themselves they will help them. As colonies, India and Ireland will remain poor. As independent nations they will become rich, for they, too, will insist on the right of placing the consumer by the side of the producer.

"Westward, the star of empire wends its way. From the west to the east civilization has gone, and so it has yet to go; from the base of the Alleghenies to the foot of the Himalaya. The measure is one of peaceful and quiet, but determined, and it should be of united, action. It is one that interests

Every man that wishes to cultivate rich lands instead of poor ones:
Every man that would raise tons instead of bushels:
Every father that would wish to see his sons, and his sons' sons settle round him:
Every mother that wishes to see her daughters married:
Every son that would have a wife and a home of his own:
Every daughter that would have a husband:
Ever journeyman that would be an employer:
Every laborer that would have a farm and house, or shop, of his own:
Every property-holder that desires higher rents:
Every man that hates crime and loves virtue.
Every man that loves literature and art:
Every man that loves freedom:
Every man that loves *the people* of England: or of France:

Every man that loves Ireland:
Every man that feels for India:
Every man that loves his old fatherland, Germany:
Every man that loves free trade:
Every man that loves peace:
Every man that loves his fellow man:
Every man that loves his Creator:

Every man that desires that the great law of Christ, "Do unto others as ye would that others should do unto you," should become universally operative.

"It is the great work reserved for the people of these United States, and they have the power to accomplish it. It should be entered upon with the same feeling that animated the Puritans of old; the same that gave confidence to the men who, seventy years since, signed the Declaration of Independence. It should be preceded by a return to peace with an unfortunate neighbor, towards whom they now occupy the position of a strong man pummeling a weak one already on his back, to make him cry enough. That war has already cost more than would have given to every county in the Union a place for exchanging labor, corn, and cotton, or wool or iron ore, for cotton or woollen cloth, or iron; and if it continue another year, it will cost at least as much more. They have too much land already. They want but concentration to enable them to become both rich and strong.

WHAT INTELLECT MAY DO FOR AGRICULTURE.

Extract from a letter from Doctor Brewer, of Montgomery County, Maryland, to the Editor of the American Farmer.

"On entering upon my new avocation, although more agreeable to my inclination, not less arduous than the one I had abandoned, I soon discovered in my intercourse and conversation with my farmer-neighbors, a great lack of knowledge, and that most of their operations were performed without being able to give satisfactory reasons for what they did, save those of observation and hearsay—hence the same process was performed on a stiff or loose soil, argillaceous or silicious. Geology and chemistry were sealed books to most of them. It is self-evident, and will not admit of argument, that no man can successfully prosecute a business he does not understand, nor can an ignorant man prosecute as successfully a business as a learned one, each using equal industry. I would, therefore, advise, nay urge the farmers of every election district in the State to form clubs, and by no means neglect to create libraries, and thus furnish the materials of knowledge. There is no lack of native talents among the farmers—all that is wanting is excitement and cultivation. Let the means be provided for their mental cultivation, and I will, at the risk of being called a demented, or at least a visionary man, predict that, within the ensuing twenty years' farming operations will be performed with steam or electrical ploughs, to the great saving of hard labor and enormous expense. What would have been said of an individual who, twenty years ago, had suggested the probability of navigating the Atlantic and Pacific Oceans in steamships? Would he not have been called a madman? Most assuredly he would. *It is incalculable what advances might be made in the sciences of agriculture and mechanics, if proper means and encouragements were provided for the cultivation of the minds of those engaged in these pursuits.*"

All this is very true and very worthy of the most deliberate consideration, and more than that, of—*being acted on;* but why is it—the question arises on the surface—why is it that we nowhere see suggestions of a *demand from the general treasure of the country*, for establishing in each State a Normal School, to prepare teachers to give instruction in the common country schools, and thus have the seals of these "sealed books" broken? Why are not members of Congress commanded to propose and insist on it? No—the only question asked of those who offer for that most important of all trusts, that of *making the laws*, is, to what faction does he belong—and for what faction will he employ his talents and influence in obtaining slices of the public cheese? No inquiry is ever made of his knowledge of statistics, the condition, and the wants, and the claims of agriculture, but does he belong to my party? or rather is he one of the leaders to whom *I belong?* Is he the bell-wether of the particular flock in which I am counted, and with which I consent to be annually sheared, in that hope which springs eternal in my breast, that one of these days, I, or some lamb of mine, may come in

for a few grains, more than the rest, from Uncle Sam's great crib at Washington? These are the objects to which the free and independent republican farmers (so called) of the United States are too much in the habit of looking, and so will it ever be while party spirit is allowed to supersede all public spirit and all public considerations.

EXPERIMENTS WITH POTATOES AND GOOSEBERRIES.

APPROPRIATION OF PUBLIC LANDS FOR AGRICULTURAL INSTRUCTION.

Patterson, 5th August, 1848.

DEAR SIR:—You ask me the result of my experiment as to the potatoes I planted the middle of November last. I answer that as yet we have no rot or the appearance of rot—that the produce is fair, but not better than the same kind of potatoes planted first of May. Part of those planted last fall I covered with salt hay—the same those planted in May. On the whole I think the produce was, or rather is, greater on those not covered. It is true that the covered potatoes we have not had to hoe—but then the covering-in cost was fully equal to the hoeing. But of salt hay I can, as to gooseberries, speak favorably. Seeing that this was advised, I put round and under my gooseberry bushes a full covering of salt hay—this was just as they were coming in blossom—at same time I dusted the bushes with slacked lime, early in the morning. The result was either from salt hay—or lime—or both—that I had a large crop of uncommon fine berries, both as to size and flavor. I mean next spring to dust all my fruit—whether vines, bushes, or trees—with slacked lime one day, and wood-ashes on another—when in blossom, early in the morning; and am sure the result will be beneficial—the lime I am sure of—the ashes I believe in.

The more I have thought on this subject, the more I am convinced it is the duty of every well-wisher of his country to advocate the establishment by our government of agricultural colleges in each State and Territory, and that there is no way in which the lands belonging to the nation can be so usefully employed. R. L. C.

Note by the Editors.—We agree that the States, through their representatives, ought to insist on their share of the proceeds of the public lands—not to be appropriated by the general government to the establishment of Colleges in the States, or at the seat of government, where such colleges would be sure to become a den of laziness and corruption, for hunkering political hacks and favorites of the dominant party—no—these appropriations should, in each State, under State authority and control, be applied to the establishment of *Normal Institutes*, for *preparing teachers* for country schools. Teachers to apply to the art of cultivation the laws of nature and the sciences applicable to that art.

THE PRIZES IN MARYLAND,

So liberally offered by the editor of the American Farmer for the best essays on the restoration of worn-out lands, have been awarded in the following order:

1st, to EDWARD STABLER; 2d, to COL. HORACE CAPRON; 3d, to T. P. STABLER; whose names assure us that they will convey a mass of valuable practical matter through the pages of the American Farmer to all who have access to that sterling journal, as every farmer should (as we have said again and again) who does not value a bushel of wheat, or two of corn, above the information, of inestimable value, which every number of it contains. The names of the winners of such prizes ought to be inscribed on a record in the State Library, in which should be preserved the names of all farmers who best improve their own land, or teach others how to do it. Public sentiment will never be in the right state until such things are done.

PENNSYLVANIA AND HER INTERESTS.

From a journal that is distinguished for its opposition to the maintenance of that protection that is needed to enable the farmer to draw to his side the consumer of his products, we take the following—

"That Pennsylvania is destined to become one of the most opulent States that ever flourished, is so obvious a proposition as scarcely to require a specification of facts to sustain it, independent of all intercourse with foreign countries. Our coal, iron, flour and manufactures, furnish a source of wealth that is of giant and measureless value. Inexhaustible as these are, who shall dare to affix a limit to our power, or restrict the boundless sweep of our available resources?"

The answer to this question may be found in the fact that the coal and iron trades, from a state of high prosperity have fallen into a ruinous condition, and that coal mines are being abandoned, and furnaces are going out of blast, and rolling-mills are being closed, under the operation of the tariff of 1846, which is driving tens of thousands of miners and laborers to the west, there to produce food, when they would prefer to remain in the east, converting food into coal and iron. A limit *is being fixed* to the power of Pennsylvania. The west is protected by distance and higher freights, diminishing the competition of English iron, and the west can continue to produce coal and iron long after the mines and furnaces of the east have been closed. Of all the portions of the Union, there is none whose policy is so adverse to the prosperity of her people as is that of the "key-stone" State. Every farmer in it desires to have consumers brought to take their places near him, yet they unite in support of a policy that converts customers into rivals, and compels themselves to depend upon the variable markets of Europe for wheat, when they might have at their doors a steady and perpetually increasing market for potatoes and turnips, and hay, and milk, and fresh meat, for the spare labor of themselves and their children, their horses and wagons ; and the timber that now encumbers rich lands, covered with manure that would enrich the poor ones they now cultivate. Of all the States of the Union, there is none that would profit more than Pennsylvania, from understanding that the plough *never has prospered*, and *never can prosper* at a distance from the loom and the anvil.

THE WOOL TRADE ABROAD—LAST REPORT.

The following, which we find in a late number of the Mark Lane Express, may prove interesting to some of our northern readers. In the letters of Colonel Randall on Sheep Husbandry in the South, every thing has been said that need be, to inform the agriculturist on that branch of his business. The reader may judge how much the subject is open to study, and how nice must be the judgment of an adept in the trade, when he sees it remarked, that *in the lots of wool* at a great depot, he could detect "*traces of defective feed!*"

Foreign Wool.—The imports of wool into London last week were 2152 bales, of which 1561 were from South Australia, 494 from Algoa Bay, and the rest from Germany, &c.

There are no less than 30,000 bales of colonial and other wool declared for sale on the 22d inst., and in the interior there is very little doing.

Accounts of the 10th inst. from Breslau state that wool was much reduced in price, and would have been worse, but for the buyers who attended from England and Hambro'. The sale of Zollverein fabrics was only accomplished by manufacturers submitting to lower prices ; and they had purchased raw wool, although scarcely knowing how they could avoid further serious losses by keeping their mills going. The great object, however, was to keep the people employed. There were 25,000 quintals of wool left unsold of the 59,000 offered, and prices were 8 to 10 per cent. lower.

Leeds, June 16.—We are unable to note any improvement in the foreign wool trade since our last report, the demand being still very limited, and prices almost nominal.

Breslau Wool Fair, June 9.—Without entering upon an extended explanation of the well-known causes of the present unheard-of commercial crisis, we only observe, that chiefly an unexampled want of credit, created by the critical state of politics and the uncertainty of the future, has been the principal cause of the great reduction of prices in the present fair. Thanks to the extraordinary concurrence of English and Hamburgh buyers, joined to the purchases of our home manufacturers, the result of the market is not worse. The latter bought considerable quantities in order to give their working people further employment and support, though they cannot expect the ordinary sale.

The quantity brought to market was—

Of Silesian wool about	39,500 cwts.
" Posen " "	8500 "
" Old Stock "	11,000 "
In all about	59,000 "
In the June fair of 1847, we had about	47,800 "
Therefore in this year we had a surplus of about	11,200 "

The wash and manipulation of the wools were perfect, yet there could be sometimes observed *traces of the defective feed*, which, together with an uncommon mortality among the flocks, has caused this time a minus of 8 to 10 per cent. in clipping.

The reduction of price has been—

	$ per cwt.
For selected and high-bred wools	20 to 30
" fine and middle fine	22 " 30
" lower qualities	18 " 25

It will be understood that some lots had a smaller, others a greater loss to undergo.

The following prices were obtained—

	$ per cwt.
For Silesian super select wools from	90 to 110
" " select	80 " 88
" " high-bred	70 " 78
" " fine	60 " 68
" " middle fine	50 " 55
" " low	40 " 46
" " double clept wool, fine	40 " 45
" " middle fine	32 " 38
" " low	26 " 30
" Posen fleece wool, fine	50 " 60
" " " " middle fine	40 " 45
" " " " low	35 " 38
" Silesian lambs' wool, high-bred	80 " 97
" " " fine	65 " 70
" " " lower qualities	48 " 53
" " skin wool	— " —
" " slipes	25 " 35
" " locks	30 " 40
" Polish ditto	20 " 28
" white Tigara wool (ordinary washed)	17½ " 20
" " " (well washed)	22 " 23
" black "	— " —

There has been a great quantity of skin wool in the market, and none of it sold except a few small parcels, the very low price of which not serving as a guide, we do not quote them. The principal buyers have been English manufacturers and dealers, as well as many Hamburgh, Netherland, and

Belgium purchasers. The little cloth makers of the country, as well as all Austrian and French buyers, have kept away. We had this time no supplies of Hungarian, Austrian, and Bohemian wools; but there may be found great lots of them among the old stock. There has been bought but very little in the warehouses, and the quantity of wools left in first and second hand amounts to about 20,000 cwts. The greater number of the buyers are still here, and many a bargain might yet be made.

D. C. S. Gunsburg, Wool-broker.

COWS AT THE SHOW

OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, IN JULY LAST.

Written for the Model American Courier, by the Editor of the Plough, the Loom and the Anvil.

After thirty years of competition and high prices in England, (the best bulls and rams letting for the season for five times as much as they would sell for in our country,) choice animals seem to maintain their prices wonderfully. The last show of short-horn cows was said to be the best ever exhibited *in England*. "For the general prize, Violet, purchased by Mr. Hopper for 350 guineas ($1750), *came last*. She was met by the two prize-cows, Cherry and Hope, and was defeated by Hope. Each of those cows is a winner of the Royal Agricultural Society's 1st prize, one at Newcastle and the other at Northampton; so that in this class for the local prize to-day, we had the three best cows in England—three winners of the 1st prize in three successive years, for competition. Hope, in this case, will not deceive her friends. It would be absurd to attempt superficial criticism of such animals as these. 'Here stand three animals, worth 1000 guineas, and I will give 600 guineas [$3000] for two of them,' was the ejaculation of an eminent Lincolnshire breeder who was examining them.

TO THE FARMERS OF PHILADELPHIA COUNTY AND VICINITY.

The Philadelphia Society for Promoting Agriculture will hold their annual exhibition on Thursday the 5th, and Friday the 6th October, at the Rising Sun village, about three miles north of the city.

The Committee of arrangement would earnestly appeal to you, *one and all*, to assist in rendering this exhibition what it ever should be, the great centre of attraction; let us all feel a duty to contribute something. Manufacturers and mechanics take a pride and find their interest promoted in exhibiting the result of their labor and genius. Let us unite in displaying the wondrous works of Providence and the effects of our industry. Blessed, as we are, with a soil capable of the greatest production and in the largest variety, we should take an honest pride in not permitting those enjoying less natural advantages to excel us. To all, then, we say, prepare your offering, that we may make this exhibition sustain the reputation of Pennsylvania for the fairest fields and largest barns, and show that we know how to use the one to fill the other.

An address will be delivered on the second day of the exhibition by Dr. G. Emerson, of Philadelphia, a gentleman of well-known scientific acquirements and practical experience as an agriculturist.

The trial of ploughs and ploughing will take place on the second day of the exhibition. The list of premiums embraces almost every thing of interest to the farmer. On behalf of the committee of arrangements,

Samuel C. Ford, *Chairman.*

Philadelphia, September 13, 1848.

CINNAMON.

The *Laurus cinnamomum*, from which tree our spice called cinnamon is procured, is a native of the East India islands, in many of which it grows wild; but owing to the narrow policy of the Dutch, who, till the year 1810, possessed most of the Spice Islands, it has never been cultivated in any of them, except in the Island of Ceylon, where large plantations are reared, which supply the rest of the world with this delicious and valuable article. The tree, in its uncultivated state, grows to the height of from twenty to thirty feet, but, in the cinnamon plantations it is not allowed to rise above ten. The leaf resembles that of our laurel, except in being strongly marked by three principal nerves, which take their rise in the footstalk, and run lengthwise through the leaf. At its first budding the young leaf is of a brilliant red, changing gradually from that colour to a pea-green; it becomes in its maturity of a dark olive upon the upper side, and of rather a lighter shade upon the under surface. The fine tint of the young shoots is brilliantly contrasted with the rich hue of the full-grown leaves. The blossom is white, having the corolla six-parted, and about the same size as that of the lilac, which it also resembles in growth, except that the footstalks to the flowers of the cinnamon tree are longer than those of the former shrub, consequently the bunch of flowers is less compact. The blossoms are produced from the axillæ of the leaves, or from the extremities of the branches; the scent, although weak, is extremely pleasant, resembling a mixture of the rose and lilac. The fruit is a small berry of the form and consistence of an olive, and is filled with a bony kernel. It ripens in the latter end of autumn, and is gathered by the natives for the purpose of extracting its oil, which they use to perfume their hair and to anoint themselves with upon grand occasions. This oil, when congealed, becomes of a solid substance like wax, and is formed into candles, which are reserved for the use of the King of Candy. The oil also is burned in the lamps of his audience-chamber when he receives the ambassadors of other states.

The *Laurus cinnamomum* grows wild in many parts of Ceylon, but it flourishes in the south-west angle of the coast only, between Negumbo and Matura, where the soil is a fine white sand, and where the air is moist, and rains fall every month. In the northern extremity of the island, where the climate is dry and sultry, not a bush of it is to be seen. The principal woods or gardens where the cinnamon is procured lie in the neighborhood of Columbo. The grand garden near that town occupies a tract of country twelve miles in circumference. Others of a smaller size are situated near Negumbo, Point de Galle, and Matura. The prospect around Columbo is exquisitely beautiful: the plantation which covers the plain is bounded on one side by a broad belt of cocoa-nut trees, and on another is washed by the winding lake of Columbo; beyond this luxuriant foreground rise groves of evergreens, interspersed with tall clumps, among which the cashew tree is conspicuous; and the whole is crowned by a long and lofty range of Candian mountains. The cinnamon gardens afford delightful rides to the inhabitants of Columbo, roads being cut among the shrubs which make a winding circuit of seven miles. The ground is gently undulated, and the rich green of the laurel is enlivened by innumerable species of beautiful plants and flowers, springing up spontaneously and blooming in perpetual succession.

The cinnamon tree emits no scent while growing, except a little from the blossoms; the footstalks and leaves are slightly aromatic, but it is the bark alone which gives out that delicious odor to which no other perfume bears any resemblance. Moore's simile is perfectly true to nature as respects this tree:—

> The dream of the injured patient mind
> That smiles at the wrongs of men,
> Is found in the bruised and wounded rind
> Of the cinnamon, sweetest then.

There are several different sorts of cinnamon trees in Ceylon; of these only four are esteemed fit for use: they are, the *Rasse Coorundoo*, or honey cinnamon; the *Nai Coorundoo*, or snake cinnamon; the *Capara Coorundoo*, or camphor cinnamon; and the *Cabatte Coorundoo*, or bitter cinnamon. From the third kind a gummy substance containing camphor is exuded. The shrub may be cultivated in either of the following ways:—By seeds, which must be sown in the rainy season; by shoots cut from large trees; by layers; and, fourthly, by transplanting the old stumps.

The first method is of course the slowest, as it is ten years before the tree reaches its greatest perfection. The second mode is less tedious, but, unless the sprouts be continually watered, they do not thrive; the cuttings must be taken very young—if they have more than three leaves they die. The third method, by laying down the young branches, is also of slow progress; trees thus raised not being fit for use till they are

eight years old. The fourth manner is that generally practised. The roots, carefully transplanted, yield shoots of the proper size twelve months after their removal; but great care must be taken that none of the small fibres are injured; as, if they receive the slightest hurt, the plant certainly dies: even a scratch upon the root of a young plant will destroy it. Around the old roots spring up a multitude of suckers, which yield the finest cinnamon.

The cinnamon tree blossoms in January; in April the fruit is ripe, and soon afterwards the business of decortication begins. May and June, which are the most favorable months, are styled the *great harvest;* November and December, in which also the barking is practised, are called the *little harvest.* The art of stripping the cinnamon tree is an employment of itself, and of the meanest kind. For this reason it is left to the Cholias or Coolies alone, who form the lowest of the native castes. Any other individual who should follow this business would be ignominiously expelled from his tribe. The manner in which the workmen judge whether a branch or offset be fit for cutting is this:—When a tree bears fruit, it is supposed to be in a healthy state; and to prove whether the bark be ripe, the Choliah strikes his hatchet obliquely into a branch; if, on drawing it out, the bark divides from the wood, the cinnamon has attained its maturity; if not, it must remain growing some time longer. The shoots which are cut down are from three to five feet in length, and about three quarters of an inch in diameter. When a Choliah has cut the quantity of sticks which each man is obliged to furnish daily, he carries them to a hut or shed situated in an open part of the garden, where, with the assistance of a companion, he thus strips off the bark. The first part of the operation after removing the buds and leaves, is to scrape the rod thoroughly, but gently, so as to remove the outer bark or skin, which, if left on, would embitter the flavor of the cinnamon. The knife used is of a peculiar form, being convex on one edge, and concave on the other, in order to facilitate the process. The bark is next cut along with the point of the knife from one end of the branch to the other, twice, and after being gradually loosened with the convex edge of the knife, is stripped off in one entire slip, about half the circumference of the branch. The smaller pieces are then inserted into the larger ones, and are laid out on mats to dry; when, the moisture quickly evaporating, the tubes contract and form solid rods, acquiring at the same time the rich brown color in which they appear to us. These rods are tied together in bundles, and carried to the government storehouses, in order to be packed for exportation. The method of packing is this:—Each bundle being formed of the weight of ninety-two pounds, and about four feet in length, is firmly bound with cords, and sewed into a double covering of coarse cloth. When one layer of bales is stowed in the hold of a ship, a quantity of loose black pepper is thrown in above it, and all the crevices are completely filled up with the latter spice. The surface being then smooth, another set of bales is laid down, and packed in the same manner. The pepper, by drawing the superfluous moisture to it, preserves and improves the cinnamon, which, at the same time, enriches its own flavor: thus the two spices prove mutually beneficial to each other. As pepper is not grown in sufficient quantities in Ceylon to answer the demand for packing, a great deal is imported for that purpose from Malabar.

The cinnamon bark, before it is dried, is of a pale yellow, and about the thickness of parchment. The best is rather pliable, and by that quality is distinguished from the inferior kinds, as well as by its color; the more ordinary being thicker and browner. After that part of the cinnamon which is fit for exportation is sent off to Europe, the fragments and small pieces are collected and put into large tubs, with just enough water completely to cover them. This mass, after being left for six or seven days to macerate, is distilled over a slow fire, and cinnamon-water is produced, with the oil floating upon the top of it. The latter is then carefully skimmed off, and put into bottles, which, after being sealed, are brought to the governor, by whom they are placed in a chest properly secured. The oil is extremely valuable, as the quantity is less than that procured from an equal weight of any other spice.

The cultivation of cinnamon, as at present practised, is not of very long standing in Ceylon; the trade formerly depended upon the produce of the trees growing wild in the island. The Dutch governor, Falk, who died at Columbo in 1781, not believing in the common notion that cinnamon was good in its wild state only, determined to make the experiment of cultivation with it. Accordingly, he raised a few plants from seed in his garden at the Grand Pass near Columbo, but, after flourishing for a time, they withered and died. On accurately investigating the cause of his disappointment, it appears that a Cingalese, who earned his livelihood by barking cinnamon in the woods, fearing lest his employment should, by the cultivation of the shrub, become more easy and less profitable, had secretly besprinkled the plants with hot water.

LOVE OF ANIMALS FOR THEIR YOUNG.

I HAVE always great pleasure in seeing the affection which animals have for their offspring, and which sometimes shows itself in an extraordinary manner. A hen who has hatched young ducks, will follow them in her agony into the water, and will even sacrifice her life to preserve the lives of her chickens; and whoever has seen a dog break into a covey of young partridges, will have had one of the strongest proofs which exists of the force of natural affection. The following is a striking instance of parental attachment in a bird. A gentleman had directed a wagon to be packed with sundry hampers and boxes, intending to send it to Worthing, where he himself was going. For some reason, his journey was delayed; and he therefore directed that the wagon should be placed in a shed in his yard, packed as it was, till it should be convenient for him to send it off. While it was in the shed, a pair of robins built their nest among some straw in it, and had hatched their young just before it was sent away. One of the old birds, instead of being frightened away by the motion of the wagon, only left its nest from time to time for the purpose of flying to the nearest hedge for food for its young; and thus alternately affording warmth and nourishment to them, it arrived at Worthing. The affection of this bird having been observed by the wagoner, he took care in unloading not to disturb the robin's nest; and the robin and its young ones returned in safety to Walton Heath, being the place from whence they had set out: the distance travelled not being less than one hundred miles. Whether it was the male or female robin which kept with the wagon, I have not been able to ascertain; but most probably the latter, for what will not a mother's love and a mother's tenderness induce her to do?

Fishing the other day in Hampton Court Park, I disturbed a moor-hen who had just hatched. Her anxiety and manœuvres to draw away her young were singularly interesting. She would go a short distance, utter a cry, return, and seemed to point out the way for her brood to follow. Having driven her away, that I might have a better opportunity of watching her young ones, she never ceased calling to them, and at length they made towards her, skulking amongst the rushes, till they got to the other side of the pond. They had only just left the shell, and had probably never heard the cry of their mother before.

If you go near the nest of a lapwing, one of the old birds will fly close to you, and try to draw you from the nest. I have seen my dog almost struck by one of the birds as she flew past him; and they seem quite to forget their own danger in the endeavor to preserve their offspring. It is said that when a hind hears the hounds, she will allow herself to be hunted, in order to lead them away from her fawns.

In the Royal Parks I have observed a doe come up to a dog, who has approached the lair where her fawn was concealed, and putting her feet together, she has made a spring, and alighting upon him, has either maimed or killed him. A friend of mine was walking in Hadley Park, Worcestershire, when the discharge of a gun reverberated through the woods. Soon afterwards a bleeding fawn bounded by, followed by the keeper's hound, and, in close pursuit of the hound, came a doe, the dam of the wounded fawn. Loss of blood so weakened the poor fawn, that the dog soon brought it to the ground. The doe, losing all her natural timidity in affection for her offspring, attacked the hound with the utmost ferocity, nor did the interference of the keeper intimidate her. The man terminated the sufferings of the fawn with his knife, and carried it from the place: and when the dam, as if agitated by excessive grief, had surveyed the pool of blood, she followed the dead fawn and its destroyers, uttering a tremulous cry of maternal distress. This cry I often hear during the season for killing fawns, and it is one of peculiar agony.

A cow was driven from Bushy Park and sold in Smithfield market, her calf being left at the head keeper's yard in the park. Early the next morning, this cow was found at the gate of the yard, having made her way through all the intricacies and impediments of London, and traversed twelve miles of road, in order to get to her calf again. She must also have watched the opportunity when the park gates were opened, to get through them.

A gentleman who had resided for several years in New South Wales, related the following circumstance, which he assured me he had frequently witnessed while hunting the kangaroo: it furnishes a strong proof of the affection of that animal for her young, even when her own life has been placed in the most imminent danger. He informed me that when a female kangaroo has been hard pressed by dogs, he has seen her, while she has been making her bounds, put her fore paws into her pouch, take a young one from it, and then throw it as far on one

side as she possibly could out of the way of the dogs. But for this manœuvre her own life and that of her young one would have been sacrificed. By getting rid of the latter, she has frequently effected her escape, and probably returned afterwards to seek for her offspring.

Such is the jealous care which a cat shows for her kittens, that I have known one to remove a whole litter to the leads at the top of a house after they have been handled by a stranger, though she had previously allowed every inmate of the house to touch them.

It has been most beautifully and providentially ordered that the process of suckling young is as pleasurable to the parent animal as it is essential to the support of the young. It is probably from a deficiency in the flow of milk that we sometimes hear of animals destroying their progeny. Where there is a redundancy of it, and a painful sensation is produced, animals will allow the young of almost any other species to suck them. Thus a panther has been nourished by a bitch, and a puppy by a cat which had been deprived of her kittens. As the mammæ of animals become painful when overdistended with milk, they are reminded of their helpless young, and are thus led to visit them periodically at those times when sustenance is necessary for them.

The following fact connected with this subject is too curious to be omitted. It may excite a doubt in the minds of many persons, but it was so frequently witnessed by those on whose veracity I can depend, that I have no hesitation in relating it.

A cat belonging to Mr. Smith, the respectable bailiff and agent of the Earl of Lucan, at Laleham, is in the constant habit of taking her place on the rug before the parlor fire. She had been deprived of all her litter of kittens but one, and her milk probably incommoded her. I mention this in order to account in some degree for the following circumstance. One evening, as the family were seated round the fire, they observed a mouse make its way from the cupboard which was near the fireplace, and lay itself down on the stomach of the cat, as a kitten would do when she is going to suck. Surprised at what they saw, and afraid of disturbing the mouse, which appeared to be full grown, they did not immediately ascertain whether it was in the act of sucking or not. After remaining with the cat a considerable length of time, it returned to the cupboard. These visits were repeated on several other occasions, and were witnessed by many persons. The cat not only appeared to expect the mouse, but uttered that sort of greeting purr which the animal is so well known to make use of when she is visited by her kitten. The mouse had every appearance of being in the act of sucking the cat, but such was its vigilance that it retreated as soon as a hand was put out to take it up. When the cat, after being absent, returned to the room, her greeting call was made, and the mouse came to her. The attachment which existed between these two incongruous animals could not be mistaken, and it lasted some time. The fate of the mouse, like that of most pets, was a melancholy one. During the absence of its nurse, a strange cat came into the room. The poor mouse, mistaking her for its old friend and protectress, ran out to meet her, and was immediately seized and slain before it could be rescued from her clutches. The grief of the foster-mother was extreme. On returning to the parlor she made her usual call, but no mouse came to meet her. She was restless and uneasy, went mewing about the house, and showed her distress in the most marked manner. What rendered the anecdote I have been relating the more extraordinary, is the fact of the cat being an excellent mouser, and that during the time she was showing so much fondness for this particular mouse, she was preying upon others with the utmost avidity.

A gentleman, now residing in Sussex, had a cat which showed the greatest attachment for a young blackbird, which was given to her by a stable-boy for food a day or two after she had been deprived of her kittens. She tended it with the greatest care; they became inseparable companions, and no mother could show a greater fondness for her own offspring than she did for the bird. This incongruity of attachment in animals will generally be found to arise either from the feelings of natural affection which every mother is possessed of, or else from that love of sociability, and dislike of being alone, which is possessed more or less by every created being.

The following is, perhaps, a still more extraordinary instance of the affection which one animal entertained for another not of its own species. Mr. Edwards, Lord Jersey's trainer at Newmarket, had the care of his lordship's celebrated horse Glencoe, and a great affection existed between Glencoe and a large Newfoundland dog of Mr. Edwards. The dog lived in the stable with the horse, and followed him when he was taken out to exercise. While this friendship existed, Glencoe was parted with. The dog was inconsolable, refused to eat, and it was supposed would have died. On being brought from the stable by his master into his sitting-room, which had several portraits

of horses hung against the wall, and that of Glencoe among the rest, the dog fixed his eyes on the likeness of his late companion. At first he began to wag his tail gently, but at last showed the greatest excess of joy, jumped up to the picture, and it was evident that he had discovered the likeness of his absent friend. This anecdote may be thought extraordinary, but the celebrated Dr. Pearce, Bishop of Rochester, mentions one almost similar to it. He says that when he was one day visiting Sir Godfrey Kneller at his country-seat at Whitton, near Hounslow, he carried him into his summer-house, where there was a whole-length picture of Lady Kneller, which was much damaged and scratched at the bottom. Upon the Bishop's expressing a curiosity to know how it became so injured, Sir Godfrey said it was owing to a favorite dog of Lady Kneller's, who, having been accustomed to lie in her lap, scratched the picture in that manner in order to be taken up. This made the bishop mention that Zeuxis had painted a bunch of grapes upon a boy's head so naturally that a bird pecked at them. Sir Godfrey answered, "that if the boy had been painted as well as the grapes, the bird would not have ventured to peck at them."

Those agreeable naturalists, Messrs. Kirby and Spence, assert that insects are capable of feeling quite as much attachment to their offspring as the largest quadruped, will undergo as severe privations in nourishing them, expose themselves to as great risk in defending them, and, in the very approach of death, exhibit as much anxiety for their preservation. I had an instance of this the other day in the case of a spider, and I watched its whole proceeding with infinite gratification. I found its nest in the under part of the broad leaf of the striped garden-grass. It was covered with a thick sort of silky web or cocoon, with an opening to enable the spider to go in and out. On taking off the covering, which consisted of two different layers, I found a deposit of eggs closely packed together, and the whole collection was about the size of a large pea. Having completely exposed the eggs, I put the spider and the part of the leaf to which the eggs were attached under a glass. In turning down the glass, the spider was at the upper part of it, but she no sooner perceived her eggs than she ran to them with the greatest eagerness—covered them as much as she was able with her body, sensible, no doubt, how necessary warmth was for them—and soon began to spin another silky web over them. Nothing seemed capable of disturbing her during this process, and there was no mistaking the affection which prompted her. This she showed in another remarkable way. I had placed the portion of striped grass, which was nearly two inches in length and about three-quarters of an inch in breadth, upon a marble mantelpiece in my sitting-room. One of the first operations of the spider, as I said before, was to cover her eggs with a web. She next proceeded to fix one of her threads to the upper part of the glass which confined her, and carried it to the further end of the piece of grass, and in a short time had succeeded in raising it up and fixing it perpendicularly, working her threads from the sides of the glass to the top and sides of the piece of grass. Her motive in doing this was obvious. She not only rendered the object of her care more secure than it would have been had it remained flat on the marble, but she was probably aware that the cold from the marble would chill her eggs, and prevent their arriving at maturity: she therefore raised them from it in the manner I have described. On the evening of the fourth day, two of her eggs were hatched. On coming into my room the next morning, neither eggs nor young spiders were to be seen. I was satisfied that they could not have made their escape, as the edge of the glass rested on the marble so closely that the point of a needle could not be introduced under it. After minutely examining the spider, I was perfectly sure that not one of her young had attached itself to any part of her body, in the manner described by Mr. Kirby.* The abdomen of the spider was however three times the size it had been the day previous, being very much distended, and shining like the abdomen of a bee when it returns to the hive loaded with honey. Those who witnessed the altered appearance of the spider were, like myself, convinced that the young had been introduced into the abdomen. The death of the spider soon afterwards prevented further observations.

A large breed of spiders abound in the palace of Hampton Court. They are called there "cardinals," in honor, I suppose, of Cardinal Wolsey. They are full an inch in length, and many of them of the thickness of a finger. Their legs are about two inches long, and their body covered with a thick hair. They feed chiefly on moths, as appears from the wings of that insect being found in great abundance under and among

* Mr. Kirby says, the young of the spider (*aranea saccata*) attach themselves in clusters upon the back, belly, head, and even legs of the mother; that in this situation, she carries them about with her, and feeds them until their first moult; and that upon disturbing her, thus covered by hundreds of her progeny, it was amusing to see them all leap from her back and run away in every direction.

their webs. In running across the carpet in an evening, when the light of a lamp or candle has cast a shade from their large bodies, they have been mistaken for mice, and have occasioned no little alarm to some of the more nervous inhabitants of the palace. A doubt has even been raised whether the name of cardinal has not been given to this creature from an ancient belief that the ghost of Wolsey haunts the place of his former glory under this shape. At all events, the spider is considered as a curiosity, and Hampton Court is the only place in which I have met with it.

The common earwig has generally a brood of young ones about her at this time of the year, and she shows the greatest care and anxiety for their safety. If she is disturbed, nothing can exceed her agitation. She has some means of collecting her young together after they have been scattered. I have seen them fall to the ground from a height of two or three feet, and reassemble at the same place. Mr. Kirby says that "this insect sits upon her eggs, and approaches the habits of the hen in the care of her family. As soon as the young are hatched, they creep like a brood of chickens under the belly of the mother, who will sit over them for hours together, and shows the greatest agitation when she is disturbed."

MORAL TRAINING.

So much has been said on this subject in the Tract on the Management of Infants, that little remains to be added.

That which we would here more emphatically insist on is, that in youth, as well as in infancy, the child should, as far as reason or convenience will allow, be suffered to associate with his parents. Socially, the child is the equal of his father and mother. He is younger, but in other respects he is an equal, and should be treated as such. It may seem strange that we should speak of what seems to be an evident truth; but this, like many other truths, is unfortunately apt to be lost sight of. We almost everywhere see children treated as if they were inferior beings, and kept systematically out of sight, like toys, only to be shown and fondled on certain occasions. In a right domestic management, however, the children are to be viewed as only younger men and women, and respected accordingly. Much practical advantage will arise from this consideration, as will be immediately explained.

A child has every thing to learn, and he learns best by having good examples for imitation. If you, therefore, desire to see your children well-behaved, do not leave them in the charge of servants, who are for the most part ignorant, and otherwise not well adapted to train the minds of young persons. Rear and superintend your children yourself, at least in all matters of general intercourse. They may be dressed and cleaned by domestics, and domestics may also walk out with them; but let them spend a considerable part of their time with you daily in the parlor. In short, you, the parents, are to be the model to be imitated, not the girl who is hired to sweep out the rooms, or to do any other humble office in the household. Being thus the companions of your children, and conscious that every word you utter, and every thing you do, will be imitated, you will of course take care to say and do nothing which can lead to improper habits.

Temper.—In all families there are differences of character: one child will be lively, another dull; some will have good, others bad tempers. It is of first importance to cultivate a cheerful temper in children, and therefore the greater care will be required in this respect when there appears to be any deficiency in the natural disposition. Much will depend on how you treat the child. If it be peevish, do not scold or threaten it; and, we may add, in no circumstances get out of temper with it.

The mother of a family with whom we are acquainted pursues the following excellent plan with her children. When one of them cries, or is otherwise in bad humor, she says, "Oh, I see you are not well, my dear; I think you had better go to bed, and I will give you a little medicine." This kind of sympathy usually sets all to rights. The disinclination to be put to bed and take medicine acts as a sovereign remedy.

Some parents are constantly telling their children not to do this, and not to do that. This is not treating them as equals, and too prominently establishes the principle of inferiority. Children should not be talked to as if they were dogs. They should be requested, not ordered; at least in all ordinary matters, and when they commit no act of insubordination. "I should think you had better not meddle with that knife; it is rather sharp." "I would let alone that piece of broken glass; it is dangerous." "Don't you think this would be a pleasant day for a walk?" "I thought you would not have done so foolish a thing." "I am sorry we cannot bear that noise; and I think you had

better go to the nursery." By accustoming children to such mild language, they learn to be mild themselves. A soft word will do more with such children than a torrent of reproof.

Firmness, however, is as requisite as mildness in family management. On this point we beg to extract the following observations from the work of Mr. Goodrich on *Fireside Education*:—"Some children are easily managed, but there are few who will not sometimes try to have their own way. At one time they will attempt to evade, at another they will brave, authority. In this species of strife they are often sharp-witted and dexterous, and sometimes intrepid, pertinacious, and headstrong. If they succeed once, they gather courage; if twice, they feel assured; if thrice, they triumph. The only safe method is for the parent to meet the first resistance of the child with firmness, and by no means to permit himself to be baffled either by evasion or defiance. But great caution is to be used. The object should be, not merely to make the child obey externally, but internally; to make the obedience sincere and hearty, and to make it flow alike from affection, a sense of duty, and a conviction that he consults his true interest in so doing. All these motives should be brought to concur in the act; if any one of them is wanting, the obedience is imperfect. To accomplish this thorough subjection of the child to parental authority, it is obvious that great prudence is necessary. There must be no violence, no display of temper, no angry looks, no hasty words. Before he can expect to govern a child, a parent must first learn to govern himself. His own passions being under control, his heart chastened, and the traces of vexation swept from his countenance, he may meet the rebellious child, assured of triumph. That child might resist threats, and be hardened by force; but it will not long resist patient kindness, tender remonstrance, affectionate counsel."

Truth.—Accustom your children, from the earliest infancy, to speak the truth; and this they will do, if not prevented by servants, or by their parents. How lamentable is it to find persons so lost to all sense of obligation as to encourage deceit in their children! A mother will be heard admonishing them to conceal such a thing from the knowledge of their father—to say they did not see so and so, &c. Such deceits are ruinous to the moral character of children, and, we need not say here, that they are grossly wicked.

Children should never hear a falsehood uttered. The very idea of there being such a thing as untruth ought not to come across their mind, unless, indeed, when the criminality and fruits of falsehood require explanation and reproof. Every encouragement, even to the pardoning of offences, should be given to truth. Cultivate in the child's mind a love of candor, straightforwardness, honor, and integrity, along with a corresponding hatred of falsehood, equivocation, dishonesty, and meanness. Lessons in these things, however, will be of little use. The cultivation must be by the training of motives and principles into confirmed habits, and that can be realized only within the family circle.

Religious impressions, in the same manner, require to be made in the first place by parents as much as possible by means of practical habits and personal explanations. As the mind expands, the leading characteristics of Creation and Providence, the nature of God, and the reasons for his being an object of veneration and worship, may be explained. And from these, as starting points, all proper explanations as to religious doctrine and duties will naturally diverge.

Some parents, either because they are themselves ignorant, or because they will not take the trouble, leave their children to pick up religious knowledge from catechisms, the learning of which they rigorously enforce. We fear no little mischief arises from this practice. Few young people can understand the meaning of catechisms, and the obligation to learn them as a task is apt to disgust them with what ought to be the grandest of all subjects of meditation. We advise great caution in the way of enforcing catechetical instruction.

THE ABSENT ONES.

Amidst the bright, the free, the gay,
How often do we turn away
From all assembled near;
And, passing by all present things,
How rapt'rously our bosom clings
To those who are not here.

The absent ones! whose flags unfurl'd
Are streaming on the wide, wide world,
Breasting its waves of strife;
Struggling amidst its bubbling foam,
To keep their footing on that home,
The battle-field of life.

Emily Varndel.

REPORT ON GARDENS IN MONTGOMERY COUNTY, MARYLAND.

"The following are the names of the ladies in Montgomery county," says the *American Farmer*, "whose gardens were inspected by a Committee of the Agricultural Society," each of whom receive, in this report, what the Editor of that paper states is a well-merited compliment. It is not easy to say in such cases what is the just measure of merit, unless we could tell what assistance and encouragement the good lady has had from her husband. She ought to have, if he can command it, not only the physical force, but the intellectual aid which is necessary—and first of all, she should be encouraged by at least some show of taste for horticulture on his part. That taste may be displayed in various ways, to give her assistance and satisfaction. She should be supplied with the requisite publications and papers on the subject, and these may be had for less money than he often loses, by neglect of his affairs while going to a scrub race between horses, or a yet more useless race between scrub politicians. But the taste for reading is to be begotten while people are young, and he who neglects to provide the means to encourage it to the extent that he can afford them, deserves to be treated as was the mother by the son, who, under the gallows, bit off her ear for neglecting to punish him when he stole the first spoon. Yes, we have no patience with those who can in any degree appreciate the value of the love of books, and the happiness of which it is the source, and who yet neglect, as too many do, the least appropriation or effort in the way of a *family library*. If any money is spared, in the way of provision for reading, beyond the purchase of a spelling-book and the six-penny almanac, the next thing is for a *party newspaper*, in which he can see half his countrymen unsparingly abused, as a set of knaves and fools, and there he stops in the way of provision for giving to his family a taste for books, and the nameless delights, and even power, which result from increasing knowledge. That knowledge is power, we saw happily illustrated, as follows, in a late number of the *Vermont School Journal*, as thus:

"We will not write an essay on this theme. A few facts may be of use by showing how good schools promote the efficiency of manual labor; how by a little headwork an immensity of hard work may be saved, or the hourly value of hand work vastly increased.

"Suppose we have a block of squared granite, weighing 1080 lbs., to move. It has been found by experiment, that

"To draw it along the floor of a roughly chiselled quarry, required a force equal to 780 lbs.

"To draw it over a floor of planks, 652 lbs.

"If placed on a platform of wood, to draw it over the same floor, 600 lbs.

"If the surface of the wood be soaped, 182 lbs.

"With the same rollers on a wooden platform, 22 lbs.

"With the latest railroad improvements, as to track and wheels, less than 4 lbs.

"The 780 lbs. in the last, represent the muscular strength required, the difference between the two—or 776—the power of knowledge."

Even the slightest word of approbation and pleasure, at seeing a sprig of honeysuckle stuck in the print of butter on the breakfast table, or a rose in her own bosom, would encourage the good wife to cultivate for herself and daughters a skill in horticulture and floriculture; but where his thoughts are about nothing but the tobacco and corn, and he comes in merely to despatch his meals, as the horse does, from hunger and necessity, what encouragement to her to keep even her house in order? It would then be the height of injustice, in many cases, to conclude that because, as is often the case, there is nothing in the garden but a few straggling Dutch cabbages, and some kidney-beans or potatoes, that therefore the housewife is not willing and ready to do her part towards the comfort and embellishment of the homestead. Let us, then, be prompt to give praise where it is due, but be slow to draw unfavorable inferences, in the absence of a knowledge of facts, which being a matter of household concern, the curtain must not be lifted.

The names of the Ladies are as follows: Mrs. Wm. Brewer; Mrs. Joseph C. White; Mrs. Nicholas Brewer; Mrs. Joseph Brewer; the Misses Joseph Bruner; Mrs. George W. Chiswell; Mrs. Wm. Chiswell; Mrs. Alexander Soper; Mrs. Wm. Cissel; Mrs. Warren King; Mrs. P. H. McLeod; Mrs. John A. Jones; Mrs. Benjamin White; Mrs. Richard H. Jones; Mrs. Col. Shrieve; Mrs. John L. T. Jones; Mrs. Samuel Young; Mrs. Henry Young; Mrs. Hezekiah Trundle; Mrs. Wm. Matthews; Mrs. Frederick S. Poole; Mrs. James S. Alnut; Mrs. Robt. M. Williams; Mrs. Horatio Trundle; Mrs. Joseph White; Mrs. Samuel Milford; Mrs. Benjamin White, jun.; Mrs. Walter Williams.

THE WHOLE DUTY OF WOMAN.

INTRODUCTION.

Give ear, O ye daughters of beauty, attend to the voice of your sister, for experience hath taught her wisdom, and length of days virtue and understanding.

My father was the brother of *Tenderness:* my mother was the sister of *Love.*

As the rosebud opening to the morn, as the dewdrop on the lily, so was the loveliness of my youth.

I awoke at the rising of the dawn; my salutation was that of joy and gladness. *Pleasure* beckoned me forth, and I sported in the sunshine of *Plenty.*

The hours were swift, and ran smiling away; but the lightness of my heart outlived the going down of the sun.

The day departed with the mildest breeze, and the night but invited me to the bed of repose.

My pillow was the softest down, my slumbers attended with golden dreams.

Thus one day passed away, and the morning of the next found me happy.

Happy are the hours of artless innocence! happy the days of virgin simplicity, while the bosom is a stranger to deceit, and the heart unconscious of the painful sigh!

O that I could overtake the wings of time! O that I could recall the pleasures of my youth! for the days of my womanhood have been days of many sorrows, the tears of misfortune have bedimmed the lustre of mine eye: the lily is fallen, and the rosebud is blown and withered on my cheek.

For I listened to the voice of *Adulation,* and her bewitching blandishments allured me to destruction.

The silver tongue of *Flattery* is hollow, and laden with guile; the manna that drops from her lips is corrosive poison to the heart.

Hear then, O daughter of America! O fairest of the fair among women! let my precepts be treasured in thy bosom, and walk in the ways of my counsel; so shalt thou shun the thorn of reproach, more keen than the bite of the asp, more venemous than the sting of the scorpion.

The hand of Scorn shall point its finger from thee; the tear of Misery shall never bedew thy cheek; thy life shall be replete with good things, and peace and honor shall satisfy thy soul.

CURIOSITY.

As the first of all evils, as the source of calamity, as the beginning of pain, avoid, O daughter of Eve, the bewitching charm of curiosity.

Seek not to know what is improper for thee; thirst not after prohibited knowledge; for happier is she who but knoweth a little, than she who is acquainted with too much.

Remember thy mother, the daughter of heaven, arrayed in the whitest robes of innocence; forget not the fatal consequence of her disobedience.

How much happier in the bowers of Paradise, feasting on the luscious grape of gladness, than wandering in the wilderness of care, to chew the bitter weed of repentance!

Be thou contented, therefore, with knowledge fitting for thee; for in the acquaintance of many things lieth not wisdom; but in the knowledge of that which is meet.

Let the threshold of thy neighbor's door secure her family, let her window tempt not thine eye to see, nor the open casement thine ear to hear the secrets of her house.

The prying eye is a foe to itself, and the listening ear will hear itself slandered.

Art thou inquisitive after deeds of scandal and reproof, inquire of thyself, and thou wilt find employment within.

Art thou a virgin, doth the bloom of health glow lively on thy cheek, study not to know the ways of man.

As the way of a serpent in the grass, or a traveller over the waste, in a dark night, so the ways of man are dangerous and hard to find out.

Thy ignorance of his cunning may lay thee open to his deceit; but the knowledge thereof must be the consequence of thy being deceived.

Learn, therefore, O woman, what thou shouldest know, before thou seekest farther knowledge.

SCRAPS.

The grave has been defined to be an ugly hole in the ground, which lovers and poets wish they were in, but take uncommon care to keep out of.

A person once sent a note to a waggish friend, for the loan of his *noose* paper, and received in return his friend's *marriage certificate.*

The initial letters of the names of the late French Provisional Government—Arago, Lamartine, Ledru (Rollin,) Marrast, Albert, and Dupont—form the words "ALL MAD."

The race-horse, "Justice to Ireland," has been sold to the Duke of Richmond for £2500—$12,500.

RECEIPTS.

To Clean Black Silks.—To bullock's gall add boiling water sufficient to make it warm, and with a clean sponge rub the silk well, on both sides, squeeze it out, and proceed again in like manner. Rinse it in spring water, and change the water till perfectly clean; dry it in the air, and pin it out on a table; but first dip the sponge in glue water, and rub it on the wrong side; then dry it before the fire.

To Preserve Clothes.—As clothes, when laid up for a time, acquire an unpleasant odor, which requires considerable exposure to the atmospheric air to remove, it can be prevented by laying lumps of recently made charcoal between the folds of garments; and even when the odor is already fixed, the charcoal will absorb it.

Fried Potatoes.—The French cooks at the large hotels are making this dish very fashionable. The potatoes are peeled, wiped, and cut into thin slices, then thrown into a frying-pan containing an abundance of hot lard; as soon as they become brown and crisp, they are thrown into a cullender to drain, are then sprinkled with salt, and served up as hot as possible. It is a breakfast dish.

Potted Beef.—Take cold boiled beef, (the lean half of the round is the best adapted for the purpose,) remove all the skinny parts, mince it fine, and pound it in a mortar with fresh butter till quite smooth, seasoning with nutmeg, black pepper, cayenne, a little mace, and salt, if requisite; press it very closely into small flat pots, clarify some fresh butter, and pour over the top, and when cold, paper as jams and jelly, omitting the brandy.

To Polish Mahogany Tables.—Grate very small a quarter of an ounce of white soap; put it into a new glazed earthen vessel, with a pint of water; hold it over the fire till the soap is dissolved; then add the same quantity of white wax cut into small pieces, and three ounces of common wax. As soon as the whole is incorporated, it is fit for use. When used, clean the table well, dip a bit of flannel in the varnish when *warm*, and rub it on the table; let it stand a quarter of an hour, then apply a hard brush in all directions, and finish with a bit of clean dry flannel. This will produce a gloss like a mirror, and to those who dislike the smell of turpentine or oil, will be very useful.

Water Souchy.—This is a mode of dressing fresh-water fish, of every description. They must be quite fresh, cleaned and trimmed; put them in a stew-pan, and cover them in water; add a few parsley leaves and roots cut in shreds, a few green onions cut very fine, a little horseradish, and a bay leaf, seasoned with pepper and salt; skim it carefully when it boils. When the fish is quite done, send it up in a deep dish, or tureen; also a few slices of bread and butter on a plate.

Fritters which may be made quickly.—One egg, two spoonsful of flour, a little sifted sugar and ginger, milk sufficient to make a smooth batter; cut a middling-sized apple into thickish slices, and put into the batter, and with a *spoon* put them into the frying-pan, with just the batter which is taken up in the spoon; have a sieve with the bottom up, and, as fried, lay the fritters upon it to drain. The above quantity is sufficient for a small dish.

Apple Jelly.—Take good winter apples, not too mealy, pare and cut them in slices, put them into a deep stewpan, with as much water as will cover them; boil them gently till they will mash, and then strain them through a jelly-bag; to every pint of liquor add one pint of loaf sugar: boil it till it comes to the top for ten minutes, then pour it into a mould with or without sliced lemon peel. A quart only should be done at a time. This jelly will keep, and make a pretty dish at any time.

First-rate Blacking.—Three ounces ivory black, two ounces molasses, half an ounce of vitriol, half an ounce of sweet oil, quarter of a pint of vinegar, and three-quarters of a pint of water. Mix the oil, treacle, and ivory black gradually to a paste, then add the vitriol, and, by degrees, the vinegar and water. It will produce a beautiful polish.

To Clean Marble.—Pound very finely a quarter of a pound of whitening, and a small quantity of stone blue; dissolve in a little water one ounce of soda, and mix the above ingredients carefully together with a quarter of a pound of soft soap. Put the whole into an earthen pipkin, and boil it for a quarter of an hour on a slow fire, carefully stirring it. Then, when quite hot, lay it with a brush upon the marble, and let it remain on half an hour. Wash it off with warm water, flannel, and scrubbing-brush, and wipe dry.

The Plough, the Loom, and the Anvil.

VOL. I. NOVEMBER, 1848. No. V.

DISCOURSE ON THE WANTS OF AGRICULTURE,

Delivered before the Middlesex (Connecticut) Agricultural Society, at their Annual Meeting, on the 7th of October, 1848, by J. S. SKINNER, Senior Editor of "The Plough, the Loom, and the Anvil."

I HAVE accepted the invitation with which you, my friends, have honored me, to come among you on this occasion of your annual exhibition, but not to talk about practical agriculture. There is little that I could teach you. A southern man, in his visits to the north, sees much to admire, and much that he might desire to imitate. He may learn much, but he finds that he has little to give in return. You are everywhere endeavoring to provide for yourselves the best of teachers, in agriculture and in all else, in bringing the consumer to take his place by the side of the producer, and thus giving to the latter the widely pervading and permanent stimulus afforded by ready markets and good prices, and these do more for the promotion of agriculture in a single year, than premiums and other hot-bed influences alone could do in a century. You are endeavoring to provide a market on the land for all the products of the land, thereby to enable your farmers, at small cost of time or labor, to exchange their potatoes, their turnips, their cabbages, and their fruit, with the makers of ploughs and axes, the manufacturers of cloth and of carpets, carrying back the refuse of their products to enrich their land and themselves, thus to acquire the command of time and means for the improvement of their machinery and their minds. To that is due the fine exhibition of both men and things that I have lately witnessed, with a gratification that could scarcely have been increased, except, perhaps, by my having had with me some of my southern friends, who have yet to learn the advantage that is to be derived from bringing the loom and the anvil to take their places by the side of the plough. Among them, too, agricultural societies abound, yet agriculture does not flourish, and therefore it is that men are seen flying, as if from pestilence, from lands abounding in marl and lime, from meadows undrained, from river bottoms uncleared, and from soils so rich as to be covered with timber of growth so luxuriant that the cost of destroying it is more than the land would be worth when cleared, to seek in the west new and poor soils upon which again to begin the work of cultivation, and there to repeat the work of exhaustion—and all because they have yet to learn that the loom and the anvil are the most efficient aids to the labors of the plough.

Agricultural societies abound throughout the Union, but with their increase production diminishes. Fifty years since, the average yield of wheat in New York was twenty bushels. It is now but twelve. Twenty years since, that of Ohio was twenty bushels. It is now not over ten or twelve, and it diminishes with each successive year. The reason for this is, that these societies began at the wrong end, and so do they still continue. They offer premiums for single cauliflowers, and dozens of cabbages—for pecks of peaches and apples—and for bushels of wheat and corn—when they

should be offering premiums to induce those who are themselves the dispensers of the great premium offered by the presence and all-pervading influence of ready markets and prompt pay for all the produce of the farm, the eggs, the milk and cream, the butter, veal and mutton, peaches and apples, strawberries and raspberries—premiums to induce active and industrious shoemakers and tailors, carpenters and bricklayers, blacksmiths and machinists, spinners and weavers, to come, or to remain, among them, setting themselves down by the side of their ploughs, and thus enabling them to produce tons of turnips and potatoes from the same land, and with the same labor that yield now but hundred-weights of wheat or cotton. Instead of premiums on production, they want premiums on consumption; for where consumers abound the farmers grow rich and skilful, and machinery improves, and production increases, because the labor required for the process of exchanging is diminished, and that applied to production is increased in proportion, and because the refuse of the products, instead of being wasted on the road or in distant markets, goes back upon the land, which improves instead of deteriorating, and becomes more valuable with every increase in the quantity that is taken from it.

Throughout a large portion of the Union, the product of the land dimi nishes, because our societies have thought too much of the practice, and too little of the politics of agriculture. We see, occasionally, a disposition for the cultivation of this more elevated science, but rarely, as I think, do we see a manifestation of much knowledge of the real wants of agriculture. Of all our societies there is none that enjoys so much government patronage as does that of New York, in whose ponderous volume of Transactions, recently issued from the press, the most conspicuous place is assigned to the Address of the late Governor Wright; a man occupying, and most deservedly, a high place in his country's esteem, and distinguished as a politician, but not, as I think, a master of the science he has undertaken to teach in that address—*the politics of agriculture.* It may appear, perhaps, presumptuous in me thus to speak of such a man; but it is precisely because of his prominent position that I select his views for comment. Small men may make mistakes and do small harm, but when great men do so, they do great harm; for error so endorsed and so widely disseminated under such auspices, passes for truth, and is, by the agency of the press and the public patronage, propagated throughout the land, to be echoed back again from north and south, and east and west, until at length what was at first but the error of an individual, becomes the error of a party, capable of influencing the action of a nation, to the serious injury of the interest that it was honestly designed to serve, one in relation to which I feel that I have a right to express some concern, after dedicating to its advancement the best portion of my life.

In this "address" we are told that "our agriculture is in its infancy almost everywhere, and at its maturity nowhere." That such is the case is obvious to all. What we desire to know, and what we look to find in this address, is the cause of this *extraordinary backwardness* in the great pursuit of man, compared with his extraordinary progress in the mere work of fashioning its products; but that we are not told. The speaker does not even seem to have asked himself the question, and yet it lies at the bottom of all useful inquiry into the condition of agriculture, and is therefore certainly one deserving most serious reflection. Had he entered on the inquiry, he must have been struck with the fact that after two centuries of practice, our machinery of production is yet so exceedingly imperfect that it may with justice be said to be almost in earliest infancy, and that in a country which boasts so loudly, and so justly too, of its superiority in the machinery of conversion and exchange. Behold what steam, the great

discovery. of the age, is doing for all other pursuits compared with any direct application which has been made of that great power to agriculture. The orator's own state possesses perhaps the best mills in the world for the conversion of wheat into flour, and yet her yield of wheat has fallen to a dozen bushels to the acre, while a careful writer, before the Revolution, stated that from twenty to thirty bushels was the common crop in the county of Albany, and her people are abandoning the immediate vicinity of those fine mills, to seek in the west new lands at a distance from any mills. Her great port possesses the best machinery in the world for the transportation of corn to feed the famishing people of Ireland, but her machinery for the production of corn is so inferior that its yield is but twenty-five bushels to the acre, while fifty years ago it was proved that one acre could be made, in the same state, to yield one hundred and twenty bushels. She has close at hand the best machinery in the world for the conversion of wool into cloth, and yet at brief intervals her farmers cut the throats of their sheep, and thus exterminate flocks whose collection has been the labor of years. The nation possesses the best machinery in the world for the conversion of cotton into cloth, and yet throughout the south men cultivate acres that yield but two hundred pounds, when, under a proper system of cultivation, they might have in return to the same labor quintuple the quantity. Everywhere we see that agriculture *is* in its earliest infancy, and almost everywhere we see that it goes rather backward than forward, notwithstanding the numerous societies and journals engaged in disseminating information in regard to improved instruments, and improved modes of practice, and it would have been a task worthy of the intellect of Governor Wright, to search into and explain the *causes of this extraordinary fact.* Had he done so, he might have found the explanation in another fact referred to by himself, that while in the older states there is not a single county that has not land that is yet to be brought into cultivation, we are constantly engaged in expelling our people to form new states in the west, which are growing, therefore, with a rapidity that almost surpasses belief. In the midst of all this, hear a late and enlightened Governor of South Carolina declare, "We have extensive swamps and countless ponds in our country, most of them vastly rich. Instead of requiring manure, these swamps could furnish a large amount of peat and mud for our poorer land, and retain afterwards a thickness of vegetable matter which ages of proper culture could not extract. They are equal, large portions of them, to the best lands of Louisiana and Texas, and their yield, on the *second* year's cultivation, would repay all the labor of draining and clearing."

Yes, my friends, it is to this fact that is due the slow progress of cultivation and its almost universal slovenly character. When men are running away from each other, production diminishes, and agriculture cannot improve; and the reason why it cannot do so is, that until population attains a certain density, and men are thereby enabled to combine their exertions, the richest soils cannot be cultivated. Look around, I pray you, and see what were the lands upon which your forefathers commenced. Were they those which bore the largest trees—those which, from the richness of the soil, were most fitted to hold water—and which occasional inundation had enriched by ages of alluvial deposits—and those therefore which required the most clearing and drainage? Certainly not! To have done so would have ruined them. They commenced upon poor soils; upon those which bore few trees and drained themselves; and it is only as wealth and population have grown, that the richer ones have come into activity. So has it been everywhere, and so is it now in every state of the Union, even in those new ones to which your people are flying in search of rich soils, to be obtained, as they suppose,

without labor. So must it everywhere be, for rich soils will not pay the cost of clearing until the consumer is at hand to drink the milk and eat the veal, the potatoes, the turnips, and the other commodities of which the earth yields largely, and which will not, therefore, bear the cost of transportation. First settlers have neither the means nor the inducement to begin on the richest soils, encumbered with wood or saturated with water. Look, I pray you, to Virginia and South Carolina. In both, the work of cultivation was commenced upon poor soils, which have been exhausted by the production of the wheat, and the tobacco, and the cotton required for foreign markets, and the owners of those lands are now flying from the vicinity of beds of marl, and from river bottoms abounding with manure, and covered with timber that should be employed in the construction of houses, and the making of railroads, for the hundreds of thousands of prosperous mechanics that might now be occupying those States, making a market on the land for the products of the land, and enabling the planter to obtain tons of potatoes and turnips, where now he has but hundred-weights of cotton; but, unhappily both have yet to learn that the plough and the harrow cannot prosper at a distance from the loom and the anvil. "Population makes the food come from the rich soils, and depopulation drives men back to the poor ones." Here, my friends, is the great truth that lies at the bottom of sound agricultural polities. It is not in accordance with the doctrines of the day, which teach that increasing population must be accompanied with increasing tendency to starvation and misery, and that war and waste are "blessings in disguise," because they tend to restrain population within the limits of subsistence, but it *is* in accordance with every day's experience in New England and in every country that remains at peace, and permits wealth and population to grow together.

Our agriculture *is* in its infancy, and it is so because our people are everywhere increasing their distances from each other. Why they should desire so to do, appears to have claimed the attention of Governor Wright, and thus we find him attributing it to a "strong and resistless inclination of our people," leading them to agriculture in preference to any other pursuit. Here his inquiries appear to have stopped. Had he gone one step farther, endeavoring to ascertain the cause of the existence of this supposed "inclination," he might have found that *necessity*, and not the inclination itself, or the power to indulge it, lay at the bottom, and was the true cause of the extraordinary facts presented to view throughout this country. Man always courts society. He never flies from the neighborhood of his fellow-man to gratify inclination. He knows that "two can lift a log that one can neither roll nor lift," and yet he is everywhere throughout the country seen flying from parents and friends, from the home of his youth, with its school-house and its church, and from every thing that has contributed to make life pleasant, and all, according to Governor Wright, because of a "resistless inclination" for agriculture, that has, as I believe, no existence. Look around you, my friends, and see how strong is the tendency towards the mechanic arts. Nine-tenths of your young men and women would prefer the town and its pursuits to the country; and they do so because they like to congregate. Such being the case, there can be few, who, from choice, go west, there to begin the work of cultivation. I doubt if any would, had they the power to choose between good wages in a factory, with employment for their children, and with a little lot at hand upon which to bestow the spare hours and half-hours not otherwise employed, and that lot having in its immediate neighborhood the old school-house, affording means for educating the children, and the old church, and the old clergyman, and the old graveyard, hallowed as the place where repose the remains of parents and friends.

And I hold it to be the natural right of the people of every country—one which every country would enjoy under just and wise legislation—to carry all its natural products up through all the various processes of preparation for actual use, and to which labor can be profitably applied, until the raw material is made ready for consumption by the last touch of industry; and that any course of policy, which interferes with such application of the labor of a country to the fashioning of its own productions, is worthy to be regarded as the pernicious "invention" of mere politicians—an invention which disturbs, without any equivalent advantage, the natural course of industry, diminishes the ratio of profitable consumers to producers, and so far affects injuriously the natural and political rights of the cultivators of the soil. For such disturbing and mischievous interference, statesmen, or politicians claiming to be so called, have alleged the want of appropriate labor in our own country, and especially in the South; but such is not generally the fact, and where it is so the effect is confounded with the cause; for where absence of labor exists, it may be traced directly to political causes, which deprive labor of a living and reasonable reward. But let the legislator cut off our colonial dependence on the pauper labor of Europe—let him say to industry and capital, seeking fair employment, go into the vast coal fields of Pennsylvania and of Maryland, and there open your mines—into Virginia where coal and ore abound, and build your furnaces—into the Carolinas and Georgia, where water-power beyond measure exists in the midst of the finest sheep pastures in the world, and there build your factories; and there will be no want of labor to heave the coal, or to smelt the ore, or to weave the wool which there might be grown, almost as the leaves grow on their ever-green trees, through winter and summer, without labor and without expense. Let the lawgiver but hold out profitable employment, and industry will soon flow in from all quarters, as when the proper soil is provided mushrooms spring up by thousands in a night where none were ever seen before. Thus on inquiry have I been lately informed by manfacturers in the heretofore most thinly settled parts of Maryland, and in almost abandoned Alexandria, that on putting up their factories, the redundant or poorly paid labor of agricultural and mechanical pursuits, and labor altogether unsuited by its feebleness to such employments, flocked in to their establishment for present living, and more certain reward, just as water is everywhere seen to seek its level—becoming in these factories active bees instead of drones in the great hive of human industry, and profitable consumers instead of producers of the fruits of the plough.

When the last touch of the industry of our own countrymen has been given to the products of our own country, and the articles thus manufactured are found to transcend their wants, then, and not till then, should commerce be invited to come and perform her appropriate and beneficent offices in the work of exchange of the fruits of the earth and the fruits of the mind, between different regions of the earth, fetching and carrying only such commodities as the laws of climate, and other natural influences, may have adapted to the one and forbidden to the other. Such in my judgment are the true principles of agricultural economy; principles which I truly and gratefully admit have been in a great measure imbibed from the recent work of Mr. Carey, "The Past, the Present, and the Future," a work in my estimation better fitted than any which has appeared in our language to explain, and in the clearest and simplest way, the natural and true doctrines of social and political economy, and particularly as they lie at the foundation and affect the progress of *agricultural* improvement. But after all the natural, and the most profitable pursuit of man is agriculture, and his inclination for it would be far stronger than it is now, could it be indulged

without the necessity for separating himself from parents and friends, and society at large, and, above all, from the lovely daughters in companionship, with whom he has grown up to manhood, as he is now forced to do. And why should this separation be required? In every county of every one of the older states there is abundant land unoccupied, or but half occupied, and men are everywhere seen cultivating large farms that would yield to each of half a dozen men, owners of the small farms into which they could be divided, more than is now obtained from the whole; and that division would take place could each county have its mill, or its furnace and its forge, as a place of exchange for labor, and food, and other raw materials, much of which is now wasted. In the old settled parts of Virginia lands may be bought for two, three, and four dollars an acre, alongside of tracts which skilful and industrious management has made to yield from twenty-five to thirty bushels of wheat to the acre. It is neither scarcity of land that drives, nor "inclination" that seduces men to go west. Every man and woman born in your state would prefer to live and die in it could he gratify that "inclination" which is really the "resistless" one, and which prompts him to desire improvement of his condition, to be attained either by the work of cultivating the earth, or that of fashioning its products, and when they flee from among you to seek the West, it is because of the existence of a necessity for doing that which they would prefer not to do, and because of the absence of power to determine for themselves their course in life.

To what cause are we to attribute this absence of power? That question may, I think, readily be answered without travelling beyond the limits of this "Address," in which we are told, that notwithstanding the great demand produced by famine in Europe, "the avenues of commerce" are still "filled with the productions of American agriculture." Such we know to be the case. There is a perpetual surplus of corn, and tobacco, and wheat, and cotton, and all other of the products of the field. That surplus is always seeking a market, and the farmer of the old states is borne down by its weight as it passes over him. It is sold at low prices, yielding little to the producer while destroying the man with whom it comes in competition; and the latter then goes west to seek the fabled land of plenty—that which yields the corn that *can* be sold so low—there to add to the supply of food with which to overwhelm those he left behind, and compel them in their turn to follow his example. *Necessity* drives him west, and every man thus driven helps to drive others in the same direction. To that, and that alone, may we attribute the "irresistible inclination" to agriculture that has scattered twenty millions of people over a million of square miles, commencing everywhere with the poorer soils, while surrounded by rich lands undrained and uncleared, and compelled to make and maintain tens, if not hundreds, of thousands of miles of unnecessary roads, on which and in distant markets they waste the manure yielded by their products, everywhere exhausting their lands and keeping themselves poor when they might have grown rich, could they have followed their *real "inclination," and staid at home!*

That such is now the case must be obvious to all of you, my friends, and equally so must it be that the continuance of the existing system tends to the depopulation of the older states. Will it continue? That it will do so we are assured in this "Address," which a State society has felt called upon to distribute so widely, and in which we are told that it is impossible to see "a limit to the period" when we shall not "present in the commercial markets of the world large surpluses of all the varieties of breadstuffs, beef, pork, cheese, cotton, tobacco, &c.;" and, if that must continue

to be the case, agriculture cannot improve. The same causes that have, in time past, compelled men to fly from each other must continue so to do for a time, beyond which we cannot "see a limit;" and, while such shall be the case, men must continue to scratch poor soils when they might have rich ones could they live in connection with each other, and, while they shall thus continue to disperse themselves, agriculture must continue in its "earliest infancy."

What is the remedy? What shall be the remedy, when our "almost boundless agricultural field" shall come to be squatted over by men who are exhausting the powers of the earth, and wasting labor and manure on the road in search of markets for this vast surplus? What is to prevent Virginia and South Carolina from being utterly abandoned, as the culture of tobacco, and cotton, and wheat, is more and more transferred to the new states of the West? "We have no hope," says Governor Hammond, of South Carolina, "of discovering a new staple which shall be necessary to the existence or comfort of mankind, the cultivation of which we can monopolize long enough to restore our fortunes." They cannot continue to raise them on this already exhausted land, and they have no market for potatoes, or turnips, or Indian corn, or cabbages, to enable them to clear and drain the rich ones. If we seek in this "Address" for a remedy for this extraordinary state of affairs, we shall find none. We are there told that "our farmers must surrender the idea" of a market on the land for the products of the land, "and must prepare themselves to meet the competition of the commercial world in the markets of the commercial world, in the sale of the fruits of their labor." It has been in pursuance of the doctrine here inculcated and acted upon, by men high in name, in influence and authority, to prepare ourselves to meet the competition of the commercial world in the markets of the world, that several of the most fertile counties of my native state have diminished in population more than ten per cent. within the last ten years.

And who are the people with whom our farmers are thus invited to compete? Are they those of the more civilized portions of Europe? Of England, or of Belgium? They have no grain to sell. They have taken care to make a market on the land for the products of the land, and therefore it is that they are civilized, for civilization is the companion of growing wealth and population. Is it not with the least civilized—the miserable people of Poland—the ignorant serfs of Russia—the wretched fellahs of Egypt—the impoverished people of Sicily—that we are invited to compete? It is. They have made no market on the land for the products of the land, and therefore it is that they waste their labor in carrying their products to "the markets of the commercial world," losing on the road and in those markets the manure, exhausting their land and themselves, and cultivating poor soils for want of means to clear and drain rich ones. Had Governor Wright been talking to his son, he would have given him different advice. He would have told him to enter into competition with those above, and not with those below him; but, in talking to the nation, he advises competition with, and thinks we may prevail against, the most degraded and ignorant people of the world, and not with the most civilized. Such competition is easy. Let us shut up our mills, our coal mines, our furnaces, and our machine shops, and we shall be prepared on the instant. Food will then be cheap enough to supplant the corn of the Black sea and of the Vistula, cotton will be cheap enough to drive the Hindoo out of market, and the sheep-grower of Michigan and Vermont will starve out the bush-ranger of Australia. Nothing would be easier than for Mr. Webster, Mr. Clay, or Mr. Calhoun, or Mr. Clayton, to sink himself to the level of the lowest blackguard that rolls

in the gutter; but would it not be unwise in them to attempt it? Equally unwise is it in the United States to seek a competition in the great commercial markets of the world with the Russian boor or the Hindoo ryot. Yet such is the advice of Governor Wright, as it is also of the head of our Patent Office, the latter of whom seems to think that it requires but a small effort to enable us to place ourselves on a par with the nations of Europe of all others the most ignorant and wretched: such as are most distinguished for wasting their labor in obtaining small products from large surfaces, and maintaining agriculture in "its earliest infancy."

Such are the doctrines scattered broad-cast over the land by the wisdom and power of your governments, state and federal, at the public expense. It is against such fearful odds that the humble individual whom you have invited to address you to-day has resolved to contend, as far as that may be done through a monthly journal, which, to indicate its purposes, is entitled "THE PLOUGH, THE LOOM, AND THE ANVIL," aided as he hopes to be by the countenance and counsels of those who unite in the belief that the best security for a prosperous husbandry is in the policy which favors the growth of the greatest number of prosperous consumers near at hand, to require all that the most improved husbandry can produce.

Yes, my friends, it is in these Addresses and Reports of which I have ventured to speak, that we find the fashionable political economy of the day. It is for preaching such doctrine that the friends of what they call free trade in England have bestowed half a million on a single advocate. It is based upon the doctrine taught in all your schools, and which teaches that earth is a machine of constantly decreasing power to yield food, while population tends to increase in a constantly augmenting ratio, and that thus is produced a necessity for men to fly from each other. Common sense teaches us differently. We see it conspicuously here in New England, and it may be seen throughout the world, that men live and go ahead better as they are enabled most to combine their exertions with each other, and therefore that we should seek to emulate the course of England or of Belgium, which obtain large quantities of food from small surfaces, with constant improvement in the power of the land, rather than that of eastern Europe, where small quantities are obtained from large surfaces, with constant deterioration in the power of the land, as must be the case with all who are, like them, dependent on distant markets.

Why *should* this surplus continue? We have food to spare—and cotton to spare—and wool to spare—and the materials of iron to spare—and we want cloth and iron. Why not combine then ourselves, and have our own cloth and iron? Is it for want of capital? Certainly not. We invest in horses and wagons, and ships, to drag about over the world our food and our cotton, more than would build factories to make our cotton and wool and food into cloth, and furnaces to convert our food, and coal, and ore into iron. Is it for want of labor? Certainly not. We waste on the road, the rivers, and the ocean, carrying our food and cotton to market—and in carrying those who should be consumers of food to the West, there to become themselves producers of food—and on the farm, for the want of the regular demand for labor that exists where the loom and the anvil are near neighbors to the plough—more labor than would convert our cotton and wool into cloth, and our coal and ore into iron. We are always wasting capital, and labor, and manure, in strict accordance with the doctrines of modern English political economy, and with that inculcated or implied in the Addresses and Reports to which I have referred.

"In the natural course of things," I quote now from Mr. Carey, "there is a strong tendency towards placing the consumer by the side of the producer, and thus diminishing the quantity required of the machinery of exchange; and

wherever that tendency does not grow in the ratio of the growth of population, it is in consequence of some of those weak 'inventions' by which man so often disturbs the harmony of nature. * * * In the regular course of human affairs, the man who makes the shoes eats the food produced by the man who desires to wear them, and he does so because it is easier for him to bring the awl and the lapstone, by aid of which he may make ten thousand pairs of shoes, than it is for the farmer to carry to him the food necessary for his support while doing it. This tendency struggles incessantly to develop itself, and is seen on every occasion making its appearance, but it has almost invariably been crushed, the effect of which has been that the people of the United States are now far more widely scattered, and far less wealthy, than they would otherwise have been. They have been compelled to use a vast quantity of inferior machinery of exchange in the form of roads and wagons, in place of the superior machinery of steam-engines and mills, and they have been driven to begin on poor soils in the West, yielding ten bushels of wheat to the acre, when they might otherwise have worked their way down into the rich soils of the river bottoms farther east, portions of which may at all times be bought for far less than the cost of production."*

Such *is* the natural course of things, and were it not for foreign interference, we should have no surplus either of food or cotton, although labor employed in agriculture would be far more productive than it is at present. But for that interference, hundreds of thousands who are now at work in the West, producing ten bushels of wheat to the acre and exhausting their land, would be working at the loom or the anvil, in the factories and furnaces farther east and south, by the side of the ploughman who would be raising tons of hay, and turnips, and potatoes, and all would be richer and happier, more enlightened, and more free.

That interference has come from England. She has desired to be the great workshop of the world, and to compel all nations to bring their cotton and wool to be twisted, and the food to support the man who twisted it, and her whole policy has had in view that single object. She has desired to keep the loom and the anvil at a distance from the plough, to the injury of the farmers and planters of the world, and with no advantage to herself, as may now be seen in the condition of her laboring population. To the measures to which she was prompted by this desire was due our Revolution. To the necessity for combination against her was due the Federal constitution. To sad experience was due the feeling that prompted the patriot Jefferson to say to his countrymen, that "the manufacturer must now take his place by the side of the agriculturist." In accordance with that sentiment it is declared, among other things in the same spirit, in a manifesto signed by nearly a hundred amongst the most opulent and intelligent planters, in a single county in Mississippi, recently sent me for publication in *The Plough, the Loom, and the Anvil*—that they are in favor of such a Tariff as that of 1842, because, among many other reasons very clearly and forcibly assigned, "it affords," as they say, "adequate protection to all kinds of domestic labor, and renders us independent not only in name but in fact." To a feeling of the necessity for resistance to wrong has been due the whole series of protective tariffs, each in succession more protective than its predecessor. We have now a mere revenue tariff, yet it was seen clearly by its friends, that it could not stand unless made to a considerable extent protective, and much more so than that which existed in 1841. Great is truth, and it will prevail. The wave recedes again and again, but after each successive recession it rises higher than before. A home market is the great desire of every farmer

* *Past, Present, and Future*, p. 117.

and every planter, however much opposed in theory to the doctrine of protection. Every one knows that the nearer he can bring his customers to him, the more valuable are his labor, his land, and their products; and the day cannot now be far distant when the producers of rice and cotton will arrive at the conclusion that protection, by aid of which they may themselves build mills for the conversion of both their chief products into cloth, is in fact and in truth a farmer's and planter's measure, and that if they desire to enrich their land and themselves, they must unite with their brethren at the north, as a great number more than is generally supposed, and those among the most influential and intelligent, are ready to do, in the measures necessary to induce the owners of looms and anvils, and the men who work at them, to come and take their places by the side of the plough and the harrow.

That day arrived, Virginia and South Carolina will grow rich, for men will then cease to fly from rich lands, uncultivated, in search of poor ones, and then, my friends, I trust there will be seen, in those States to which I am attached by so many years of familiar intercourse, and so many grateful associations with many of their most distinguished men of all parties, many of those beautiful results of natural concentration that delight the eye of every southern man who visits New England. With each step in their progress in that direction, they will be enabled more and more to combine their exertions with each other, whether for the building of factories, the making of banks, the construction of roads and of steam-engines for canaling and draining, or the founding of asylums for the aged and infirm, the deaf, the dumb, the blind, and the lunatic, and with each there will be seen more and more to pervade every class of society that habit of kindliness and good feeling so obviously existent where men associate in small communities, as in New England, and so obviously absent where men are forced, in accordance with the doctrines of modern political economy, to congregate together in great cities like London, Paris, and New York, which are built up out of the profits of unnecessary exchanges—out of the spoils of the farmer and planter.

If your desire be, my friends, to see agriculture pass from its "earliest infancy" and attain its manhood, in all its full proportions, and to see your fellow man attain his highest development, physical, moral, and intellectual—or if it be to preserve unimpaired that happy form of government under which we live—let your efforts be, I pray you, given not to studying how you can compete in foreign markets against the pauper laborer of Europe, as recommended in the addresses and reports of distinguished men and high public functionaries to which I have referred, but to the promotion of the study of the true politics of agriculture. Exert yourselves to bring about the adoption of that policy which makes a market on the land for the products of the land—that policy which enables men to stay at home and become rich consumers, instead of flying to the west, there to become poor producers, to add to the already vast surplus for which we are, at enormous cost, seeking markets in all the countries of Europe—that policy, in fine, which brings together and gives equal support to the plough, the loom, and the anvil—which enables parents and children to remain together, securing husbands to the daughters and wives to the sons, and surrounding *their* parents with happy families of grandchildren—for it is not good, saith the Scriptures, that man should be alone, nor, (as was well added by Sterne,) "*woman either.*"

ON THE ROTATION OF CROPS.

An interesting report on this subject may be found, at page 264 of *The American Farmer*, vol. 3, from a Committee of the Montgomery County, Maryland, Agricultural Society, presented by that zealous and enlightened friend of the landed interest, A. B. Davis, "of that ilk."

The subject—though it may be somewhat musty, is still an important one, and is handled by the Committee in a clear and forcible manner. It pourtrays, in lively colors, the ancient, in contrast with the present condition and appearance of that good old county of peace-loving and industrious farmers, and truly some explanation would seem to be required, where the population goes on, or rather goes down, in ten years from 19 to 15 thousand; in a county lying under the very shadow of the Capital of the Union, and bordered by canals and rivers and railroads. We would, if space allowed, publish the whole report, though we have no room for the hundredth part of the practical matter that offers itself for our pages. For thirty years we have been endeavoring to keep pace with, and it may be in some measure to accelerate the march of practical improvements in cultivation, and in all the implements and animals employed therein. Leaving that duty now more particularly to the numerous and more able agricultural journals to be had for a bushel of wheat, and which every farmer should take, we are seeking to open fresh ground of usefulness, by endeavoring to learn, and to disseminate, the principles of *political economy that belong to the plough*, along with whatever comes to light that is *new* and commendable in the use of it.

Thus it is with this Report, as with innumerable essays that fall under our eye—we can only take that portion of it which falls particularly within the bent of our inclination, by holding up to emulation the example of men whose success in the field of agriculture has illustrated the value of even a few examples in the walks of peaceful industry. But again the question recurs—how does it happen that with such instances of the success which has attended the skill and diligence of such men as Roger Brooke, the Stablers, Hallowell, Stonestreet, Blair and others, the county should be sinking in population, from year to year, as appears by the statement of the learned and laborious Darby, for the birth-place of whom counties might well dispute, but to which, we believe, this very county of Montgomery can prove title, though we are not sure. Does not this intelligent and respectable Committee go it rather strong when they describe so much exhaustion and deterioration of every sort, charging the picture as we apprehend with colors rather too sombre—does not this Committee, may we presume to ask, rather over-strain the matter in their report, when they say, that all has proceeded from a *want of the proper rotation of crops!*

Hear them.

"To make more apparent the first position, your committee need only refer to the large tracts of common and old fields in this county, given up and forsaken, because not affording a sufficient return to defray the cost of cultivation.

"From these old fields, now covered with sedge and pine, the perpetual sight of which is painful to look upon, and in some places is only relieved by galls and gullies, we know that our forefathers once reaped comparatively rich and luxuriant harvests. Now, where mirth and hospitality once reigned, dreariness, desolation and want, seem to cover the land. What has produced the mighty contrast? Why are the hospitable mansions of our ancestors, in many situations, fast crumbling into decay—the broad fields, the lawns and gardens, turned to the common waste? We answer emphatically, because *a proper system of Rotation of crops was not understood, or, if understood, not duly appreciated.*"

Now we will venture to say, that if this committee of deservedly eminent gentlemen can prevail with a certain body of wise men, which has been incubating near at hand for the last nine months, over the affairs of the nation,

(without hatching any thing proportionably remarkable,) to establish as the permanent policy of the nation, (not of a *party*,) such encouragement to manufacturing industry, as will seduce or force the English manufacturer of cotton and woollen cloth, and the coal-heaver and the ironmonger, to come and take their stand, with their capital, machinery and experience, at Cumberland, on the head-waters of the Potomac and the canal, where the whole country is embedded with coal and iron, and with their steam-engines and their power looms, settle along down the river and the canal, until the sound of "the great falls of the Potomac," within the hearing of the Committee, shall be drowned in the noise of the mills and factories which these falls ought to have been driving for the last fifty years, there would quickly spring up there another Lowell, with an equal population, doubling that of all the inhabitants of Montgomery county; and then—and then what? Why then the whole country, for twenty miles around, would revive and look up, as verdure covers the parched field after a soaking summer rain, and there would be no longer occasion for committees to teach the ignorant farmer the "*proper rotation of crops!*" That would soon be understood and "properly appreciated." Population makes the food come out of the ground. Of all teachers of the "proper rotation," and of all else that pertains to successful and prosperous industry, *give us consumers at hand to pay for the products of industry.* Bring the loom and the anvil near to the plough, and he who follows the plough will soon learn when to plough and to *plough deep*—the virtue and profit of which was taught in a most masterly pamphlet,* exposing "the great error of American Husbandry," by another farmer of Montgomery county, more than forty years ago, as will, we dare say, be well remembered by our old friend Roger Brooke. We allude to that of THOMAS MOORE, whose name, were it only for that great and then most opportune service to Agriculture, would deserve to be recorded with honor in the annals of the Montgomery County Agricultural Society, ay, and to be cherished gratefully by every man who knows how to venerate the real benefactors of his race. We do not candidly know a county less in need of good precepts, merely, in the practice of agriculture. Only give to the people of Montgomery county the market which the God of Nature designed they should have, when he led the waters of the Potomac to fall in such prodigious volume over ledges of rock, which his bounteous hand provided for building on the spot; let the spinning jenny there spin the wool—and the loom there weave the cloth, and the tilt-hammer there beat out the iron, that is now spun and wove and beat out for us *in England*, by men who eat the bread of ploughs followed by the poor serfs on the Black Sea, and then the people of Montgomery will have a market on the land for the produce of the land; and need no longer, as now, throw away half their time and substance in getting over bad roads to worse markets. Then they can make *tons* where they now make only bushels. Then the farmer of Montgomery might answer, as did Mr. PHINNEY of Massachusetts, when lately we asked—"pray, my dear sir—how do you get remunerated for the labor of removing, as you tell me you have done, more than a ton of stone from every six feet square, off much of your land, now covered with the finest grasses and orchards of the choicest fruits? Where do you find customers to buy, as you tell me you sell $2000 of fruit sometimes in a single year?" "Why, sir, have we not," was his prompt reply, "besides many other towns, 30,000 hungry consumers at one little manufacturing village, Lowell, ready to buy all our spare fruit and milk—and butter and eggs, and poultry, and vegetables, and meat, from a *pig* of 400 pounds down to a pint of blackberries?" Yes, friends of

* This pamphlet was one of the first things which, being read when a boy, impressed our mind with the idea, that there *was* such a thing as *philosophy in agriculture!*

old Montgomery, rely upon it, it is this all-pervading stimulus of *certain and remunerating sale* afforded by the dense population of consumers, to which every county has a right, according to its natural resources, that teaches, beyond all other instructors, the proper rotation of crops—and the proper management of orchards. Nor does it stop there—its animating influence, like that of woman in all civilized countries, reaches everywhere and every thing—it enlivens the good housewife herself, in her poultry-yard and her dairy—the hens lay more eggs and the eggs hatch out the better for it, and fewer chickens die of the gapes—the milk yields more cream, and the cream more butter, and the butter comes quicker—even the ashes yield more ley and the soap hardens better and whiter. You shall see its effects in the lightness of the good woman's steps, in the brightness of her eye, and the cheerful and good-humored tone of her voice. In augmenting and certain demand for her chickens, and her butter, and her dried apples, and her peach leather, she sees the means to buy new gowns, and new shoes, and new gloves, and new bonnets for her beautiful, and what is much better, her dutiful daughters. In the demand of consumers near the plough, the anxious and devoted mother sees the means that will enable their lovers to propose for their daughters in marriage, and the happiness to have them settle around her. It is then that the housewife has the heart to "seek wool and flax, and worketh it willingly with her hands"—that her husband may be "known at the gate among the elders." In short, my friends, all sorts of good things come from having the loom and the anvil near the plough, as we shall be glad to show you more at large by sending to any who may desire it, all of them together, "THE PLOUGH, THE LOOM, AND THE ANVIL," to let you see how well they work together—for it is a truth and no joke, that throughout the world they all thrive in friendly association, and throughout the world the plough ceases to thrive when a great distance, and especially foreign countries, interpose between it and the loom and the anvil. But, after all, there are, in all localities, and under all circumstances, a few leading men, of strong inquiring minds, habituated to the *actual use* of man's distinguishing faculty; men who lead the way in all the courses of useful industry, just as the stalwart reaper proudly leads the harvest gang—men who do not stand like the ever-pointing finger-posts, that never *go* the way they point; and among such men, we took our pen to only recognise in this report, as entitled to stand out in the bold relief it presents him, our old friend as aforesaid—

ROGER BROOKE, OF MONTGOMERY COUNTY, MARYLAND.

NOR is the field of agricultural improvement, the only one in which he has been wont to be conspicuous—*Tally ho!* What say you General G., "Black George," as Old Hickory used to call you? Well it is, as we hope, by this time well known, that it comes peculiarly within our inclination and habit editorial, to do honor to all such men, devoid as they are of all ambition for display or distinction, but nevertheless, whose

"useful toil
Their homely joys and destiny obscure"

do real service to society, and entitle them to honor and respect from all men of true discernment.

Thus speaks the Committee in their Report, from which we make room for the following extract—

"We have promised to give some evidence to sustain our second position, viz.: that worn-out lands can be restored to fertility, and made highly productive; and, as example is justly considered entitled to more weight than precept, the committee deem themselves fortunate in not being compelled to go beyond the limits of our own county for instances so striking and remarkable, as to dispel all doubt from the minds of the most incredulous.

"Your committee will then make no apology for first (as entitled to most honorable distinction) introducing the venerable and respected name of ROGER BROOKE. This gentleman, we are informed, became possessed of an estate that had been subjected to the process we have attempted to describe in an early part of this report. His quick perception and far-seeing judgment admonished him that, to continue the same mode of farming, would bring ruin upon himself, and entail poverty upon his posterity. But he was too shrewd a calculator to continue a business with such results staring him full in the face. Accordingly, his first step in his system of improvement was to abandon the tobacco crop—being aware that, although it may have made many rich fathers, there were too many instances, in this county, of its having left an impoverished landed estate as an inheritance to their sons. His next step was to stock his farm with grasses, and carefully to husband and judiciously spread out all the manure he could raise in his barn-yard and collect about his homestead. To those members of the society who have seen his neat and highly cultivated fields, or have partaken of his hospitable board, or what to many will be remembered with still more delight, who have listened to the sallies of wit and humor as they playfully flowed from his well-stored mind, under the shade of his umbrageous trees—your committee need not tell the result: to others, it may be interesting to learn that, instead of having an impoverished estate to leave as an inheritance to his children, Mr. Brooke, in green old age, with them, enjoys the fruits of an estate, the value of which he has perhaps quadrupled.

"Stimulated by this example, and the march of improvement which characterizes the age we live in, a number of our farmers have abandoned the old practice, and adopted the modern system of improvement. Among those who have more recently signalized themselves in this respect, and who, it may almost emphatically be said, have changed 'the barren waste to fertile fields,' the committee will only mention the names of BENJAMIN HALLOWELL, SAMUEL T. STONESTREET, and F. P. BLAIR, Esqs. With such examples to encourage us, we think none need despair. In addition to the sources of improvement heretofore within our reach, we may now draw upon the shores of the Pacific, and the rich pasture fields of Virginia, which are annually sending us large contributions in the shape of guano and bone-dust, to aid our efforts in the work of improvement. Their application, thus far, has been highly satisfactory, and we deem their characters as great fertilizers now well established."

Salt v. *Wireworm.*—A correspondent in the *Gazette*, signing "Hantoniensis," requests information on the quantity of salt requisite per acre for the prevention or cure of wireworm. I beg to inform "Hantoniensis," (a foreigner no doubt,) that I sowed on two acres of land greatly infested with wireworm one ton of salt, (viz. twenty bushels per acre,) I also marked off a small piece upon which not a particle of salt fell; the salted part is a beautiful piece of corn, that not salted is not one-fourth of a plant, and I now regret that instead of sowing one ton on two acres, that I did not sow a ton per acre, (for even the best part is rather thin at places:) had I doubled the quantity I believe it would have been just the thing, although my neighbors thought me a fool for putting on as much as I did, and all felt quite satisfied that there was not the least doubt but that the salt would exterminate the wireworm and the wheat also.—H. K. HEMSTED, *Market-gardener, Ridgwell, near Halsted, Essex.*

P. S. Should "Hantoniensis" be passing through Ridgwell, and will condescend to call on me, I shall be most happy to show him the piece of wheat, and to partake of a glass of my home-brewed afterwards.—*H. K. H.*

MANIFESTO OF SEVENTY-NINE COTTON PLANTERS,

OF ADAMS COUNTY, MISSISSIPPI,

IN FAVOR OF PROTECTION TO AMERICAN MANUFACTURES.

We confess we had no expectation, when we undertook to show the identity of interests between the Plough, the Loom, and the Anvil, that we should have our hands thus strengthened and our hearts emboldened as they are by the following letter and manifesto, from planters of cotton, among the most opulent and deservedly influential in all the southern country. We feel proud to recognise many of them as valued friends, and should not have valued them the less if we had found them, as we should have apprehended some of them at least were, opposed to us in the political doctrines which, in our judgment, best comport with the interests of the planter. As it is, we feel strengthened and fortified in proceeding to show that of all guaranties of prosperous husbandry, the most reliable is that which is based on the policy which places the greatest number of consumers in the nearest proximity to the producer.

New River, August 28, 1848.

To J. S. Skinner, Esq., Editor.

Dear Sir:—I have the first number of "*The Plough, the Loom, and the Anvil,*" and am much pleased to find you are again working on your own account. I am glad to see some notice of a steam plough; such a machine is much wanted in the cultivation of the sugar-cane, and might be used to great advantage in this level country. The cow pea is used as a fertilizer, here, with the most marked advantage. It is commonly planted among the corn, when that plant is receiving its last working, and is ploughed in green, in September and October, with large ploughs with two coulters, one, near the end of the beam, being reversed, so as to cut the vines on the surface of the ground. The best planters say, they make the largest crop of sugar on the land that bore the largest crop of pea-vines. These large ploughs are drawn by three yoke of oxen, and cut about nine inches deep and twelve wide. This is very poor work, compared with what a correspondent of the "National Intelligencer" says Professor Napes does on his farm in New Jersey. The professor, according to this gentleman, with one yoke of oxen runs a plough that cuts sixteen inches deep. This is common work. When he wishes to plough deep, the professor runs twice in the same furrows, and then he cuts three feet (3 feet) deep. His oxen, however, weigh 3800 lbs. a pair; ours about 1200 to 1500 lbs. a pair. I should like to know what plough Mr. Napes uses, and of what breed his oxen are.*

I am also much pleased with your views on the protection of American industry; and to show you how near you "jump in judgment" with a number of the wealthiest and most intelligent cotton planters in the Union, I send you, herewith, a copy of a paper, published by them in 1844, embodying their views on the subject of the tariff of 1842, and called the "Planters' Manifesto." The subscribers to the manifesto were obtained in one county (Adams) alone in Mississippi.

I presume you consider subscribers to the Farmer's Library as subscribers to "The Plough, the Loom, and the Anvil."

With sincere wishes for your success, I am, very respectfully yours,

W. J. M.

* Our correspondent should make allowance for the light sandy soil of New Jersey. Still three feet deep at two cuts *is* deep cutting, it must be confessed.

"PLANTERS' MANIFESTO."

Natchez, October 24, 1844.

WHEREAS, an opinion prevails in some portion of the planting region, that the protective policy, and especially the tariff act of 1842, has impoverished and oppressed the cotton planter, to an extent sufficient to warrant a resort to remedial measures, to resist its operation or obtain its repeal:

And whereas, it is believed by many of those largely engaged in planting in this section, that the injurious effects attributed to the tariff may be satisfactorily traced to other causes, it is deemed proper to give public expression of their opinion, in the hope that those who differ from them may be induced to consider not only calmly and dispassionately, but earnestly, whether they are not as much interested in the permanency of a policy which insures the general prosperity of the whole country, as those who are now immediately and directly protected by it; and whether their interests, as producers, are not dependent on the prosperity of the consumers. The undersigned, therefore, residents of Adams county and growers of cotton, set forth some of the views which have influenced them, in giving their support to the protective system.

They are in favor of such a tariff as that of 1842, because it affords, as they believe, adequate protection to all kinds of domestic labor, and renders us independent, not only in name but in fact.

Because they believe it will induce, at the north, large investments of capital, and the employment of a large number of laborers in the manufacture of cotton goods; that it will extend the consumption of manufactured articles, and thereby increase the demand for the raw material; that it will give the growers of cotton two markets instead of one, and one of those a home market.

Because it protects, indirectly, the growers of small grain, and gives them a home market.

Because it protects, indirectly, the hemp growers, and gives them a home market, and keeps the large amount of capital and labor now invested in that business from being employed in extending the culture of cotton.

Because it protects, indirectly, the breeders of hogs, of horses, of cattle, and of mules, and gives them a home market.

Because it protects the producer of sugar, gives him a home market, prevents the vast amount of capital and labor invested in the culture of cane from being directed to the already redundant production of cotton.

Because they believe that all experience proves that its ultimate tendency is to reduce the price of manufactured goods, and thereby benefit consumers of all classes.

Because they believe no one great interest of the country can be adequately protected, without, in some degree, extending protection to all other interests, and that none derive more essential benefit from the general prosperity of all other pursuits than the cotton grower.

But above all, they are in favor of such a tariff as that of 1842, because they believe the interests of the manufacturers of cotton goods at the north to be identified with the interests of the growers of cotton at the south. And, that as strength is added to those two great interests, the one at the north and the other at the south, so will strength be added to the bonds which bind this glorious Union together; and they do most solemnly believe, that if the system of affording adequate protection to American industry be persevered in for but a few years, all the great interests of the country will become so blended and so dependent one upon another, that

all attempts, whether of abolitionists or of abstractionists, to destroy our beloved Union, will be laughed to scorn for centuries to come. Signed—

James Metcalf, J. P. Ashford, M. Lasley, D. Farran, Thomas J. Davis, G. P. Ogden, Harry Sojourner, James H. Mitchell, William B. Fowles, Alexander C. Farran, Isham Griffin, John H. Thom, William Bisland, H. Chotard, Thomas Henderson, G. B. Shields, Robert McCullough, L. R. Marshall, Stephen Duncan, S. M. Warren, H. Elliott, James Surget, J. C. Wilkins, A. S. Benjamin, Jun., C. Y. Dahlgran, S. A. Cartwright, B. L. C. Wailes, Thomas Affleck, Isaac Dunbar, J. C. Inge, E. L. Wailes, L. C. Wilkinson, O. Metcalf, James Carson, Jun., Gerard Brundon, C. Hale, O. Kibbe, James F. McCabb, Samuel Chamberlain, R. Dunbar, James P. Sessions, John Ker, H. L. Conner, A. W. Ogden, Benjamin Chase, James P. Smith, George Calhoun, Alexander Montgomery, S. M. Reuth, A. C. Henderson, Austin Williams, J. N. Helm, J. F. Gillespie, B. O. Smith, A. Kinsey, C. Marck, J. A. Saunderson, R. R. Barker, Lewis Lum, Allen Grafton, J. F. Roach, C. Stowers, J. Themsbury, J. C. Coleman, R. D. Warde, J. C. Warne, Levi Pipes, D. Knott, John Rife, John R. Davis, Andrew Grafton, W. S. Bernard, B. Wade, J. P. Walworth, C. N. Nicholls, W. J. Minor, John Hutchins, P. R. Nichols, A. S. Benjamin.

WHY GO AWAY FROM KINDRED AND FRIENDS TO THE "FAR-WEST?"

Except to indulge that roving temper, which prompted old Daniel Boone to say, that he could not breathe freely when civilization approached his dwelling in the woods.

The facilities for getting away to the west are so great and so systematized, with numerous agents and harpies on the look-out for all immigrants who come, that our old sea-board states are no more thought of than if they had been sunk in the ocean fifty years ago. Yet look here at the evidence of their capacity to yield ample return to labor, and that in the midst of every social convenience and arrangement. Mr. Newton, not long since a member of Congress, and a very enterprising agriculturist, living in one of the oldest and most deserted districts of Virginia, says to the editor of the American Farmer:

"Our agriculture is rapidly improving in this region. We formerly thought ours not a suitable soil or climate for wheat, but now by good husbandry and suitable manures we make fine crops. There have been frequent instances of late of a product of from fifteen to twenty-eight bushels per acre, on lands formerly deemed incapable of producing wheat. From a bushel and seven-eighths of Zimmerman wheat, I reaped forty-two bushels—a part of it yielded at the rate of twenty-eight for one.

"We are using guano to some extent. The African we find greatly inferior to the Peruvian. The price of it is too high, considering the low price of wheat. I wish to purchase about ten tons, and if the price falls under $40 I will do so. I have been informed that Mr. Wm. Harding, of Northumberland county, Va., made through a considerable field dressed with Peruvian guano, twenty-seven bushels of wheat for one. The land on which this was accomplished is precisely such as is sold throughout the "forest" of the Northern Neck at $2 to $4 per acre. He had, of course, improved it somewhat by other manures (lime, &c.) before. Mr. Robert Lyell, of Richmond county, made from a similar dressing on old and unimproved corn-land, near seventy bushels for one. Thousands of acres of such land as Mr. Lyell's and Mr. Harding's, in a healthy region, may be purchased in their unimproved state for less than $4 an acre. Yet people will prefer the west in search of land!

ADVANTAGES TO BE DERIVED FROM A MORE EXTENDED USE OF OXEN

IN THE HUSBANDRY OF THE UNITED STATES.

We should think we have labored to little purpose, if any practical farmer who reads it should hesitate to believe that in the following Essay alone he will be repaid for the amount of his subscription for a year. How few, by the by, reflect on the labor bestowed by Editors on special articles—labor for which a lawyer, if called on to collect the materials and to draw out the argument of equal volume and with equal care, would charge more than the amount of fifty subscribers. The following appeared in the American edition of "Every Man his own Cattle Doctor," by the senior Editor of this journal—published by Lea and Blanchard, who have been kind enough to loan us the cuts.

So deep is the conviction of the great saving which would be accomplished by individuals, adding immensely, in the aggregate, to our national wealth, by *a more extended use of* OXEN in lieu of HORSES in the general labors of husbandry, that the occasion is here embraced to present the views by which that conviction has been established, and the editor feels persuaded that he might venture to introduce these views, on the score of their intrinsic importance, even though the subject to which they relate were not so naturally associated, as it seems to be, with a work on the *diseases of cattle.*

That "a farming district may be judged of by its *working oxen*, as safely as by its barns or its corn-fields," has been laid down as an axiom by a Committee of Farmers,—working men in the true sense of the word,—of Massachusetts, at an exhibition where no premium was offered for *horses*, expressly on the ground that "it was believed that the interest of the farmer is promoted by substituting the ox for the horse, *for most purposes*, as he is fed with less expense, is more patient of labor, and is more valuable when his service is ended." This declaration in favor of the ox for "*most purposes*" is at once explicit and broad, and might seem to settle the question; but there are considerations arising out of difference of soil and climate, which obviously demand a comparison of circumstances to see how far that system admits of general application, which is here proclaimed on the best authority to be expedient throughout New England: and this brings us at once to the most formidable objections to the use of oxen—their *alleged incapacity to withstand, when laboring, the heat of more southern latitudes*, and their *slowness of motion.*

As to New England, in addition to the evidence already quoted, we may give here the answer of the venerable Josiah Quincy, now President of the time-honored Harvard University, to a letter once addressed to him by the writer of this. "Oxen," said he, "are used almost wholly for plough and team work in this quarter of the country. A *single* horse is usually kept by our farmers to go to mill and to church, and for the convenience of the family. This is so universal as to be almost without exception among mere farmers. They certainly answer all purposes except perhaps speed, and in this, on a *long journey*, they are considered as *quite equal to horses.* Our farmers are so satisfied with their utility and economy, that no argument would induce them to change."

Hence it is seen that no reasoning is necessary to recommend the ox to general use in all that portion of America, and this evidence has been adduced to prevail upon southern readers to *reflect* on the subject, by showing, what many of them do not know, that already, in *many* of our States where the folks are nice judges of economical and labor-saving machines, animate and inanimate, oxen are actually substituted, and horses altogether banished for all farming purposes, and that their speed on long journeys is quite equal to that of horses. On the point of *speed* we shall speak again and conclu-

sively, when we shall have dismissed the one in hand, to wit:—*capacity to bear heat!*

It was for a long time believed that the ox was a native of Europe, and that in the Aurock, running wild in the forests of Poland, his original type was to be found; but Cuvier's researches in comparative anatomy have established the belief that the cow is a native of Southern Asia, and thence may be deduced an argument that there is nothing in the natural constitution of the ox which forbids his manifesting his entire capabilities in southern climates. If there were, how is it that in South America he reaches his highest developments of size and power? As one of the Commissioners to South America, Chancellor Bland, in a report which Mr. Adams pronounced to be one of the ablest papers ever presented to the government, thus describes the ox-carts employed, and the wonderful powers of endurance of this patient animal in crossing the pampas of Buenos Ayres. It speaks conclusively to both the objections—want of speed and of power to bear heat.

"The Tucuman and Mendoza carts, at a little distance, looked like thatched cabins slowly moving over the plain—the whole machine is destitute of a nail or a bit of iron; its great coarse wheels are not less than eight feet in diameter; six oxen, in general noble strong animals, move it; the two front pair have a great length of cord by which they draw; and the load of the cart, which, on an average, is not less than four thousand weight, is pretty nearly balanced on the axletree; the body of the cart is either covered with raw hide or thatch, made of reeds or straw; and with a collection of brush-wood, as fuel, tied on the top, and brought from the westward of the pampas, these carts are seen crossing the plains in caravans of from thirty to forty together. On the journey the oxen are unyoked occasionally through the day and night, and permitted to seek their food round about. Thus without any other provision than what is necessary for himself, the carrier pursues his way over a waste of thirty days or six weeks' passage. From Buenos Ayres to Mendoza the distance is nine hundred miles, and the journey is performed in about thirty days."

In some parts of England they formerly had *ox races*, and it is said that some years ago an ox ran four miles, over the course at Lewis, for one hundred guineas, at the rate of fifteen miles the hour.

We are told that in India bullocks are used for the saddle and coach, and that there travelling oxen are curried, clothed and attended, with as much solicitude, and much greater kindness, than we bestow on our best horses. The Indian cattle are extremely docile, and quick of perception, patient and kind; like the horses, their chief travelling pace is the trot; and they are reported by those who have ridden them often, to perform journeys of sixty successive days at the rate of thirty to forty-five miles a day.

To come back to our own country on this point, it is worthy of being here added, that in an address delivered before the Barnwell Agricultural Society of South Carolina in 1821, Dr. J. S. Bellinger remarked, that "in the lower districts of our State they appear fully to appreciate the value of their labor in heavy drafts. With those of us who have attempted the use of them, oxen appear fully calculated to answer the many purposes upon our farms to which we almost exclusively apply the more expensive, though nobler animal, the horse."

Time was when the horse was not considered "the nobler" of the two; else why the many cautions in Scripture in favor and in honor of the *ox*—thou shalt not muzzle the *ox*—thy *ox* shall not labor on the Sabbath day—thou shalt not covet thy neighbor's wife nor his maid—nor his *ox!*

The late James M. Garnett, of Virginia, honored be his name by all friends of American agriculture, stated in one of his addresses—"A gentleman of

my acquaintance had a mixed team of horses, mules, and oxen—in each season his horses failed first, the mules next, although both were fed upon grain and hay; and the oxen, fed exclusively on hay and grass, *finished the crop*. But to come down to the present time and nearer home, in Maryland, at the hottest season of the year, and the most busy one with the planter, the same teams of oxen are worked, during the whole day, hauling very heavy loads of green tobacco for weeks together, and do well without any food but the grass of common pasturage on being turned out at night—whereas horses, working steadily in the same way, on the National Road in wagons, consume twenty-five pounds of hay, and grain at the rate of four bushels of oats per day for the five horses, or four-fifths of a bushel for each horse—or, what is considered equivalent, four bushels of corn in the *ear*—making of oats at the rate of two hundred and thirty-two bushels for each horse for a year!"

As to *horse* power on the National Road, the following is the answer from Major Thruston:—

"Cumberland, Maryland, November 17, 1843:—The general result, (for they differ widely in their opinions,) obtained by conversation with the oldest *teamsters* on the National Road, is this—A five horse team with a load of sixty cwt. (the average) will make daily, throughout the year, *fifteen miles per day;* the weight of the empty wagon between one and a half and two tons. At this work horses will not last as long as at farm-work by one third, certainly. They average one set of shoes monthly, each horse; cost of shoes, one dollar each per month; feed, four bushels of oats per day, or four-fifths of a bushel per day to each horse; the same of corn in the *ear;* hay, twenty-five pounds. On this subject they are uniform in their statements. This amount of food is enough, and not more than will be consumed."

But the comparison in point of expense will be extended in another part of this essay.

In answer to the argument against oxen now under consideration, and the one which has had most influence in restricting the use of them, we now offer the views urged by the illustrious Madison, whose pen simplified and enlightened every subject it touched, as could not but happen with a mind so pure and so bright.

The objections generally made to the ox are—1st, that he is less tractable than the horse; 2d, that he does not bear heat as well; 3d, that he does not answer for the single plough used in our corn-fields; 4th, that he is slower in his movements; 5th, that he is less fit for carrying the produce of the farm to market.

The first objection is certainly founded in mistake. Of the two animals the ox is the most docile. In all countries where the ox is the ordinary draught animal, his docility is proverbial. His intractability, where it exists, has arisen from an occasional use of him only, with long and irregular intervals; during which the habit of discipline being broken, a new one is to be formed.

The second objection has as little foundation. The constitution of the ox accommodates itself as readily as that of the horse to different climates. Not only in ancient Greece and Italy, but throughout Asia, as presented to us in ancient history, the ox and the plough are associated. At this day, in the warm parts of India and China, the ox, not the horse, is in the draught service. In every part of India the ox always appears, even in the train of her armies. And in the hottest parts of the West Indies, the ox is employed in hauling the weighty produce to the sea-ports. The mistake here, as in the former case, has arisen from the effect of an occasional employment only, with no other than green food. The fermentation of this in the animal, heated by the weather, and fretted by the discipline, will readily account for

his sinking under his exertions; when green food even, much less dry, with a sober habit of labor, would have no such tendency.

The third objection also is not a solid one. The ox can, by a proper harness, be used singly, as well as the horse, between the rows of Indian corn; and equally so used for other purposes. Experience may be safely appealed to on this point.

In the fourth place, it is alleged that he is slower in his movements. This is true, but in a less degree than is often taken for granted. Oxen that are well chosen for their form are not worked after the age of about eight years, (the age at which they are best fitted for beef,) are not worked too many together, and are suitably matched, may be kept at nearly as quick a step as that of the horse—might I not say quicker than that of many of the horses we see at work, who, on account of their age, or the leanness occasioned by the costliness of the food they require, lose the advantage where they might have once had it?

The last objection has most weight. The ox is not as well adapted as the horse to the road service, especially for long trips. In common roads, which are often soft, and sometimes suddenly become so, the form of his foot and the shortness of his leg are disadvantages; and, on roads frozen or turnpiked, the roughness of the surface in the former case, and its hardness in both cases, are inconvenient to his cloven foot. But where the distance to market is not great, where the varying state of the roads and of the weather can be consulted, and where the road service is less in proportion to the farm service, the objection is almost deprived of its weight.

In cases where it most applies, its weight is diminished by the consideration that a much greater proportion of service on the farm may be done by oxen than is now commonly done; and that the expense of shoeing them is little different from that of keeping horses shod. It is observable that when oxen are worked on the farm over rough frozen ground, they suffer so much from the want of shoes, however well fed they may be, that it is a proper subject for calculation whether true economy does not require for them that accommodation, even on the farm, as well as for the horses.

A more important calculation is, whether, in many situations, the general saving by substituting the ox for the horse would not balance the expense of hiring a conveyance of the produce to market. In the same scale with the hire is to be put the value of the grass and hay consumed by the oxen; and in the other scale, the value of the corn, amounting to one-half of the crop, and of the grass and hay consumed by the horses. Where the market is not distant, the value of the corn saved would certainly pay for the carriage of the market portion of the crop, and balance, moreover, any difference between the value of the grass and hay consumed by oxen, and the value of the oxen when slaughtered for beef. In all these calculations, it is doubtless proper not to lose sight of the rule, that farmers ought to avoid paying others for doing what they can do for themselves. But the rule has its exceptions, and the error, if it be committed, will not lie in departing from the rule, but in not selecting aright the cases which call for the departure. It may be remarked that the rule ought to be more or less general, as there may or may not be at hand a market by which every produce of labor is convertible into money. In the old countries, this is much more the case than in new; and in new, much more the case near towns than at a distance from them. In this, as in most other parts of our country, a change of circumstances is taking place, which renders every thing raised on a farm more convertible into money than formerly; and as the change proceeds, it will be more and more a point for consideration how far the labor in doing what might be bought, could earn more in another way than the amount of the

purchase. Still, it will always be prudent, for reasons which every experienced farmer will understand, to lean to the side of doing rather than hiring or buying what may be wanted.

The next most serious charge against the ox is constitutional *slowness of motion*, which, as many suppose, no course of education can overcome, but which may be set off in comparison with the greater speed of the horse, as Æsop illustrated the difference in the long run between the pace of the "*tortoise and the hare!*"—"The greater haste the less speed," is a proverb suited to this case as to that. It has already been seen that ox-teams travel over the ever-verdant pampas of Buenos Ayres, at the rate of thirty miles a day, for a month together. Twenty years ago, the writer of this held correspondence with Commodore Jacob Jones, himself a practical farmer, and an habitually close and judicious observer, and then commanding our squadron in the Mediterranean, on the subject of Andalusian horses, cattle, and other animals, with a view to the importation, under authority from the Albemarle Agricultural Society, of such as might be deemed essentially superior to animals of the same species in America; and we now quote from his letter as applicable to the questions both of speed and susceptibility to heat:—"The cattle that I have seen in Spain appear to be nothing superior to ours, nor have I seen anywhere on the coasts of the Mediterranean any that appear better than those in America, except a race of white cattle at Naples used for the draft. I was informed by a gentleman who, in supplying the government with timber, had used thirty yoke of them for two years, that during that time they had constantly travelled from twenty to twenty-five miles a day. They are generally fifteen hands high; their bodies long, thin, and deep; legs long; small light head; sharp muzzle resembling deer; color entirely white, except black nose, ears, and tuft of the tail. They are most frequently worked in the thills of the cart, and are as spirited and walk as *quick* as a horse, and appeared not to suffer from heat more than a horse."

To show, however, that we are not dependent on any foreign stock, it may be stated that the small, pale-red old field ox about Salisbury in Maryland will travel twenty-five miles in a day, with heavy loads of lumber going, and returning empty, over the sandy roads of that region; while it may be affirmed, after particular inquiry, that the distance made by the heavy-bodied, grain-devouring, Conestoga horses on the National Road between Cumberland and Wheeling averages not over sixteen miles, six horses with loads of from six to eight thousand pounds.

To the letter from Major Thruston already given may be added the following, which goes somewhat more into detail, from Mr. Agnew, Postmaster at Wheeling, Virginia:—

Wheeling, November 23, 1843.

J. S. Skinner, Esq.

Dear Sir,—Your favor requesting me to obtain information respecting horses, wagons, &c., was received in due course of mail; but as I was just leaving for Pittsburgh, I was compelled to defer answering until my return. I conferred with several wagoners, and give below the result of their united opinions. Respectfully, your obedient servant,

David Agnew.

1. The usual average daily travel of loaded wagons?	Sixteen miles.
2. How many horses, and their average cost or value?	Six horses, average cost of each sixty-five dollars.
3. The average time that horses so employed will last?	Seven years.
4. At what age is it considered safe to put them to such labor?	Five years. Many are used at three and four years.

5. What the average cost of shoeing each horse per annum?	Fifteen dollars.
6. What is the usual feed of kind and quantity, and to how many oats is it equivalent where oats are not used?	Oats is the only feed in use. Four and a half bushels is allowed per day for six horses.
7. As to hay—is it in regular use on the road, or does cut straw, or what, take the place of it?	Cut straw is not used. Hay is in regular use.
8. What is the *usual* weight of their load exclusive of their wagons, and what the weight of their wagons?	The weight of loads varies from sixty to eighty hundred pounds; seventy hundred pounds is the usual weight; wagon's weight about 3500 lbs.
9. What is the first cost of wagon-harness per horse, and how long will a set of harness last?	A wagon of the largest size used on the National Road costs $250; harness per horse, $20; and will last six years.
10. What is the cost of a wagon in proportion to what it will carry—and about how long will a wagon last with ordinary care?	A wagon that will carry 3000 lbs. costs $150; 4000 lbs. $160; 5000 lbs. $175; 6000 lbs. $200; 7000 lbs. and upwards, $250; and with ordinary care will last four years.

In support of the adaptation of the ox to the road for heavy draft and long journeys, the last authority which it is deemed necessary to produce is one of unquestionable validity; being no other than the testimony of the late Timothy Pickering. Being called on for his knowledge of the employment of ox-teams for the transportation of military stores during the Revolution, when he acted as Quarter-Master-General under General Washington, the following is extracted from an interesting reply, in which other views are embraced, connected with other aspects of the subject, to be presently considered:

"When in August, 1781, disappointed in the expected co-operation of a French fleet against the enemy in New York, the commander-in-chief decided on the expedition against the British army under Lord Cornwallis in Virginia, I received his orders to provide for moving the troops destined for that service. The *ox*-teams effectually performed the transportation of baggage and stores to the points where they were relieved by water conveyances. From the head of Elk in Maryland (sixteen miles eastward of the Susquehanna) to James' River in Virginia, near three hundred miles, the ox-teams (without loads) travelled expeditiously. The heavy artillery, shot, shells, &c., brought from the head of Elk by water, were landed on the shore of James' River, I think at or near Jamestown, whence they were transported by the ox-teams to our camp before Yorktown, a distance, I believe, of about fourteen miles. In the performance of this service, those teams were of essential importance.

"The late Colonel Jeremiah Wadsworth of Connecticut (one of the most judicious and efficient men in business that I ever knew) was then the contractor for supplying the French army with provisions, teams, carriages,—in a word, with every thing necessary for it, in the quarter-master's and commissary's departments. I introduce his name, because he had provided a great number of ox-teams and wagons for the use of the French army during the same campaign, and *these also travelled to Virginia.*

"I always understood that the great transportation of provision and stores from Massachusetts and Connecticut to the troops on Hudson's River, was *almost wholly performed by ox-teams during the war.*

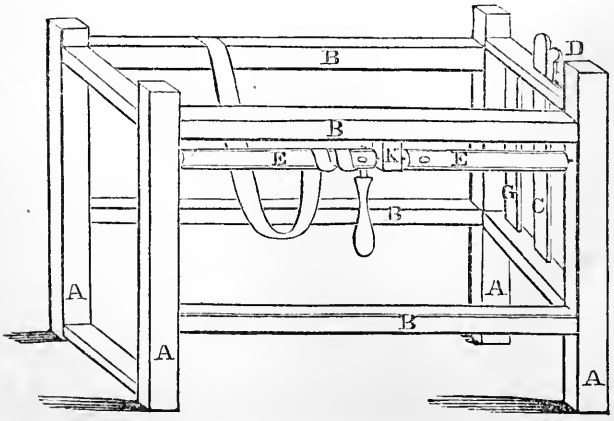
"Just at the close of the war, in the summer of 1783, I recollect being at the house of an agricultural gentleman of Princeton, in New Jersey, where Congress was then sitting, and that Charles Thomson, the Secretary, was present. One of Arthur Young's Agricultural Tours in England lay on the table, and gave rise to a conversation on the use of oxen for the draft, particularly when geared with collars, hames, and traces, like horses; and

Mr. Thomson related the following fact, now, for substance, perfectly in my recollection. Travelling in that part of Chester county in Pennsylvania which lay between Lancaster in that State and Newport on Christiana creek, Mr. Thomson fell in with a team of a novel character in that country, being composed of one pair of horses and one pair of oxen: *and the latter were accoutred with harness like horses, only with the collars turned upside down.* His curiosity being excited, he stopped and made some inquiries, and received from the driver an account as follows: that he and a neighbor, each having a horse-team and wagon, had entered into a contract to transport a quantity of flour (I think in a given time) to Newport; that in the midst of the work one or two of his horses failed, (fell sick or died,) and he was not in circumstances conveniently to procure others; but he had a pair of oxen, and he concluded to try whether they would supply the place of his horses; that he made the experiment and succeeded. He told Mr. Thomson that the oxen were more useful to him than horses; for after some fall-rains, when the roads had become miry, he continued to carry his full complement of barrels of flour, while his neighbor's horse-team, frequently getting *stalled,* (the familiar term in Pennsylvania when a team gets set fast in a slough,) *compelled him to lessen his loads.* But he added, that in returning from Newport with their wagons *empty,* his neighbor had the advantage in *speed,* although none in the actual performance of the contract."

Thus it appears that as Rome is said to have been *saved* by the cackling of geese, the labor of *oxen* contributed on a critical occasion to the establishment of the American Republic. So much in answer may we not say in refutation of the objection made to these animals in comparison with horses for heavy draft even *on the road.*

OX-SHOES AND MACHINE FOR SHOEING OXEN.

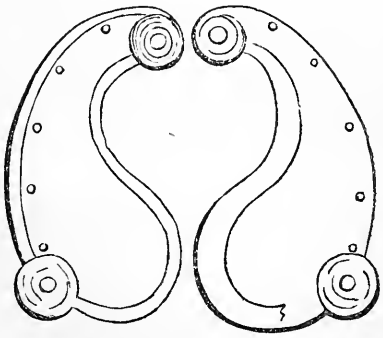
A great impediment to the use of oxen on our public *roads* in the winter season, is the liability of their feet to get sore for want of *shoes*—a great scandal on the intelligence and humanity of all southern farmers—for nothing can be easier or more simple than the manner of doing it in New England, where cattle driven on the roads in winter are as regularly shod as horses. In the hope of introducing a practice recommended equally by interest and humanity, a view is here given of the frame used for that purpose, and the smith who does not provide himself with one ought not to receive the patronage of any enlightened neighborhood.



The frame, as here exhibited, should be seven and a half feet long by three and a half wide, and five and a half high, consisting of four upright posts, A A A A, and two horizontal bars on each side, B B B B, joined by mortices. In the bars of one end, at the distance of ten inches from each other, are two perpendicular stanchions, the one fixed, the other movable, and fastened by a key D, which are let into the bars and form a head stall. The lower bars of the sides are eighteen inches from the ground. Immediately under the upper bar on the right side is a windlass E E, separated in the centre, working in the posts, and a block K let fall from the bar—with one end passing over, and moving upon the opposite beam, is a broad leather strap six feet long, attached by an iron ring at the other end to the staples in the windlass. To give sufficient stability, the posts may either be let into the ground, or framed into sills, with end braces.

The ox to be shod is led into the frame, and his head confined in the head stall. The strap is brought under the lower part of the belly and fastened to the windlass, by turning which his hind feet are raised six or eight inches from the ground. The foot is then lashed by a cord to the upper surface of the lower bar. In this situation the shoes are easily set. By moving the strap till it comes near the fore-legs, the other part of the body is raised, and the shoes set on the fore-feet in like manner.

The shoe is the arc of a circle, of the thickness of a common horse-shoe, from half to three-quarters of an inch wide, flattened to double that width at the hind part. The flat or hind part covers the frog, the tenderest part of the foot. The heel and toe are either corked or raised to make a level with the heads of the nails. Five or six nails are sufficient to secure it. Particular care must be taken by the smith in shoeing, that the toes of the shoes do not extend quite to the extremity of the hoof, in which they impinge on each other, and by the motion of the feet are easily thrust off. These directions are given by Benjamin Coleman, Esq., of Virginia, and are illustrated by the following sketch.



For the speed of an ox-team in the plough we might rely on the numerous certificates of committees for the last twenty years, in which our agricultural annals abound, from Boston in the north to Baltimore at least going south. These testify in innumerable cases to their ploughing five or six inches deep, an eighth of an acre thoroughly well, at the rate of an acre in four hours. Making the most liberal allowance, however, for the favorable circumstances under which the work has been done at this rate, and it may still be safely assumed that a yoke of oxen, well trained, will turn over more than an acre of strong land in eight hours.

All that we have contended for is more than confirmed by the following testimony taken from a very interesting letter from Governor Hill, dated 7th

December, 1843, on the use of oxen in the lumbering business in Maine. He says—"My own experience in this matter is quite recent, and of course limited. I have at this time cattle of my own raising, which, having *been taught to step quick*, and having worked in the same team with horses, will side by side travel as fast and plough as much in a day as the same number of horses. A pair of these oxen will turn over with a plough that carries twelve inches of the last year's corn or potato ground, or easy stubble land, from one and a half to two acres in a day, working eight hours, four in the forenoon and four in the afternoon. Oxen well fed with hay and a portion of Indian corn or meal, will in the heat of summer stand it to work daily from eight to ten hours."

At the Exhibition of the Maryland Agricultural Society in 1823, (*quorum pars fui.*) in the view of hundreds of spectators, an ox-team started in competition with five horse-teams, and was the second in completing an equal quantity of ground, and would have been the first if the horse-team had cleared out the middle furrow; but supposing that when ready to start the horse has a little the advantage of foot, it is to be considered that for small jobs and short bouts his competitor can be more quickly hitched up, and the work despatched by the time the horse would be geared:—such cases as we have stated abound in all the accounts of the proceedings of agricultural societies. A writer in the Memoirs of the Massachusetts Agricultural Society, speaking to a community who neither could nor would be deceived on a matter so well understood by, and so deeply interesting to them, says—"The principal argument of the advocates for the cultivation by horses in Maryland seems to be the superior speed of the horse. Now this must proceed from an *imperfect training of the cattle.* With us our cattle will plough an acre of ground *much better*, and in as short a time, as a pair of horses would do it, unless they can trot their horses in the plough; so they will get in a ton of hay in as short a time." Here we are well persuaded the sagacious writer hits the nail on the head, when he suggests that the objection on the score of speed must arise from an "*imperfect training of the cattle.*" He must possess an imperfect knowledge of the difference between the habits of the New England and the Southern ploughman, who is not prepared to admit that in nothing is that difference greater than in their treatment of all their cattle, and *more especially their oxen.* In this very difference, in fact, is to be found the solution of the question, and this brings us to the point for making the suggestion we propose on the *breed, gearing, training, and general treatment of the ox.*

As to the breed, there can be no doubt that if regard were had alone to the working qualities of cattle, a *skilful breeder* might, in a series of years, not very long, manufacture out of our own country cattle a race which would be as distinguished for quickness of motion and endurance as, by like care and attention and skill, the improved short-horns have been made, and established for early maturity, symmetry and disposition to lay on flesh and fat on the most valuable parts. There is, however, in the two cases, this obvious difference in the system of breeding the horse and ox, which is a matter of necessity militating against the ox and detracting from him on the score of action, leaving it even a subject of surprise that he should be as quick as he is. While the horse, for instance, is bred and cultivated with a view to the possession and display of a *single quality*, either high-bred for light harness or the saddle, or cold-blooded, with weight to be thrown into the collar, for the plough or heavy loads, for the cart or the wagon, true economy compels the husbandman as to his cattle, to keep in view and to *combine*, as far as he can, several objects in some degree incompatible with each other, and with the highest attainable degree of excellence in any particular

one of them. Few, for instance, could afford to breed cattle with exclusive reference to the *pail*, the *yoke*, or the *shambles!* For either of these objects a different breed would be taken, while, under all circumstances, for all these purposes combined, we should pronounce in favor of the *North Devon*. It is from this stock that the famous New England oxen are descended. Being of moderate size, and active and thrifty, they are adapted to a wider range of country; and being in itself an unmixed, distinct natural breed, if we may say so, it transmits and preserves its peculiar qualities with remarkable uniformity as to shape, size, color, temper and action; and without demanding, in order to keep them up to the mark, that practised skill and extraordinary care in the selection of the breeding stock which has been for many years exercised in the formation of some other artificial breeds, choosing for that purpose individuals in every case most free from the defects, and possessing the greatest number of the points which it may be the object of the breeder to establish.

In a correspondence between Dr. Mease of Philadelphia and some English stock-breeders of celebrity, one of them, Mr. Chandler, who had repeatedly gained prizes at Smithfield for the cattle he had raised or exhibited, says in his answer to certain inquiries—"Not being an advocate for very large animals or for feeding to an excess, I have endeavored from experience to make use of that description of animals which *pay best for the food they eat*, and are the readiest sale when fit for market. I have in consequence used the *North Devons*. They are the best breed that I am acquainted with for the united purposes of labor and feeding, being very active, fast walkers, quick feeders, of a very good quality when slaughtered, and of a size now very generally preferred in our markets to the very large beasts, being from one hundred to one hundred and fifty stone of eight pounds. They are worked in yokes from four to six to a plough, and *plough upwards of an acre per day;* indeed they *work harder than any other oxen in this country*, for Devonshire is a very hilly country. The Devonshire cows are not of a large size, but very handsome forms, quick feeders, and give milk of a very rich quality. I should suppose that a yearling bull would not be procured in either Devon or Hereford, from the first breeds, for less than one hundred guineas."

It is stated in the communications to the Board of Agriculture in England, vol. iv., that ten North Devon cows of Mr. Congon produced on an average five dozen pounds of butter per week in summer, and two dozen in the winter; or, in other words, two hundred and sixty-eight pounds per cow. His thirty cows averaged an annual profit of £13, 14*s.* 8*d.*, or $60·52 per head.

Another fact which weighs heavily in favor of the ox is, that his size is not diminished by labor; a consideration dwelt upon with emphasis by the late John Lowell of Massachusetts, eminent alike for his knowledge and for his public-spirited use of it. In a report in 1825, he remarks—"There was another very interesting fact disclosed on this examination. There were three fine five-year-old steers of Joseph Eastbrooks, two of which had been worked hard from the age of three, and the third had never had a yoke around his neck. The judges, and better judges there could scarcely be than my associates, could perceive no sensible difference in the value of the worked and unworked cattle of the same age, owned by the same man; and with the same treatment and food, the unworked oxen often were in no degree superior to those which had been submitted to labor. Great Britain might learn a lesson from this example, if her farmers could have been present."

Were it admitted, as perhaps it should be, that an ox will consume more hay or long provender than a horse, it must also be conceded that the horse

refuses much that will well sustain the ox—and the objection can at any rate only apply in all its force where the owner is near enough to market to send his hay for sale. Now as the grain-crop is more condensed in proportion to value, and admits of much easier transportation to market, the horse being the consumer, according to Mr. Stabler's calculation, of ninety bushels more of grain, is in that view and in that proportion the more expensive animal of the two. In a national point of view it is worthy of remark that he consumes too the very staple which goes most efficiently to increase and sustain the population and strength of a country; very few, perhaps, have reflected on the number of *people* who may be kept on the food of one horse. For example, the usual allowance for a slave is a peck of corn-meal and three and a half pounds of meat for a week, besides salt fish and vegetables; not enough, supposing the meat to be converted into hay, to keep the horse he drives for a single day.

Another view, which must not be overlooked, is, that the ox makes much more and *better* manure than the horse. He is, in fact, a much better machine for grinding down by his ruminating process into manure, all the provender which cannot be taken for sale from the farm. It is in few cases economical, often not even with hogs, to consume the *grain* on the farm; and of all things that eat it, not excepting poultry and pigeons, the horse is the most expensive, as he gives it back in no way but by his labor, and therefore is the last animal that should be kept when it *can be avoided*. We shall conclude this article in the next number, with such practical suggestions as to breaking, gearing, and management as may prove useful.

ON THE IMPROVEMENTS IN AGRICULTURE AND THE USEFUL ARTS,

THAT GROW OUT OF CONCENTRATION AND POPULATION.

These improvements are in nothing more obvious than in the use which has been made of *steam*, the great discovery and the great labor-saving power of modern times.

Go into a factory in the towns, where "men do congregate," and see the variety of purposes to which steam is applied, from the lifting of the tilt-hammer to the polishing of a needle. Then go in the fields of the husbandman and ask what it is doing for him. Almost nothing. Behold how perfect, how wonderful is the machinery employed in the conversion of the raw materials into the thousand forms that prepare them for use, in towns and factories where men readily combine all their powers, intellectual and physical; but what has steam yet done in the work of *production* of the fruits of the earth? Look at all the farmer's inplements! The simple axe which fells a small tree, only after a thousand strokes—but only get that tree to the river shore, where it can be reached by the man who lives in a concentrated population; and see what *he* will do with it!

By steam, against wind and tide, you shall see him drag it on board his vessel, from which he delivers it again to the man of the town, who has invented a steam saw-mill to cut it up into planks of any thickness, even that of a wafer, and with a power and expedition over that of the secluded farmer's axe as 1000 to 1. This hitherto unwieldly block of timber, as it came from the hands of the countryman, (whose business has not been improved by the genius which concentration excites and rewards,) being thus in an instant ripped up into boards, you shall see each board passed with the speed of thought, and between planes that shave and groove and tongue it, and prepare it with perfect precision for the use of the carpenter and the

cabinet maker; and they again, if need be, with a labor-saving machine that looks miraculous, will cut the tenon and mortice, and the huge tree is thus, by the inventive arts that flourish wherever men can combine, sliced up and fitted for its final uses with mathematical exactness and the celerity of magic. Thus it is, farmers, with every thing else—where the policy of a country draws men together, there improvements of all sorts ensue, and the march of discovery is steady and rapid. The young men can afford to get married, and the daughters have no difficulty but to decide between rival admirers. Population increases and every thing prospers. But where the barbarous policy is to break up the useful industries—to send the products of the plough to foreign looms, to shut up the coal-pit and put out the fire in the furnace and scatter our population to the far West, to make *more* wheat and *more* corn and *more* meat, of all of which we have already a surfeit; and the stimulus to invention is withdrawn, and invention ceases, and with it improvement in all the arts, population diminishes, and nothing increases but ignorance, poverty, and old maids.

To show the wonderful difference in the contrivances for industrial purposes where men live wide apart and where concentration whets the genius —take, for example, your own field of Indian corn, or of wheat—your *farm* is your factory—yet how rude and comparatively inefficient are all your implements and appliances compared with those in the hands of the mechanic and the manufacturer, and hence how slow and laborious are all your processes, except such improvements as have been invented for you by mechanics —not in many cases, either, exactly for you, but to meet the more earnest and remunerating demands of the manufacturer and the commercial man, and only incidentally turned to your advantage.

Look at your axe, and your hoe, and your plough, and your scythe, and see how simple and how laborious in their form and their uses until the grain reaches your barn, where, as in Mr. Bolling's, and a few others, it meets the power of steam, not originally applied for your benefit or any stimulus offered by your *active and vigilant societies*, but to meet the sharp-sighted requisitions of men who live in concentrated communities.

Does anybody believe that if commerce or manufactures had needed a machine like Hussey's for reaping wheat, as agriculture has done since the time of Noah, that it would not have been perfected centuries ago? compare it with the thousand more complicated machines to serve the use of the arts pursued and practised in the towns—compare it with the machine for making cards!

Well, let us follow your wheat to the great merchant mill and see how incredibly expeditious and beautiful are all the operations it there undergoes, and yet how incomparably more expensive is the machine of production, than such as are employed in fashioning the natural products of the land and of agricultural industry—the timber tree or the grain crop.

Take, for instance, your 1000 bushels of wheat, manufactured with a year's labor on 100 acres of land, for which you would ask $2000. Then calculate the amount of manual labor in tediously ploughing, and harrowing, and sowing, and reaping, and threshing, and cleaning, and taking to market. If at the end of a whole year, one-eighth of the crop remains clear profit in your hands, it is more than many get, though they may not and *do not choose* to know it. See then the miller, with his light and comparatively inexpensive machine of conversion, when he takes your crop in hand, how he will in a few hours pass it through the mill—fan, grind, bolt, cool, and pack it, and after taking as much of it for the labor as you bestowed months upon it, he hands it over again to the merchant, who makes you pay again first for inspecting and then for selling it—selling it to the man who in Manchester

is weaving your wool—or your cotton—that is if you can there meet the competition of the commercial world in the markets of the world, as Governor Wright and the Patent-office Commissioner recommend we shall prepare and strive to do, instead of compelling the Manchester spinner to come and spin your wool and your cotton here in your own country, where he would be sure to eat your flour and your meat. And why not carry your wheat, and your corn too, to be ground in England, as well as your wool and cotton? If you want the miller here to take out a part of his toll in the corn he has need of, why not require the cotton spinner and ironmonger of England to come here and take of your cotton and wool a part of what is needed for them to wear?

How much better then, in a word, says common sense, how much more natural—more profitable to compel the loom to come to the cotton fields and the sheep pastures, and the lapstone to come to the hides, and the mill to the corn, and the anvil to the plough, than to force, as our wise tariff policy does, the planter and the farmer to be dragging their raw and bulky produce in all directions all over the world, to be fashioned for use by foreign capitalists who never buy our produce, even after it has encountered the expense of transportation across the ocean, unless we can work hard enough and live mean enough to undersell the half-starved pauper laborers on the Rhine and the Black Sea, who go half clad, and live on black rye bread called *pumpernicle*. Let then the policy which prevents concentration in the old States be called the *pumpernicle policy!*

ON THE CONSTRUCTION AND USE OF CARTS AND OTHER VEHICLES.

We know of few subjects of equal importance, that are so seldom and so superficially investigated by farmers, as the proper form, and structure, and material, of the conveyances employed for the transportation of manure and farm produce. Hence we deem it expedient to give the following.

In the employment of single-horse carts, as compared with double-horse carts, so great a saving, in some cases, of farm-work can be effected in carting as from twenty-five to thirty per cent.; and in leading out manure from the fold-yards, a saving so great as forty-four per cent. has been made. And I have also the authority of a thoroughly practical and highly enterprising farmer, who farms 2400 acres in Northumberland, employing sixteen pairs of horses—he formerly used no other description of cart than that drawn by two horses. He has become convinced, from practical experience, of the superior advantages attainable by the use of the single-horse cart, for, as his old stock wears out, he is now replacing in their stead single-horse carts; he informs me that he considers three horses, when employed in single carts, quite equal, if not superior, to four horses when employed in two double-horse carts. He is no theorist. I am told by another farmer, that he finds a saving of one horse in three when employing the single-horse cart. Should I be able to prove this to those who now employ two horses in a cart, that one in three, or even one in four, can be gained by the use of the single-horse cart, I trust this may be deemed a sufficient inducement, by those who have not yet adopted the single-horse cart system to do so. Lightness of cart is of considerable importance in the business of a farm. This is more particularly evident, when we consider that, by the use of the light single-horse Scotch cart (weighing from seven to eight cwt.) with the same strength of draught, one-fourth more work can be done in the same length of time, than can be done with the heavy double-horse cart commonly employed in this district,

(weighing from ten to twelve cwt.;) and as the use of the single-horse cart has been introduced to a very limited extent in this neighborhood, I shall, therefore, carefully endeavor to give a just estimate of the advantages derivable from the use of the single-horse cart, as compared with that from the double-horse cart. Practice and opinion are agreed in assigning a greater power of draught to one horse working singly than to any number harnessed together; for in proportion to the distance at which horses are removed from their load, so is the loss of power. This loss may be accounted for in three ways, viz.:—Distance from the object to be acted upon; horizontal line of draught; and diversity of pulling—for no one will dispute the fact that the nearer you can bring your horse to the point from which he draws, the greater power he will exert over it; that is to say, when he is at once attached to the body to be moved; because every exertion he makes is at once communicated to the mass, and therefore the horse produces more effect, because his force is applied immediately to the resistance. Again, in a horse drawing in a horizontal position at slow paces, there is a loss, I believe, varying from one-fifth to one-sixth of his power; and as it is known that a horse can apply his strength to the greatest effect and advantage when the line of draught is from the point of his shoulders to his hocks, (which is an angle of eighteen degrees,) as in the case of the line of draught of the plough. Again, the diverse pulling of either horse greatly embarrasses the effects of the other, for seldom is it, indeed, that you see two horses so equally matched in temper, pace, and size, that they at all times take alike an equal and continued share of the burden, for as it too frequently happens, that good horses have license to work themselves to death, whilst an old knowing one has leave to act the rogue. It will be generally admitted, I think, that a horse can exert his powers with the greater ease and effect when working singly than when he draws in conjunction with another; for when alone he has nothing but his load to contend with, whereas when he draws in conjunction with another he is greatly embarrassed by some difference of pace, the horse before or behind him being quicker or slower than himself, and he is frequently incommoded by the greater or lesser height of the other. The shaft horse has a double share of the work, and frequently the duty of both horses imposed upon him to perform; for, when turning, the whole exertion is required of him, and in descending hills he has the retarding of the two horses' load, and as we occasionally, but not unfrequently see, at the same time, the trace horse pulling, thereby increasing the already over-taxed exertions of the horse in the shafts; and these are no over-drawn statements, as such scenes may be observed every market-day in this town, in two-horse carts laden with corn descending such a hill as Dean-street. Again, in ascending a hill, should either horse relax his draught, the other horse must of necessity tax his powers to twice their natural extent. Such are a few of the disadvantages attending the use of double-horse carts. The use of the single-horse cart has been introduced into this neighborhood to a very limited extent; but I trust I shall be able to show, by comparison of the statements of others, combined with my own practical experience, extending over a period of five years in Berwickshire, and the northern parts of Northumberland, the undeniable advantages it possesses. As an example of the advantages of single-horse carts over double-horse carts, I shall quote the authority of a well-known agriculturist of this district—a member of our own club, whose absence from home, I regret, prevents him from being present. He, in writing to me, says—in using single-horse carts, on a farm employing six horses and three men, in leading out dung to the distance of a mile from the fold-yard, six carts, two men filling in the fold, and the other spreading and

shaping dung-hill, four boys or girls driving, will each go twelve times, carrying one ton each time—the expense of which will be—

	s.	*d.*
Three men, at 2*s.* 6*d.*	7	6
Four drivers, at 1*s.*	4	0
Six carts, at 3*s.* 6*d.*	21	0
72) Leading out tons	32	6
	0	5¼ per ton.

Then, using double-horse carts, according to the system usually followed in this neighborhood, each man fills, teams, and spreads his cart of dung, leading to the distance of one mile, will go nine times, carrying twenty-five cwt. each time. The expense will be—

	s.	*d.*
Three men, at 2*s.* 6*d.*	7	6
Two double carts, at 6*s.* 6*d.*	19	6
34) Leading out tons	27	0
	0	9½ per ton.

	£	*s.*	*d.*
The cost of leading a dunghill of 300 tons one mile, with double-horse carts, at 9½*d.* per ton	11	17	6
The cost of leading a dunghill of 300 tons one mile, with a single-horse cart, at 5¼*d.* per ton	6	11	3
Showing a difference in favor of single-horse carts of	5	6	3

Single-horse carts to lead out the above will require 4⅙ days.
Double do. do. do. do. 8 1 4/7, or nearly 9 days.

By the above calculation the difference in favor of the single-horse carts amounts to forty-four per cent.—a large sum certainly; and, from the above details, I think it will be conceded that the trace horse is not of any service. I can only say that when I came to ——, I had several double-horse carts made, but we used them indiscriminately with the single ones, finding that one horse could draw as much dung as could be placed on the cart, which amounted to about one ton. At the same time, were we considering the leading of short manure from a town, we must calculate that the single-horse cart will carry one-third less than the double-horse cart; but then, again, we expect that a man will have the care of two single-horse carts, so that they, even on this ground, are preferable to the double-horse cart. Then, again, as regards the time required to carry the aforesaid dunghill, there is two to one at least in favor of the single-horse carts. And we all know of how great importance this is in fickle seasons—such as we must always expect in these northern latitudes. Again, in a letter from a gentleman, resident in Berwickshire, an intelligent and an enterprising agriculturist, he informs me, "that his loads are, to Berwick generally, and with return carriage of coals, 3 quarters of wheat, 3½ to 4 quarters of barley, 4½ quarters of oats, and we never load heavier than 16 cwt. of coals, the distance to the pit and back again being 39 miles, and the pace at which my horses travel from 3 to 3½ miles per hour, but on good roads with short distances I would have no hesitation of putting on a load of 18 to 20 cwt., and this can be done with less distress to the horse than when working double and conveying one-third load less in quantity and weight." I believe more than 20 per cent. is lost in driving on the road. I am informed by a gentleman residing in the northern part of this county that the usual loads of double and single-horse carts are as follows:—

	Single-horse carts.	Double-horse carts.	Two single-horse carts.
Oats	18 bolls (36 bushels)	24 bolls (48 bushels)	36 bolls.
Barley	15 "	20 "	30 "
Wheat	12 "	18 "	24 "
Coal	9 "	12 "	18 "

From the above table you will perceive that with single carts two horses

are capable of doing nearly or quite as much work as three horses in double carts, that ten single horses can convey to market 180 bolls of oats, while it would require fifteen horses in double-horse carts to accomplish the same end; an immense saving in favor of single-horse carts in an economical point of view; and in harvest work, on level farms in dry weather, three single-horse harvest carts will convey into the stack-yard as much hay or corn in sheaf as two double-horse carts. First, then, I shall describe the one-horse Scotch cart, such as I employ on my farm; and next, the double-horse cart, commonly used in this district. And I shall attempt to point out some of their relative merits, advantages, and disadvantages in point of construction. The single-horse cart, of which there are two varieties, viz., the coup or tilt, and dormant or whole-bodied cart. The one-horse coup or tilt cart.—The body of the cart, with its bolster or cods, rests upon the axle, and to which the shafts are joined by means of a joint iron rod that passes through the bolsters at the ends of the shafts. The shafts are secured to the body by means of the lock at the front end of the cart, which fastens the body to the slot-sheath or cross-beam joining the shafts. The side boards, or top sides, are fitted so as to take off at pleasure, as required. On withdrawing the bolt at the front end of the cart, the fore part of the body rises up from the shafts, while the other end sinks, and so allows the load to be deposited on the ground. The price of such a cart as I have described is 10*l.* 10*s.*, and the weight 8 cwt. This cart, I find, in practice, the best adapted for the general purposes of husbandry, owing to the great facility afforded by the body being movable, in at once discharging its load. This point is one of considerable importance where loads of earth, lime, or stones are to be conveyed only for short distances, and the whole load deposited at one place and time; but, on the other hand, the disadvantages arising from the body of the cart not being immovably fixed to the shafts, as by the description before given. It will be remembered that the body is fastened to the slot-sheath by means of a lock, consisting of a bolt and eye. These, in time, wear the bolt smaller, and the eye larger; consequently there is a degree of motion between the shafts and the body, which interferes with the motion of the horse; and it will be allowed that it is injurious wherever there is any movement between the body of the cart and the shafts,—as, for instance, carriages that are hung on C springs are notoriously the worst to pull, and are in the stable expressly called horse murderers—requiring heavy powerful horses to drag them, while lighter animals are able to drag much greater weights in carriages that do not admit of this motion. This objection is obviated, as will be seen by the description I shall give of the dormant-bodied cart, to which I give a decided preference, where the produce of a farm and the leading back of manure are to be conveyed a distance of many miles. The body is fixed immovably to the shafts or blades, and the horse pulls at once to the shafts, which are fixed immediately both to the load and to the axle-tree. The dormant-bodied cart has its body similarly constructed to the coup cart, excepting the shafts and bolsters. The cart requires no bolsters, but, instead thereof, the shafts are prolonged backwards, taking the place of, and serving most of the purposes of the bolsters, the body being immovably fixed to the shafts. The price of this cart is 10*l.*, weighing from $7\frac{1}{2}$ to 8 cwt. For conveying loads long distances, this cart is infinitely superior to the coup cart. The greatest disadvantage attending their use arises from the extra trouble experienced in discharging a load from them, as, at each time, the horse has to be loosened to permit emptying the load. Those carts seemed to be very generally used among the railway contractors now employed in this town, and in their business, dispatch being of consequence, their using this description of cart

argues that the advantages gained in other respects must be found sufficient to compensate for the loss of time which may arise from the body being immovably fixed to the shafts, as I previously described. Any loss of time, I freely allow, is a disadvantage attending the use of this cart; but where the discharging of a load is only required twice or thrice in a day, as in the leading of manure from town, this loss of time is not quite so serious a matter. But in the formation of manure heaps of straw dung, there is a method which is now practised by some farmers of not driving the carts on to the manure heap, and there couping the load, but of throwing all straw manure lightly up from the cart on to the manure heap; for, says an intelligent farmer, in a letter to me, "I do not approve of the system of couping up straw manure, or even drawing it out with an implement called a muck-hawk." All straw dung should be griped and thrown lightly up. The bodies of each of the carts I have just described can be lifted from off the axle and wheels. Of the harvest or Scotch corn cart, which consists of open frame-work with boarded bottom, it is light and cheap in construction, and can carry a bulky load. It is chiefly used for the purpose of carting hay, straw, corn in sheaf, or similar bulky materials. It is a more efficient vehicle than the coup cart and hay frame. "Of the double-horse coup cart, which is so universally employed in this district, it will be unnecessary for me here to give you any description, as all must be so well acquainted with its construction. A statement of the price and weight, I trust, will therefore be deemed sufficient. By an estimate I have received from a well-known country cartwright in this neighborhood—

The cost of a double-horse coup cart is . .	£14.
Weight ditto .	10½ to 11 cwt.

You will be likewise fully acquainted with the construction of the double-horse long cart used in this neighborhood for carrying hay, straw, &c. By above estimate—

The cost of long cart is	£15.
Weight ditto	11 cwt.

I, however, am informed by a cartwright of this town that his prices are as follow—

The cost of double-horse coup cart . . .	£17 10
The cost of long cart	20 0

Fearing you may think the latter estimate above an average, in making my calculation of the comparative statement of cost of single and double-horse carts, I have taken the former. On a farm employing three pair of horses it would require—

With single-horse Carts.

Two single-horse coup carts, at 10*l.* 10*s.* . .	£21 0
Four ditto dormant, at 10*l.* . . .	40 0
Three ditto long carts, at 3*l.* 10*s.* . .	10 10
	£71 10

With double-horse Carts.

Three double-horse coup carts, at 15*l.* . .	£45 0
Three ditto long carts	42 0
Total . .	£87 0
Deduct single-horse carts . .	71 10
Saving . .	£15 10

Three additional cart saddles and breechings would be required when single-horse carts are employed, so that you will perceive that in adopting the single-horse cart system there is even a saving in the outlay of capital.

THE VALLEY OF THE MISSISSIPPI.

We are indebted to the author, Hamilton Smith, Esq., of Louisville, for an exceedingly instructive pamphlet on "the advantages offered by the West, and particularly by the country on the Lower Ohio, for manufacturing," and now desire to call to it the attention of our Southern and Western readers. Mr. Smith desires to see the loom and the anvil take its place by the side of the plough, and he furnishes numerous calculations with a view to show the enormous waste that occurs when they are separated. He says, and most truly, that—

"It would astonish one who has never thought of the subject to calculate the amount of fixed capital expended in grading an uneven site of a city, and in its buildings. The filling up of our ponds and cutting down of our sand-hills has been but a mere trifle when compared with similar expenditures in other cities.

"The splendid Quincy market-house in Boston, and the immense blocks of granite warehouses around it, now stand where ships once anchored; millions of dollars have been paid by New York for the timber and lime of Maine, the granite of Massachusetts, the sandstone of Connecticut and New Jersey—and she has even been obliged to send to New Hampshire and Maryland for brick.

"The very cost of transportation on the building materials already sent to New Orleans from New England and the Ohio river, would, at many points on this river, build a large manufacturing town, and furnish it with a working capital."

And who are the paymasters for all these enormous expenditures? Are they not the farmers and planters of the Union? When the planter sends away five bales of cotton and obtains in return one bale converted into cloth, by aid of the light and easily transported machinery of a cotton-mill, is he not taxing himself largely towards grading the streets of New Orleans and New York, and building the market-houses of Boston and Manchester? When the farmer sells his corn from his farm at 15 to 20 cents, that it may be eaten at Manchester at the cost of a dollar or more, and is paid in labor applied to the conversion of his wool into cloth, receiving in return for a dozen bushels about the same quantity of labor that he has given to the production of a single one, are not he and his neighbors contributing towards the making of roads and mills for others, as much labor as would give them roads and mills for themselves? When he sells his corn to be eaten abroad, does he not lose the manure and exhaust his land? When it is eaten at home, does he not save the manure and enrich his land? That he does all these things is unquestionable, and equally unquestionable is it that the loss to the farmer and planter *in manure alone* is more than the price he pays for all the clothing consumed on his land.

"On the banks of the Ohio and its tributaries we have," says Mr. Smith, "*all* the *natural* elements of a manufacturing district: cheap fuel, cheap living, cheap land, cheap stone, clay, and timber, cheap raw materials, cheap transportation, in a healthy country, in the centre of a great market; and besides, we have good laws and light taxes."

To enable the people of the West to avail themselves of these advantages there is required—

"The association of capital, protected by liberal charters, and under the management of Superintendents of high character, Overseers carefully selected, and Directors in whom the public have entire confidence.

"This system, which has worked so well elsewhere, is worthy of our adoption; wherever it has been tried the results have been the same; it has stood the test of a quarter of a century, and it does not require the gift of propheey to predict the same result here.

"It is admirably adapted to our institutions and the character of our people.

"It is the *democratic* system,—for by it the hundred dollars of the poor man, invested in the stock of the corporation, draws as large a dividend as the hundred dollars of the rich man: it is the system *safe* for the public,—for it requires at the outset a capital sufficient for its purposes and asks no credit; and safe for the stockholder, as he only risks his stock and cannot well be ruined by the mismanagement or knavery of associates; this is the

system which gives surety to the operative for his wages, and to the agriculturist for the price of the food furnished by him to the operative; and the results of its adoption here will be seen in lessening the cost of fabrics our necessities require,—in increasing the amount of our productive capital,—in enlarging the number of profitable employments of our young men of capital and enterprise, and in giving us an important home market for our raw materials and provisions.

"The way in which this system works, and *why* it works well, will be seen hereafter; but under it, as perhaps every reflecting man will admit, the west has already abundance of capital for the purpose. It is not expected that our very rich men will leave their comfortable homes for new positions where there are peculiar natural advantages and where manufacturing can be made most profitable; or that they will personally superintend the details of making cotton or any other fabrics; nor can it be expected that they will risk the earnings of years to the management of a distant co-partner or agent.

"To manufacture cotton, or indeed any other great staple, at the most profit, we must do a large business; the cotton mill of 10,000 spindles will make goods probably ten per cent. cheaper than one of 1000 spindles; the first requires a capital of, say $200,000; now it would be preposterous to make the attempt to get a Lexington capitalist to furnish that large sum of money to any man or for any purpose, however great the "paper profits" might appear, or however strong might be the faith of the capitalist in the general profits in the business proposed: it would be equally preposterous to ask two hundred men to contribute $1000 each, and also their individual skill and labor, to any co-partnership concern. But, if you start twenty mills under the guardianship of the same men who so satisfactorily manage our Bank and Insurance capital, and under the direct superintendance of a man of unquestionable capacity and integrity, and with the checks of Treasurer, Overseers, &c., where there is no liability beyond the capital invested, and where the stock promises large dividends, you will find the rich man taking his risks in each mill; while the man of less capital will follow the example to the extent of his means. They who construct the buildings or furnish the materials and machinery, and they who wish to sell the goods or obtain employment in or about the mill, will be glad to take all the stock they can afford to hold. Labor and materials to a considerable extent will be equal to money.

"It is said that steamboat capital does not, on the average, pay 8 per cent. per annum—yet how easy is it, on any point of our river, to start a boat costing from thirty to fifty thousand dollars—in this the shares are rarely over 1-16—but in a cotton mill each share would be, say 1-2000. The boat owners are the builders of the hull and the engine, the officers and the commission merchant; would it not be far easier to raise the capital of the mill and partially in the same way, with anticipated profits of twenty to forty per cent., and in a business attended with less risk and giving constant employment, and at the same place? Let those who scorn small contributions to great works remember that most glorious of all monuments, the Polish mound, made by a grateful people, of whom each contributed but a spadeful of earth—or the more recent instance of the subscription of half a million of dollars by Irish laborers, which ensured the completion of the western railroad from Boston to Albany.

"It is believed by many that there has been an increase of specie capital in the Mississippi valley since 1836 of nearly one hundred millions of dollars, and that its annual increase is from ten to fifteen millions. It is said by those who have the best means of knowing the facts, that something like five millions of specie are annually brought into the west by European emigrants. Some shrewd calculators make the exports of Indiana and Illinois over their imports from six to seven millions of dollars per annum. It will be remembered that the government does not now drain us of specie through its land offices, and that we are now nearly freed from eastern land speculators. Our independence is shown in the strength of our banks and the favorable state of our domestic and foreign exchanges. In the interior, the rate of interest has fallen to six, and in some sections to five per cent. per annum: while in our cities and large towns our banks furnish all the facilities desired for legitimate business transactions.

"We have so long been dependent on the east for money capital, that it is difficult for us to look for it in any other direction. We have now sufficient strength to stand erect, but have scarcely learned the use of our feet.

"But, perhaps, we are to look to the south for capital, either in money or its equivalent cotton. The cotton planter for years has been chagrined that he has made less in producing than the New Englander has in manufacturing the cotton; and he will gladly avail himself of the opportunity, now perhaps first presented to him in a practical shape, of making the manufacturers' profit. He could not manufacture in Glasgow and Manchester; and Lowell was too far distant for him to invest in her mills. At home he has not the labor, power, conveniences or skill. The lower Ohio is within his reach, (I refer o the planters on the Mississippi and its tributaries.) Here he can, while overlooking

the management of the mill, mingle business with pleasure during the summer. Many may smile at the idea of getting surplus capital from a cotton planter, and may exclaim, mortgages, execution, advances, &c.; yet let me assure such that the south-west is in quite a different condition now from what it was ten years since. Let them remember that not only has the cotton crop vastly increased in that period, but that the facilities for obtaining credits in New Orleans have been greatly diminished, while at home there are now comparatively no such facilities. Many of the planters now consign their crop to Louisville, Cincinnati, Pittsburgh, the eastern cities and even to Liverpool, and neither ask nor wish for an advance. Let it also be remembered that the cotton planter has nothing at home to invest his surplus in, save more land and slaves. He has no canals or railroads, houses, or ships to build; he has no banks to deposit his money in even; he does not wish to take mercantile risks or to leave his money long in the hands of those who do take such risks; would he not gladly invest in mills near him, where his own cotton would be spun and woven, and on its way to market and on his way to the springs or his summer residence? Indeed, he might find a healthy summer residence within sight of the mill. He would realize the value of his cotton (indeed trebled in value) from the goods before he could get his return from that consigned to the Liverpool factor.

"This direct consignment is, of course, the most favorable for the planter. When the New Orleans or New York speculator buys the cotton and consigns it, the planter of course pays, or rather loses, the intermediate profits.

"On this reliance on the south I have not only to state its reasonableness, but the positive assurances of very many planters who have surplus capital, that they and their friends are ready to take stock in cotton mills just as soon as they, who practically understand the details of putting up and managing mills, will obtain the charters and superintendents and contractors.

"But we cannot expect cotton mills to leap into existence at once. Several years will be required to erect buildings, obtain machinery, &c. Then the first that are started will make profits to build others; besides, the moment we show the east that we have systematically and energetically undertaken to manufacture our cotton and hemp, and to eat our corn and pork at home, the building of new mills there will be checked, and the men of capital and enterprise there, who wish to engage in the business, will bring their capital, skill, and labor here.

Agreeing, as we do, with our author, in every word that he has said in regard to the advantages to be derived by the West, and by every portion of the Union, from the establishment of mills and factories, furnaces and rolling-mills, at which the labor and the food, the cotton or the wool, the coal and the iron ore may be combined together for the production of cloth and iron, we find ourselves, nevertheless, constrained to differ entirely from him in regard to the views contained in this closing sentence. Between the various portions of the Union there are no opposing interests. The man of Massachusetts or Connecticut is not to be the loser because the Georgian or the South Carolinian becomes a manufacturer of cotton, nor is the Pennsylvanian to suffer because the Missourian converts into iron his inexhaustible supplies of ore. On the contrary, all are to be enriched by the same process. The more coarse cloth manufactured in the South and the West, the greater will be the ability of Ohio and Kentucky, Georgia and Alabama, to consume fine cloths, and with every step in this change the freight becomes a matter of less and less importance, while with each the taste and skill resulting from long practice become more important, enabling their possessor to obtain increasing reward for his services. The direct effect of the establishment of factories at the South and West will be that of converting the existing manufacturers of the North and East into producers of the finer articles for which we are now entirely dependent upon the mills of France and England, and therewith will arise a demand for skill of a far higher description than any now required, offering constantly increasing inducements for exertion, and tending largely to promote intellectual improvement. The more rapid the increase of penny newspapers, and in the demand for primers, and spelling-books, and grammars, the greater will be the demand for newspapers of a higher character, for magazines, and for literature of the highest order. Ohio now manufactures her own school-books, yet she purchases from Boston, and New

York, and Philadelphia, more books of a superior order in a week than she consumed in a year, at the time when there was not a book-printing press within her limits.

We are fully aware that many of the manufacturers of the North look with jealousy upon the tendency towards the erection of cotton mills now existing at the South, but it is a feeling as short-sighted as that which prompts the planter to look coldly upon the progress of Lowell or of Providence. Every mill that is built in the South and West tends to increase the value of property at the North, and every one built in the North tends to increase the value of the farms and plantations of the West and South. Every furnace built in Ohio or Tennessee tends to increase the value of the coal mines of Pennsylvania, and every mine that is opened in the latter tends to increase the value of the farms of Ohio and the plantations of Tennessee. All men prosper by the prosperity, and all suffer by the misfortunes, of their fellow-men, and although cases sometimes occur where the reverse appears to be the case, careful examination will show that the gain from the misfortunes of others is only apparent, while the loss is real. The famine of last year was productive of great apparent gain. We realized from sales of grain to the starving people of Europe some twenty millions of dollars more than we should otherwise have done, but we lost almost as much in the price of cotton, and therefore, even had the account remained as it stood a year since, we should have gained nothing. It has not, however, so remained. The famine contributed largely towards stopping the railroads of Europe, and that reduced the price of iron, and that is now, in its turn, closing the furnaces and rolling-mills of the Union, and driving the laborers and miners and furnacemen to the West, there to become producers of food. The farmer loses his *customers* for the bulky commodities that will not bear transportation, with a certainty that they will soon become *rivals* in the production of wheat, and rye, and Indian corn, and is therefore doubly injured. The famine diminished the power of the people of Great Britain and Ireland to purchase cloths, the consequence of which is, that our markets have been flooded with foreign cloths, and our cloth and flannel mills have been closed, and thousands of workmen and workwomen have been discharged, to the great injury of the farmer who is seeking a market for his food and his wool. Were it possible to furnish an accurate account of the effects of that famine upon the people of this country, we feel assured that every planter and farmer would unite with us in saying that there is a grievous error in a system which compels us to pray for bad crops abroad, to be followed by the starvation of our fellow-men, in the hope that we may thereby obtain a market for our surplus food, and that it is an error tending to serious deterioration of the moral feeling of the community. The remedy for that error is to be found in offering inducements to the workmen of Europe to come with their looms and anvils and take their places by the side of the plough and the harrow, eating their food on the ground on which it was produced, giving back to the land the refuse of its products, and giving to the cultivator of the land, day's work for day's work, and relieving him from the necessity for giving the labor of a dozen days applied to the *production* of corn or wool in exchange for that of one or two days applied to their *conversion* into cloth, as now he does. Let the planters and farmers of the Union set their shoulders to the wheel, with a determination to bring the consumers of food and cotton to take their places by the side of the producers of food and cotton, and the day will not then be far distant when they will all unite in prayer to the Great Giver of all good things, that the labor of their fellow-men throughout the world may be rewarded by large returns, enabling all to enjoy the same abundance that has fallen to their own happy lot.

WHAT CONSTITUTES A THOROUGH-BRED HORSE.

In the first place, it may be observed, there has been a great deal of discussion in various publications on Sporting, but to very little purpose, on the much agitated question, "What constitutes full blood, or, what is termed, a thorough-bred horse?" We consider this question as very easily decided; the term "thorough-bred horse" merely implying one that can be traced through the Stud-Book, by sire and dam, to any Eastern stallion, or to what were called the Royal Mares, imported by Charles the Second, as they, together with two or three of the first imported stallions, form the *ne plus ultra* of all racing pedigrees. As to the assertion, that, for a horse to claim the title of thorough-bred it is necessary he should be of pure Oriental descent, it cannot for a moment be supported; as, independently of the fact, that only two mares are stated in the Stud-Book, or elsewhere, on authority, to have been imported into England, in the early days of racing, it is well known that the first British race-horses were those of British breed, changed, ameliorated, and, at last, perfected by the admixture of Eastern blood, and judicious crossing afterwards.

The effect of what is called crossing blood is as follows: The first cross gives one-half, or 50 per cent.; the second 75 per cent.; the third 87½ per cent.; and the fourth 93¾ per cent. In sheep, after this, if the ewes have been properly selected, the difference in the wool between the original stock and the mixed breed is scarcely perceptible; but with the horse, the breeder must not stop here, if he means to produce a race-horse; and a curious fact is stated respecting sheep, on the authority of the Count Veltheim, of Brunswick, an extensive breeder of that species of stock. "It has frequently occurred to me," says he, "that rams, which, after an improvement of four or five descents, have rivalled all the *visible* qualities of the purest Merinos, when employed in propagation, have got very ordinary lambs, and consequently they are not fit to be used for breeding. On the other hand, a fact may be stated, wherein, after a very opposite cross, pure blood, with evident improvement upon the original stock, was procured on the eighth descent. The late Lord Orford, very celebrated for his greyhounds, finding them degenerating in courage, crossed his best bitches with a bull-dog. The result was, after several re-crossings with pure blood, that breed of greyhounds for which he was so eminently distinguished. The immediate descendants, however, of the Eastern horses, have, almost without an exception, proved so deficient of late years, that our breeders will no more have recourse to them, than the farmer would to the natural oat, which is little better than a weed, to produce a sample that should rival that of his neighbors in the market."

Much speculation has also been indulged in, as to the effect of close affinity, in breeding the race-horse, or what is called breeding in-and-in; a system which has eminently succeeded in breeding cattle, and also with Lord Egremont's racing-stud. Beginning with Flying Childers, several of our very best racers have been very closely bred; and it certainly appears reasonable that, as like is said to produce like, if we have high form and superior organization in an own brother and sister, that high form and superior organization would be very likely to be continued to their incestuous produce. In a work called "Observations on breeding for the Turf," published a few years back, by Nicholas Hankey Smith, who resided a long time among the Arabs, the author gives his opinion, that colts bred in-and-in show more

blood in their heads, are of better form, and fit to start with fewer sweats, than others; but when the breed is continued incestuous for three or four crosses, the animal, he thinks, degenerates. By breeding in-and-in, however, he does not insist upon the necessity of breeding from brother and sister, or putting a mare to her own sire, or the sire to his own dam; but after the first cross, to return to original blood. A recent proof of the good effect of a close affinity in race-horses may be found in the produce of the dam of his late Majesty's favorite mare Maria. By those celebrated stallions, Rubens and Soothsayer, they were worthless; but by Waterloo and Rainbow, grandsons of Sir Peter, and thus combining much of her own blood, they would run to win.

CHOICE OF STALLIONS AND MARES.

We now come to the most certain source of producing good racers, namely, the choice of stallions and mares, and the treatment of the produce in their colthood. But as regards the two first-named requisites, reference must be had to the parts of the country in which horses are intended to run. If for the short races of Newmarket, so much the fashion of the present day, a differently formed animal would be required to one intended to clear his way on the provincial courses. But whether it be one description of a race-horse or another, although the laws of nature are not always certain, a proper junction of shape, or similarity in formation of horse and mare, together with a due regard to blood, gives the fairest prospect of success. We admit it is difficult to account for the degrees of excellence between the running of two full brothers or sisters, where it does not arise (a common case we conceive) from some violence or impression on the womb, when the fœtus is in a soft state, or from a decline in the constitution of the mare, subsequent to her last produce; but when we find the produce of two highly-bred animals, both apparently well formed and sound, and with a proper admixture of blood, unable to race, we can attribute it to no other cause than a dissimilitude of parts in the horse and the mare, or a similitude of some parts tending to an extreme in both. Without going so far as to assert that there is no innate quality in blood, we may safely pronounce it so far from being, as some have supposed it to be, independent of form and matter, that, unless accompanied with suitable form and action, it is of very little value in a race-horse. "Sometimes," as Sancho says, "we look for one thing and find another;" but we know of no instance of a bad, misshapen horse, and a bad, misshapen mare, however highly bred, producing good runners.

The first and most important point in the choice of a brood-mare for a racing stud, is the soundness of her constitution and limbs; although, of course, it is desirable she should be of good size and shape, with substance. How highly soever she may be bred, and however well she may have run, if she have not a sound frame, she cannot be depended upon to breed racers. If she have never been trained, of course the risk is increased; but, in either case, her form and action must not be overlooked, as it too often is, rendering the breeding of thorough-bred stock a mere matter of chance. Should she have appeared in public, her racing capabilities are to be consulted. For example, if pace (speed) was her best, as the jockies say, a stallion should be selected, who, by the known stoutness of his running, is likely to tie her produce to pace, or, in other words, to give them both speed and endurance in a race. Her frame should be roomy, or her produce will be apt to be small, although, it must be admitted, there are exceptions to this rule. She should be of, what is termed, fashionable blood; for, if she be not, and

her produce should come to the hammer, *previous to trial*, they would prove utterly worthless in a market.

It cannot admit of a doubt, that it is trespassing on the powers of nature, to expect a mare, or any other female animal, to nourish her fœtus, in embryo, so perfectly during the time she is giving suck, as if she were dry or without milk. Nevertheless, it is customary to put all blood mares to the horse the ninth day after foaling, and it is almost too much to expect that the owners will let them lie fallow, although they may in some measure resemble the man who cut up his goose to get at the golden egg. During the period of gestation, however, the thorough-bred mare should be highly kept. All animals well fed, produce their species of a superior description to those which are not well fed; and nothing more forcibly shows the beneficial effect of warmth in rearing superior varieties of the horse, than that the half-starved horse of the Desert should be as good as he is even now found to be.

In a racing-stud, the period of putting mares to the horse is much earlier in the year than that of any other sort, by reason of their produce being almost always called upon to go into work before they are two years' old. In fact, they can scarcely be dropped too soon in the commencement of a new year, where proper accommodations are provided for them. A peep into the three volumes of the Stud-Book will satisfy inquirers into these matters, that some mares have produced more than twenty colts and fillies, and, in a few instances, the greater part of them proved good runners; but, we should be inclined to think that the average would not exceed six, as the produce of each mare.

Virgil, in his excellent remarks on breeding horses, tells those of his readers who wish to gain a prize, to look to the dam; and, until of very late years, it was the prevailing opinion of Englishmen, that, in breeding a racer, the mare is more essential than the horse to the production of him, in his highest form; and we know it to have been the notion entertained by the late Earl of Grosvenor, the most extensive, though not perhaps the most successful, breeder of thorough-bred stock England ever saw. The truth of this supposition, however, has not been confirmed by the experience of the last half century, and much more dependence is now placed on the stallion than on the mare. The racing calendar, indeed, clearly proves the fact. Notwithstanding the prodigious number of very highly bred and equally good mares that are every year put to the horse, it is from such as are put to our very best stallions that the great winners are produced. This can in no other way be accounted for, than by such horses having the faculty of imparting to their progeny the peculiar external and internal formation absolutely essential to the first-rate race-horse; or, if the term "blood" be insisted upon, that certain innate but not preternatural virtue, peculiarly belonging to some horses but not to others, which, when it meets with no opposition from the mare, or, in the language of the stable, when "the cross nicks" by the mare admitting of a junction of good shapes, seldom fails in producing a race-horse, in his very best form. It is obvious, then, that owners of racing-studs should not hesitate at paying the difference between the price of a first-rate stallion and an inferior one; and there is always one of the former to be found, to suit every description of mare. Breeders of all kinds of horses, but of the race-horse above all others, scarcely require to be cautioned against purchasing, or breeding from, mares, or putting them to stallions, constitutionally infirm. By "constitutionally infirm," is chiefly implied having a tendency to fail in their legs and feet, during their training, which too many of our present racing-breed are given to; although the

severity of training is not equal to what it was some years back. It would be invidious to particularize individual sorts; but we could name stallions and mares, from which the greatest expectations were raised, whose progeny have sacrificed thousands of their owners' money, entirely from this cause. It having been clearly shown, not only in theory but in practice, that the diseases and defects of horses are for the most part hereditary, we may be induced to give credit to the assertion, that the Arabians, after having brought their breed of horses to the highest pitch of improvement of which they themselves considered them capable, have preserved their chief perfection, namely, great endurance of fatigue, with highly organised matter, and natural soundness of limb—by restricting the use of stallions until approved of by a public inspector of them. Indeed, in several European states, similar precautions are taken, and stallions are provided by their governments, for the use of farmers and others who breed horses, and care is taken in the selection of them to avoid all such as have proved naturally unsound, or been affected by any disease, the influence of which may be hereditary. No part of veterinary pathology is more interesting than that which relates to the hereditableness of disease; and, as an eminent French writer. (Professor Dupuy,) on the veterinary art, observes, "That person will render an important service to his country, and to rural economy in general, who may show, by incontestable evidence, that those organic diseases (farcy and glanders) are very often hereditary. I knew a mare whose body on dissection presented every appearance of glanders; her filly died at the age of four and a half years of the same tuberculous affection. The other offspring of this mare inherited her particular conformation, and her propensities to bite and kick." The Professor produces three similar instances of inherited disease, all of which, he says, were too evident and well-marked to admit the possibility of any serious mistake, and were attested by the professors of the Veterinary School at Alford. Similar observations follow in relation to the diseases of oxen, cows, sheep, and swine, as also of ophthalmia in horses, all of which are transmitted from one generation to another, the effect of hereditary influence. "These considerations," continues the Professor, "to us are of the greatest moment, since we have it in our power, by coupling and crossing well-known breeds, to lessen the number of animals predisposed to these diseases. Acting up to such ideas, our line of conduct is marked out. We must banish from our establishments, designed to improve the breed, such animals as show any signs of tuberculous disease, or any analogous affection. Above all, no stallion should be allowed to remain in a wet or cold situation, in consequence of the evils likely to result therefrom."

In consideration of the preference given to the stallion over the mare, in the propagation of racing-stock, may be quoted the following passage from Perceval's Lectures on the Veterinary Art, (London, 1826.) "It might be supposed that the part the male takes in fecundation is comparatively a very unimportant one; it must be remembered, however, that the copulative act is the essential first cause; that therein the action of the organs is natural and sympathetic, and that the result is the generation of a new animal bearing a likeness to one or both of the parents; from which it would appear, although the physical part of the male is simply to project the sperm into the female, who alone has the power of rendering it efficacious, that the influence of the sperm is much greater in the generative process than we seem to have any notion of, or at least than we have been able to reveal the nature of in physiology."*

* Lecture 59, On the Physiology of the Organs of Generation, Male and Female, p. 94.

SHEEP IN ENGLAND AND SHEEP IN AMERICA.

LOOK AT THE DIFFERENCE.

We lately gave some account of the sale, or rather of the attempt to *sell*, not to "*let for the season*," but to sell, Mr. Reybold's superb lot of yearling rams. A few of which went off at from $40 to $60. Now look at the following account of the annual letting of Mr. Webb's South-downs in England—sixty-seven rams let before dinner, for the season, at an average of $125—three choice rams let at an average of $300 each, and many others were hired at prices varying from $150 to $225 each! Behold, farmers, the effect of a policy that encourages home industry, increasing the number of *consumers*, alongside of the plough, to devour the products of the plough!

We shall give this account more at length, in reference particularly to the notice taken of our much respected and worthy countryman Mr. Colman, and his speech in reply. We may now doubtless expect soon to have the results of his personal observation of the agriculture on the Continent, to which brief reference is made in this reply to the compliment to his country and himself.

MR. JONAS WEBB'S BABRAHAM TUP SHOW.

The twenty-second annual letting of pure Southdown tups, the property of Mr. Jonas Webb, of Babraham, Cambs., took place, on Friday last, in a field adjoining the residence of the above-named gentleman. In the course of the morning there were apprehensions that the day would have proved a wet one; the rain at Babraham was but little, although in the neighborhood heavy showers, accompanied by a tempest, were experienced. About two o'clock the business commenced with considerable spirit. Mr. Martin Nockolds officiated for the first time as auctioneer, an office which has been filled, ever since the establishment of the letting, by Messrs. Smith and Son; the latter having retired from business, it became necessary to appoint a successor. Having been present at these annual lettings during the last twelve years, places us in a position to be able to give an opinion, as to the general merits of the show, somewhat approaching to accuracy. We have no hesitation whatever in pronouncing the present exhibition considerably in advance of any of its predecessors, in which opinion we are corroborated by a vast number of the most eminent and practical agriculturists and breeders in the kingdom. This, considering the position which Mr. Webb had already attained, might have been considered almost impossible. Many men would have concluded they had arrived at the highest attainable degree of perfection if similarly placed to Mr. Webb during the last twenty years; but it is this gentleman's firm conviction that to be stationary is virtually to retrograde, which prompts him to unremitting exertions, and thus perpetuates in the country specimens of its best breed of sheep.

The very best test, however, of the value of this flock may be found in the yearly increasing average prices attained for the rams submitted to competition. The highest priced tup was let for the season to Mr. Ayling, from Sussex, for 79 guineas. The entire number publicly let before dinner was sixty-seven; the gross amount realized was £1571, 17s., being an average of £23, 10s. per head! Particular attention should be paid to the average price of a large number, inasmuch as isolated instances of even higher prices than the maximum on Friday could be no evidence to rely on either as to the value or estimation of any particular breeders' stock. The most remarkable feature at the present show was the manifest improvement in the shearling tups. We particularly noticed three distinguished for their beauty of symmetry, quality of wool, and every qualification for a first-class animal. They let for the season at an average of sixty guineas each. Many others were hired at prices varying from thirty to forty-five guineas.

It were vain to attempt to give any thing like a list of the company present; amongst those present at the show or dinner we observed Lord Hardwicke, the Duke of Manchester, the agents of his grace the Duke of Beaufort, Lord Braybroke, Lord Walsingham, the Earl of Chichester, the Duke of Grafton, Lord Ducie, Lord Milton, Earl of Leicester, Earl of Burlington, Mr. Colman, the celebrated American agriculturist and author, and about two hundred agriculturists and breeders from every part of the kingdom, from bleak Northumberland to the sunny downs of Sussex.

After the letting, a party of about two hundred sat down to an excellent and substantial cold collation, under the presidency of the Earl of Hardwicke.

The CHAIRMAN gave, in rapid succession, "The Queen," three times three; "The Queen Dowager," ditto; "Prince Albert, Albert Prince of Wales, and the rest of the Royal Family," ditto.

The Duke of MANCHESTER proposed the health of the Lord Lieutenant of the county, the Earl of Hardwicke.

The CHAIRMAN next gave "The Bishop and Clergy of the Diocese of Ely."

The Rev. JOHN GRAHAM acknowledged the toast. The rev. gentleman said that it was now, more than at any previous period in their history, incumbent upon them to exert themselves to the utmost towards elevating the character and habits of the lower classes, by means of sound moral and religious teaching, and by the laity co-operating with the parochial clergy, who were ready to devote their energies, their talents, and, if need be, their lives, in furtherance of this great work.

The CHAIRMAN said it was but right to inform them that he had seated on his right and left two gentlemen from America—gentlemen who, though frequently called foreigners, had no right to be thus denominated. In drinking their healths, he hoped they would remember that they were a portion of that true Anglo-Saxon race, which was now diffusing itself throughout the world, and giving to the people of foreign states and nations an example of civil and religious freedom—of a sound constitutional movement—in a manner in which it ought to be presented. They had an opportunity on all the occasions of calling up those recollections associated with the fact of one of the greatest nations on the face of the earth (and which would one day be the greatest) having emanated from the loins of this country; America was of the same flesh and blood as themselves, and not only so, but the whole of their laws and institutions were taken substantially from those of England. (Hear, hear.) Similar were they in every respect—taken from them in every degree and form—the same trial by jury—the same principles of liberty, civil and religious, only governed by a President instead of a sovereign. Lord Hardwicke concluded by proposing the healths of Mr. Colman and Mr. Bassett.

Mr. COLMAN said he was delighted once more to attend this interesting annual meeting of the farmers of Cambridgeshire. He was glad to find that while he had been absent they had not thrown Jonah overboard (laughter); and allow him to tell them that, so far from such a preservation being prejudicial to the crew, it had been most essential to the interests of the whole ship's company. He was most happy to witness—to see the progress which Mr. Webb had made during the last four years; he (Mr. C.) thought perfection had been long ago attained; but the exhibition of that day had fully dissipated any such impression. He had lately returned from a long agricultural tour on the Continent, and it was to him as clear as the light of day that the farmers of England, in respect to the improvement of their stock, were not only a whole head, but a whole length before all other countries.

(Cheers.) Still there were two or three improvements which might be most advantageously adopted from abroad; one was with respect to the "soiling" of cattle. It was a well-established fact that oxen and beef cattle could be kept in as good condition which were constantly in the stable, and at less expense than those in pasture. It was also well established that cows afforded as much produce when constantly "soiled" as when allowed to range at large. But compare the results of the two practices, and observe the benefit which one produced on the farmer's manure heap. Another great improvement he should like to see carried out was the preservation of the liquid manure. (Hear, hear.) The best agricultural district he had passed through was Flanders, and the secret of all their success (and he could say it without disparagement, so transcendant were their excellences here) was in their urine system. It was impossible for farmers to overrate the advantages of preserving their liquid manure in urine cisterns, not to confine their practice to simply draining their muck-heaps. (Applause.) He got into a great difficulty at Northampton when talking about the importation of foreign corn from America; but like very many other difficulties, it grew out of a mutual misunderstanding. They thought he was talking of wheat, (and it was at a time when farmers had no skin at all, and touch them where he might they were sensitive,) instead of which he alluded to Indian corn. They imported a great many fat cattle from abroad, perhaps because they had not enough to feed them with of their own produce. Why not import Indian corn, or maize? There was no article which would make them so much beef, or repay them so well, as fattening cattle on Indian corn. By this they would see they would have the resource of the manure made, which would be so valuable. There was another subject he wished to mention his views on, which he had no doubt they would view as Utopian. He knew that at meetings of this description politics were excluded, and he was the last person to offend against any wholesome rule; he would, therefore, put the political view of the subject entirely out of sight. He believed that nothing would tend more to the benefit of the English farmer than the cultivation of beet-root for sugar. Mr. C. entered into a comparative statement as to the cost of beet-root in France and Flanders, and the beneficial results arising from its cultivation. In the latter country he found one farmer who had saved seven-twentieths of the value of the crop for feeding cattle. He (Mr. C.) saw him in June, with a large flock of sheep in his barn, and with a number of heads of cattle that even an Englishman would have envied. He was then feeding them with the remains of the beet-root manufactured in the preceding autumn, which had been kept uninjured from that period. He could hardly express his pleasure in being able to meet them in peace, after his recent tour through countries ruined and miserable by the whirlwind of revolution and anarchy. This state of things was especially favorable to agriculture; for if the soldier fought for all, and the parson prayed for all, it was the farmer who paid for all. (Applause.) God grant that it might be their happiness to enjoy uninterrupted peace; prosperity they could hardly dare look for; if they could preserve peace and order, and the country in security be content—but do not feel too confident, for Heaven knew what might happen—if they preserved a natural quiet when thrones were tottering around them, and the entire continent of Europe was shaken to its very centre; if they were saved from all the horrors of unmitigated anarchy which now afflicted a neighboring state, where the whole country was one immense fulminating volcano, so that they could not put their feet anywhere but it burst forth with almost uncontrollable violence; if they could ride at safety in their fast-anchored bark, even though contending with some difficulties

and hardships, until Heaven was pleased to grant them but a little of the blue sky of hope and security in the midst of this storm, they had much to congratulate themselves upon. (Cheers.) Soon would their hopes be animated and cheered, and their entire horizon be illumined with the full effulgence of a meridian sun, diffusing light and health and peace over the whole of this great and prosperous country. (Loud applause.)

Mr. Bassett also acknowledged the toast.

The Chairman expressed himself in terms of approbation, and fully concurred in the agricultural views taken by his American friends. In reference to growing beet-root, his lordship said that many of the farmers were under an impression they were living under a system of free trade, and yet they were not permitted to grow beet-root and tobacco. It was impossible for agriculturists to know to what extent to carry out improved systems of cultivation, interfered with and fettered as they were on all sides by acts of parliament. This was one of the miserable results of the new free-trade theory. If they had free trade, let them grow what they liked and sell what they liked, and not stop them when they attempted to cultivate tobacco or beet-root. But as this might be construed into a departure from the rule forbidding politics if he went any further, he should abstain; he only mentioned it to show the difficulty of the position in which they were placed. The noble lord here gave the health of Mr. Ayling, of Sussex, the hirer of the highest priced tup.

The Chairman proposed the health of Mrs. Adeane and family, the representative of the late esteemed owner of the soil. This toast was succeeded by the toast of the health of their host, Mr. Jonas Webb, and success to the Babraham flock. Before dinner, Mr. Webb had parted with sixty-seven sheep, which had realized £1571, 17s., or £23, 10s. per head average. The noble lord proved that this must inevitably be a great public benefit rather than, as was sometimes said, a good "bagging" for Mr. Webb. He would ask any hirer to trace the benefits which the hiring of Mr. Webb's sheep produced on their own flocks, and to calculate the increased amount which their lambs had realized since the introduction of this particular breed.

Mr. Jonas Webb most heartily thanked them for the compliment paid him. Be assured it was a question most interesting to him to see so many celebrated agriculturists present from all parts of the kingdom. He felt quite overpowered by the liberality and attention bestowed upon him, and that when he ought to say the most he was only to say the least. It was a very great satisfaction to him to find that the hirer of the highest-priced tup came from the county of Sussex, where he originally obtained the breed from. It was most gratifying to him to know that they were only taking back what he originally had from them. The Chairman had said, gentlemen had remarked that his sheep had realized him very high prices. He did not complain; he had obtained good prices, and he hoped they were taking back their own stock with interest on the present occasion. They might rest assured he should never relax his exertions in the cultivation of this stock so long as he met with the support he had always experienced during twenty-two years—every letting having brought him more money than the preceding one. With respect to the approaching meeting of the Royal Agricultural Society at York, he had but one wish—that the owners of the best stock and the best implements might obtain the prizes. (Hear, hear.)

Mr. Witt, Denney Abbey, proposed, in eulogistic terms, the health of their noble Chairman.

The Chairman acknowledged the compliment paid him, and said he felt fully persuaded it would never have been paid him had they not been con-

vinced his conduct, though occasionally differing from their views, had been honest and straightforward. The lamentable circumstances abroad might all be attributed to a want of mutual dependence; and the miserable condition of France at that moment resulted from the spoliation and indiscriminate diffusion of property, and the absence of the great mainstay of a nation—wealth. With regard to free trade, he believed the best course they could pursue was to quietly allow the theory to be worked out; of the result he had no doubt whatever. There yet existed a remnant of the corn-laws, and he entreated the company to look upon this subject with reference to their revenue. In the face of an increasing duty there had been a falling price. He would say, endeavor to hold fast the present portion of duty, since it produced a considerable sum for revenue, while it inflicted no injury on the consumer.

Several other toasts were drunk, which our space compels us to abridge. Mr. Hicks proposed "The Strangers present," coupling it with the name of Mr. Rigden, from Sussex; and Mr. Rigden, in acknowledging the toast, said he regularly hired of Mr. Webb, and found it paid him a very good interest; he should certainly have gone higher for the best ram let to-day, but from a belief that the party bidding against him had a much longer purse than he had. The above were followed by "The Magistrates of the County of Cambridge:" "The Royal Agricultural Society;" "Mr. Wood, and our friends from Nottinghamshire;" "Success to Agriculture;" "Health of Mrs. Webb and family, and Mr. Webb, sen." The Chairman left at half-past eight.

AREA AND POPULATION OF THE VARIOUS STATES OF EUROPE.

STATES OF EUROPE.	Geographical Square Miles.	Inhabitants at the end of 1846.	Per Centage of the whole Area in Europe.	Per Centage of the whole Population in Europe.	Average Inhabitants on One geographical square mile.
German Confederation . . .	11,477-67	41,672,375	6·35	15·88	3,631
Austria (except the part belonging to the Confederation)	8,509-09	24,828,079	4·71	9·52	2,918
Prussia (exclusive of ditto) . .	1,714-56	3,863,822	0·95	1·49	2,253
Russia (as far as the Ural and Caucasus)	99,489-41	64,865,000	55·06	24·87	652
France	9,616-90	35,050,000	5·32	13·44	3,555
Great Britain and Ireland . .	5,754-91	27,905,000	3·19	10·70	4,643
Netherlands	546-30	2,829,035	0·30	1·09	5,178
Belgium	535-91	4,335,319	0·29	1·67	8,089
Denmark (with Schleswig) .	846-40	1,729,976	0·47	0.67	2,044
Sweden and Norway	8,004-76	3,338,504	4·43	1·28	417
Switzerland	752-00	2,411,608	0·40	0·93	3,008
Portugal	1,659-37	3,260,693	0·92	1·25	1,965
Spain	8,446-90	13,077,997	4·68	5·02	1,548
Italy	4,787-00	19,070,869	2·65	7·32	3,984
British Possessions in the Mediterranean Sea	54-95	357,010	0·03	0·14	6,497
Greece	652-69	957,003	0·36	0·37	1,466
Turkey	12,210-10	9,949,226	6·76	3·82	815
Montenegro	60-00	111,280	0·03	0·04	1,855
Total	180,689-92	260,866,694	100·00	100·00	1,444

INCREASE OF PIG POPULATION.

THE following table will show the rapid increase of the pig. Supposing the first litter to be when it is twelve months old, and that it has a litter every six months; and that it has an average of six pigs every litter. The sows to be kept in a breeding state till three years old, and then fatted off. Average 4 cwt. when killed, and all the hogs to be fatted off by the time they are twelve months old, and average 2 cwt. when killed.

Date of Increase and Sale.	Breeding Sows.	Increase of Stock.		Stock Sold.		Weight of Fat Bacon in cwts.
		For Breeding.	For Fatting.	1 year old Hogs, 2 cwt. each.	3 years old Sows, 4 cwt. each.	
End of	1	3	3			
1801	1	3	3			
	4	12	12	3	. .	6
1802	7	21	21	3		
Old sow deducted	1	. .	. .	. .	1	10
	6					
	18	54	54	12	. .	24
1803	39	117	117	21		42
Old sows deducted	3	. .	. .	. .	3	120
	36					
1804	90	270	270	54		
Old sows deducted	3	. .	. .	. .	3	246
	87					
	204	612	612	117		
Old sows deducted	12	. .	. .	. .	12	588
	192					
1805	462	1386	1386	270		
Old sows deducted	21	. .	. .	. .	21	1308
	441					
	1053	3159	3159	612		
Old sows deducted	54	. .	. .	. .	54	2988
	999					
1806	2385	7155	7155	1386		
Old sows deducted	117	. .	. .	. .	117	6786
	2268					
	5247	16,281	16,281	3159		
Old sows deducted	270	. .	. .	. .	270	15,390
	5157					
1807	12,312	36,936	36,936	7156		
		66,009	66,009	12,792	480	27,508

At the end of 1807 then there would be of breeding Pigs

612 2½ years old.
1386 2 years old.
3159 1½ year old.
7155 1 year old.
16,281 ½ year old.
36,936 sucking pigs.

65,509
53,217

118,746 in all, besides the sale of 27,508 cwts. of bacon; and beside—16,281 hogs, half year old, and 36,236 sucking hogs.

AGRICULTURAL EDUCATION:

ADVOCATED BY AGRICULTURAL CLUBS IN ENGLAND—WHY NOT IN THIS COUNTRY?—CHANNING ON THE PREVENTION OF MOBS.

At a late meeting of the Harleston Farmers' Club, the subject of "Agricultural education" was introduced by Mr. R. B. Harvey, when the following resolution was carried unanimously.

"*Harleston Farmers' Club.*—At a meeting of the Harleston Farmers' Club held at the Magpie Inn, on the 14th inst., present—Messrs. Mechi, Theobold Gower, Woodward, Nunn, and a very crowded company of agriculturists, the subject of 'Agricultural Education' was introduced by Mr. R. B. Harvey, when the following resolution was carried unanimously:—'It is the opinion of this meeting that an improvement in the system of agricultural education generally, is of the utmost importance. It believes that a better understanding of the principles of the tenure and management of land is required by the owners of the soil; that with the improvements in science which the last few years have effected, a knowledge of those connected with agriculture will be indispensable on the part of the rising generation of the occupiers of land; and above all, that the more knowledge a laboring man possesses the happier he will be and the more skilful and handy he becomes. With these views it recommends to every one connected with the soil, and to the members of this club especially, that they should promote by all the means in their power an improvement in the system of Agricultural Education.'"

Why is it that American Farmers' Clubs and Societies seem to be afraid to touch such subjects? Do they not know that the best and surest and widest place into which to sow the seeds of every improvement is in the minds of the rising generation, and that the more education is made to bear on the profession of agriculture, as well as on the profession of law, or medicine, or arms, the more efficiently that profession may be practised? Yet the only one for which the farmer and the planter are taxed is to maintain schools for teaching the *science of war!* the very science that has its origin in, and essentially belongs to, *a state of barbarism.* It is not that one would have the government turn school-keeper, or editor, as it does in undertaking to publish an annual on Agriculture from the Patent Office, (made up of statistics cut out of price currents, interspersed with rigmarole letters about feeding hogs, and random guesses at next year's produce and prices,) but that we would have the Representatives of the landed interest in Congress demand as much for each State, to be, by the States, expended in the diffusion of *agricultural sciences*, as they now vote, to be paid by farmers and planters, expressly for the maintenance of *military schools!*

The *highest* duty of every government is to provide for the *education of the people*, (which is the same thing as providing for virtue and productive capacity,) and in proportion as agriculture supplies the wealth and feeds the population of the country, so ought the provision which government should make for education to be applied to the art of agriculture. If education is neglected, the time will come in our country when poverty and ignorance will rise, as in Europe, under a vague sense of wrong, against all that is valuable and sacred in society.

Read what the amiable and accomplished Channing said on this subject.

"*What is Taught by Popular Tumults.*—I grieve when I hear men referring to the next legislature, as if some stronger laws were all that we need for our security. Let us have these laws; but unless accompanied by wise, patient, generous effort for the reformation and advancement of the ignorant and exposed classes of the community, they will avail little. Our mobs, though they have spoken in confused and discordant yells, have uttered one truth plainly—and this truth is, that there exists among us—what ought to exist in no Christian country—a mass of gross ignorance and vice. They teach one plain lesson to the religious, virtuous, philanthropic, educated, refined, and opulent; and that is, that these have a great work to do, the work of enlightening and lifting up a large portion of their fellow creatures and their neighbors; that they have no right to spend their lives in accumulating wealth or in selfish indulgences, but that they are to labor, to expend time,

thought, wealth, as their circumstances may permit, for the intellectual, moral, spiritual life of a multitude around them buried in darkness, prejudice, sensuality, excess, and crime. This is the great lesson to be learned from mobs. If we heed not this; if we look for safety to penal laws, rather than to the performance of personal duty, the disinterested labors of Christian love, and the faithful use of the best means of purifying and elevating society, we shall have none to blame but ourselves if society become the prey of violence and insurrection."

Another way to prevent mobs, and the best way, after that of an improved education, is to adopt and cherish such a line of policy on the part of the government as will draw the loom and the anvil around the plough. For every country, *concentration* around a thousand centres is better than centralization in one place. Where men are collected by hundreds of thousands, there will be overgrown fortunes, and great squalidness, and poverty, and corruption, and violence. Let us foster the system that will build up villages around water-powers, that every farming district may have its customers close at hand, to get what he wants to buy, and to sell what he wants to dispose of in exchange for what he wants to buy. Then all parties will save the time and the expense of transportation, and then we should have no combinations nor mobs. Then we should have economy in the management of the government, and then we should always have peace.

MARYLAND AGRICULTURAL CONVENTION.

A FEW WORDS TO THE MEMBERS OF THE STATE AGRICULTURAL SOCIETY.

May it not be hoped that results will be ultimately realized from the late convention, as connected with the progress and character of Maryland agriculture, both intellectually and practically, so decided and profitable as to make it hereafter a matter of some interest to have the means of tracing these results to their origin and their authors? In some faint expectation that such may be the case, the official account of the proceedings of the convention shall be transferred from the pages of *The American Farmer* to those of *The Plough, the Loom, and the Anvil*—if not in the present, in some early subsequent number, for preservation and reference—and why "faint expectation," says the sanguine and confident young reader? Alas! if we must say it, because the sad recollection overcomes us, that such conventions have been held and such societies incorporated, (and some still exist,) not only in Maryland, but all the way from the Coosawhatchie to Cape Cod, and yet the question arises, after the lapse of half a century that some of these societies have existed, what great enduring improvements in the agricultural productions and condition of these States are clearly traceable to these societies which would not without them have been realized? Nay, where are the evidences of any such improvements in the state and circumstances of the soil and the cultivators of the soil from the Chesapeake to the Mississippi?

Look at the state of agriculture in old Virginia, and the number of apparently auspicious efforts at amelioration like this, which have been made in that State, so blessed, even to profusion, with all that nature could do to render a people numerous and powerful, polished and conspicuous, for all the glorious fruits that spring from high social, political, and industrial development! Recall to mind the number of her "conventions" and the number of her agricultural societies, and the great names that have figured in their organization? Yet is there any general advancement in the agricultural wealth and prospects of the Old Dominion corresponding with the general march of the arts in other pursuits, and in any degree proportionate to her incalculable advantages in soil, climate, and natural resources? Is her average acreable produce, in corn, wheat, oats, rye, peas, beans, potatoes, barley, or tobacco, more

than it was fifty years ago? Are her sons under the perpetual influence of a centripetal or a centrifugal force? Are the sons and daughters of neighboring farmers clustering on and around their birth-places, marrying and being given in marriage to each other, as soon as their inclinations would draw them, and their virtues entitle them to come together? Is the area of cultivation in the aggregate rapidly increasing or being contracted? Is the whole state, in a word, becoming more populous, more wealthy, and more refined? for these are the invariable signs and concomitants of a prosperous agriculture, or, alas! are not her sons moving off, and her fair daughters—renowned over the world for making the best of housewives—neat in their persons, affable in their manners, intelligent, spirited, benevolent and thrifty; are they not left around their mothers, when they ought all to be mothers themselves? And have our agricultural societies—numerous and longlived as they have been in the Carolinas and Maryland—prevented the same state of things from taking place in these States, no less favored of Providence? On the contrary, has there not been general decline instead of general improvement—dispersion instead of concentration, (leaving out the large towns,) and the happy effects, social and political, that concentration always begets *under wise laws?* and this brings us to the problem—one which it is most respectfully suggested it behooves you to probe to the bottom—*why is this?* Is it not because farmers and farmers' societies have begun with their cares and inquiries at the wrong end? Is it not that they have given too large a proportion of these cares and inquiries to the *practice*, and too *little* to the *political economy* of agriculture? for, permit us respectfully to suggest, that agriculture, if societies would but see it, depends for its prosperity, and is subject to decline, from political influences, just as much as manufactures and commerce are; rising and sinking, as these influences—that is the legislation of the country—happen to be favorable or mischievous; and if they would bring about general improvement, if they would see old houses repaired, and new ones built; and the rich lands ditched and drained, instead of still further exhausting those that are worn out—if, in a word, they would brighten up the whole face of the country, they must betake themselves to studying the *political economy of the plough!* They must think *less* about *how* to fatten bullocks and *how* to make a bushel more on an acre of corn, or wheat, or potatoes or turnips, and *more* about how consumers—the hatter, the shoemaker, the tailor and the smith, the ironmonger and the coal-heaver, and the schoolmaster, are to be provided in our own country—to buy, as in Connecticut and Massachusetts, pay for, and consume, the bullock and the corn, wheat, potatoes and turnips. Let them go into Massachusetts, where the people have the sagacity to draw, against the very laws of nature, the iron from other States to their anvils, the wool of other States to their looms, and the leather of other States to their lapstones; and there see how lands are selling by the foot, many miles out from Boston; there, and only there, where you find the loom and the anvil by the side of the plough, and where consumers bear a large proportion to producers, will you ever see three hundred varieties of pears, grapes as large as pig-nuts, and more than one thousand cut-glass plates and dishes, with a countless variety of magnificent fruit displayed at a single exhibition! Among such a people so concentrated only will you see, as we have lately done, teams of only two yoke of oxen, hauling in the common way, about the town of Lawrence, wagon loads of Pennsylvania anthracite coal, and loads of iron, weighing more than twelve thousand pounds! Yes, my worthy friends, if you would open deep and enduring springs of progressive improvement for Maryland husbandry, you must go to the bottom, instead of beginning at the top of existing difficulties. If you proceed in the same old way that societies have been doing for the

last fifty years—content with only offering premiums for bushels of this and quarts of that—deterioration and dispersion will continue as they have done all the while. You must act on the legislation of the country by concerted influence—you must force yourselves to be heard and respected—you must insist that our colonial vassalage to England shall be utterly broken up—that we shall be independent of her in fact, as well as in name, and that a policy shall be established that will leave undisturbed the natural tendency of men to combine for mutual interests, and that attraction which everywhere exists between the plough, the loom and the anvil—an attraction from which ensues every blessing that combination of power, mental and physical, can secure. If you go on putting your exclusive reliance on mere expedients, on offering silver goblets and paper diplomas, to have repeated again what has been accomplished a thousand times, and what every one knows can be accomplished again, your sons will continue from necessity to desert their homes and go to drag out their existence among strangers; and if you do not go yourselves, your daughters will continue at home to read romances and dream of a thousand things they can never realize. To undertake to remove agricultural stagnation, by offering ten dollar cups alone, (well enough and even commendable and useful in their way,) may be fitly compared to the conduct of him who should attempt to restore life to a dying tree by sprinkling its branches with whale oil soap, when sapped by the ravages of worms gnawing at its root; or to that of a miller who should undertake to stop a leak in his dam by throwing dirt *on the outside!*

With these very hasty thoughts, hastily expressed in a steamboat on the river approaching New Haven, and in the midst of much noise and confusion, we shall send back the proceedings of the convention to the printer, fervently hoping that in its results, now and for years to come, all the most sanguine hopes, the most sanguine can entertain from the formation of a State society, may be realized. Proposing to be among you at the Fair on the 9th, to brighten with old friends the chain of our ancient regards, and, what is not quite so easy, at our time of life, to make many new ones, we bid you adieu—*au revoir.* The convention, like the society, was formed of men of the finest spirit and the highest degree of intelligence. Reader, run your eye over the names, and say if it be possible that want of practical knowledge is the cause that agriculture does not go ahead in counties where such men reside? What then is needed? Want of concentration and variety of employment. How are these to be effected? Not by sending our wool to be wove and our cotton to be wove in foreign looms—not by importing the coal that is dug and the iron that is manufactured in other countries by men who eat the bread of other countries.

One word more—unite with Mr. Colt, an eminent citizen of New Jersey, who last winter in vain petitioned Congress to appropriate for each State 64,000 acres of the public lands for the purpose of agricultural education under State authority. Since the public domain, acquired by the blood and treasure of the old States, is to become a prey to squatters from every region of the globe, becoming themselves in turn the prey of land-jobbers and speculators, why not thus secure some of it, while yet we may, for the most noble and praiseworthy use that can be made of property of any kind? If, as General Jessup said, no doubt truly, he could discipline the whole militia of the United States in sixty days, why might not, in like manner, the agricultural labor of the country be directed with equally increased efficiency, by means of men educated in a knowledge of the sciences that essentially belong to practical agriculture? Here then are objects worthy of your deepest contemplation and most determined efforts. But let the demand be first created at home, and all the rest will follow—and without that, the rest is

all "but leather or prunella." In the emphatic words of an address which has just fallen under our notice, allow us to conclude this hasty but friendly warning. "When a people, by protecting their own industry, become independent of all the world, then, and not till then, can they be said, under Providence, to control their own destinies, and to take rank with the first in the great family of nations."

We have been so apprehensive, judging from what we have seen of their proceedings, that agricultural societies have relied too exclusively on the influence of premiums for fat things and large animals, and heavy crops on single acres, as the great if not the only means within their reach of insuring progress in agricultural improvement; and have so sensibly felt the obligation to warn them of the necessity of taking a deeper and more comprehensive view of the subject, that we begin now to fear that we may have laid ourselves liable to the suspicion of being altogether opposed to such exhibitions as have been held in some States for the last thirty years at least. Now, on the contrary, we heartily approve of them, but not so much as a means to the great end in view, as to demonstrate the practical and profitable result of measures more efficacious and thorough. What we lament is, that farmers should thus come together in great numbers, and thus separate again and again, without any interchange of thought and reflection, upon the manner in which they and their interests and substance are made subservient to other classes, and without any attempt at devising the means of producing that concentration of population and diversity of labor among themselves, which draws the loom and the anvil near to the plough, and ensures within the smoke of the farmer's chimney settlements for his children, and markets for his produce, such as we have seen lately in New England, where a small stream of only five miles in length, greatly inferior to many of the mountain trout streams of Virginia, drives no less than eleven factories. We have been more than chagrined—we have been disgusted at seeing the tameness with which farmers, and those who represent them in societies and in Congress, submit even without daring to complain, to the payment of seventy-five per cent. of their taxes for military establishments and military instruction, without appearing to have the knowledge or the virtue to demand something for instruction, (not in the mere statistics which may be had from the journals of the day,) but in the *principles* of their own profession. No, so far from objecting to an agricultural exhibition *per se*, we cordially agree with a friend in New England—than whom we do not know a more enlightened promoter of agricultural improvement by all the most elevated means of realizing the best results. The extract we give from his letter embraces in the smallest compass the whole argument, and is at once condensed and conclusive. Still we would maintain that there is no guarantee for general and progressive improvement in the art of agriculture, worthy of a great and a free people, short of *provision for teaching the elements of agriculture to the rising generation of the country in the schools of the country*—and that with every other social and political blessing will follow, when the nation has realized the independence of which it boasts so much; by a national above-board determination to carry out the declaration of Mr. Jefferson to Mr. Austin, that now we must have the manufacturer to set himself down by the side of the agriculturist. Then will come concentration instead of dispersion, and then will come the means of making roads and building school-houses, and of realizing all the improvements that spring from concentration, wealth and power.

As it is, our government pursues a policy which *scatters* our people over 20,000,000 of square miles of territory, making roads indispensable, and then denies itself the power and refuses to make roads. Let farmers think of all

these things, let them understand the economy—the *law* of the case—and then they will enforce, in the policy of the government, the *best of all* systems of premiums—one which will pervade the whole country, one which will be everywhere operating night and day, and endure as long as the nation shall entertain a clear sense of the true interests—not of a party but of *the people!* Says our esteemed correspondent:

"If I should venture to take any exceptions to the two works in question, it would be to an occasional dash of cold water ejected from the editorial fountain upon agricultural societies, or rather upon the manner of awarding premiums and the objects of the same. Undoubtedly these societies, as all human institutions, have their deficiencies and defects, but they are not therefore to be detracted from, for the benefits conferred by them. If I understand you aright, you are of opinion that no further premiums should be offered for large crops, for fat cattle, or for extra stock of any kind, as the mode of producing them is well known, and all can produce them if they will. Granting this, (which I would grant only for the argument,) I would submit to you whether the exhibition of such stock, and the statement of the material facts respecting such crops, are not calculated to produce, and do produce, a wonderful stimulus upon the agricultural mind to attempt similar results? If that mind is already informed, its will and energy are by these associations roused to action—if it be not informed, it is put on the track of information and excited to inform itself. Suppose that you discourage these societies—stop their annual meetings—close the doors of their exhibition halls—strike their cattle-pens and stop their ploughs, what will you substitute in place of them to meet what now seems to be an agricultural demand all over the country? Books and journals treating of farming are good, excellent, indispensable, in their place. But you well know how small a proportion of even the most intelligent parts of the agricultural community are reading men—how much more accessible are they to the real substance itself for the production of lively impressions, than to the mere description of it on paper—and that till such impressions are produced, books to them are sealed books. Now, as I conceive, these societies do accomplish great good—and they have evils incident to them too—in rousing the dormant faculties to exertion and whetting the mind's appetite to seek for further and more solid food from the higher order of agricultural journals. Am I not right in this view of the subject, and are not we and you co-operators together in the greatest, best, most healthful and delightful of all earthly pursuits? If Great Britain is to be taken as a model in agricultural affairs, we can still point to her numerous agricultural societies and shows, which have prospered with renewed and renewing vigor, as her agricultural periodicals have increased in number and ability—and so may it be, and I doubt not will be, here. Go on then with your work—speed "the plough, the loom, and the anvil," but I pray you discourage not the exhibitions of practical husbandry.

"Yours in the best of bonds. J. W. D."

THE COMING AGRICULTURAL EXHIBITION AT BALTIMORE.

We have not left ourselves room for the record of the proceedings of the convention and the official account of the organization of the Maryland State Agricultural Society, but as the outline has been already given and the event has passed, the particulars, for mere record, may as well appear hereafter—not so however the coming exhibition, which we hope to witness in all its variety of agricultural and mechanical excellence. We can only find room for the following, from the "American Farmer," for October.

"We are authorized in saying, that about thirty head of the noble herd of Devons, of George Patterson, Esq., will be here—and no one who feels an interest in the subject will begrudge a ride of a thousand miles for a sight of them. The superiority of the Devons for oxen is well established, and the farmer will behold, in the specimens here presented, the perfection of the breed. This country cannot produce any thing of the kind to equal Mr. Patterson's herd, and we doubt if its superior is to be found in Europe. Mr. Patterson is also expected to exhibit some of his blooded horses, which we have heard spoken of in the highest terms. Colonel Capron, and Mr. Calvert, of Prince George's, will also be here, with their Durhams, Devons, Holsteins, &c.; each of these gentlemen will have an equal number, at least, with Mr. Patterson, from their fine herds, and we think we are not out of the way in saying, that they can favorably compare with the herds

of any State in the Union, either in the number or character of their stock of these breeds. There are a great number of other gentlemen who will be present with their cattle, and though their herds are not so numerous as those to which we have alluded, yet there will be found many animals of a very superior order—Mr. McHenry's Ayrshires, that beautiful and favorite milking breed, will be here, as we suppose will those of John Ridgely, Esq., of Hampton, and General Howard, Colonel Ware, Mr. Clement and Mr. Reybold, and we suppose Governor Stevens, Colonel Lloyd, Colonel Bowie, and others, will be in attendance with their different breeds of sheep, Colonel Capron with his splendid mules; and we should be gratified to learn that the Messrs. Hambleton, of Talbot, will exhibit those fine animals which carried off the prize at the last Talbot Fair. Let every one who has any thing of superior excellence to exhibit be with us on the occasion. We have no doubt that from our neighboring States of Pennsylvania, Delaware, and Virginia, we shall have a number of animals. We invite all to come—a welcome is extended to them, and the field, it will be seen, is opened for competition to the whole country.

"*Implements.*—This part of the exhibition will also be of great interest—not only our own manufacturers, who are hard to beat, will be prepared to make a handsome display, but we learn that many from the Eastern States, as well as our neighbors of Pennsylvania and Delaware, will be here. No farmer should fail to be a witness of the trials for pre-eminence, which will take place in this department. It will be superior to any thing of the kind presented in the Eastern cities. Every description of implement will be here exhibited, and the farmer will be enabled to judge at a glance of the merits of the various machinery which will be presented for his inspection."

This department of implements is the one which in our judgment deserves to be regarded as of the very highest importance. It lies at the foundation of all improvement, and if the farmer would compel Congress to give only a tenth part as much for improvement of labor-saving machines by the application of steam and otherwise, as it now appropriates for military surveys and books and for labor-saving machinery for man-killing, who can begin to anticipate the results that would follow.

One word more. Have railroads and steamboats decided to take free of charge to and fro whatever is going bonâ fide to the exhibition? Even their own pecuniary interests, well understood, should prompt them to do so.

WOOL.

PRICES OF WOOL—PROSPECTS FOR THE WOOL-GROWER—LETTERS FROM S. LAWRENCE OF LOWELL.

It would be worse than affectation to say that we do not feel flattered by the following testimony to the value of our labors in endeavoring to demonstrate to the farmer and the planter, the wheat-grower and the wool-grower, the cotton-grower and the corn-grower, how essentially and particularly the question of encouragement to all the branches of domestic industry is a question *interesting to them.*

According to the common notion of the influence of self-interest on the actions and opinions of men, a notion in the main well founded, the manufacturer of wool is the last person to whom the growers of wool should apply for candid advice in his business—but there are men whose views are more elevated and extended, and who have the sagacity to see that interests apparently and at first sight antagonistical, are really identical, when looked at philosophically and their true political economy is thoroughly understood. It is in this understanding of the case, and in a knowledge of character gained by much business intercourse, that both wool-growers and cotton-growers, and those who propose to embark in the manufacture of these articles, apply from all quarters with equal confidence to Mr. Lawrence of Lowell for his opinions and advice; well assured that they will be given with equal politeness and candor.

Though well persuaded that every thing from him will command the attention of the wool-grower, we cannot forbear to invite the regards of every political inquirer after the real economy of agriculture, to the striking fact he states as to the vast difference in the amount of capital invested in this case, in the machinery for the *production* compared with that which is necessary for the *conversion* of wool: and on that simple aspect of the question which is applicable in so many cases, let us inquire whether it be not unreasonable, nay monstrous, to enact a policy or tariff, under which the produce of the great machine of production should be transported and sent all the way to Manchester and back, rather

than compel the Manchester weaver to come with his light machinery to the great machine of production, here to eat the corn, and potatoes, and veal, and pork, and beef, and mutton, for all which he is compelled to give enormous prices in Manchester to the benefit of the *foreign* agriculturist? Will our people suffer themselves for ever to be caught and led by the nose—and at last ridden bare-back by demagogues as the gaucho catches with his lazo and subdues for life the free courser of the Prairies?

Col. Skinner.

Lowell, October 3, 1848.

My dear Sir:—I cheerfully comply with your request, and hand you copies of the letters you read when here a few days since. The best remedy I can think of for the evils under which the country is suffering is that *every man, woman, and child in the United States, shall take a copy of your admirable paper*, "The Plough, Loom, and Anvil," read it carefully, and practise on the doctrines laid down therein.

I remain, your friend truly,

Sam. Lawrence.

Mr. Samuel Lawrence.

Moore's Salt-works, Jefferson County, Ohio.

Dear Sir:—I hope it will not be offensive to you in finding one addressing you with whom you have no acquaintance. I desire some information in reference to the wool market, and can think of no person at present whose opinions would be entitled to more consideration than yours; I mean not only the present value but the prospective value some years to come. In 1840 I purchased one hundred native ewes; with these and their progeny I have bred from the best merino bucks I could procure—my present stock is, say, twelve hundred; a few of the original stock are still living; taking my whole lot together it is tolerably nice wool—last year it brought twenty-nine cents, cash; this year I sold it at twenty-seven and a half. But the purchaser could not raise the cash, and I did not choose to let him have it. ——— of Steubenville offered twenty-six cash; I declined taking it. It is understood that you are not purchasing any wool this season; what does this mean? Will the article advance this winter? The Washington county wool is all on hand and cannot be got without advanced prices. Is the supply too large for the demand? If so, will not the market sink still lower every subsequent year—would it be advisable to abandon the business at once? I will be pleased to have your views at large on the subject. If wool is destined to range with this year's prices, I can do much better with my lands than pasturing sheep. But I lack foresight. I feel discouraged in the business. I have heard men say they could raise wool at twenty-five cents. These believing this may do so. I cannot and will not.

Yours truly, R. G.

R. G., Esq., Moore's Salt-works, Jefferson county, Ohio.

Lowell, September 26, 1848.

My dear Sir:—Your highly valued favor of the 16th is at hand, and I beg to assure you that I have much pleasure in replying to your queries, and in giving you such information relating to the great branches of national industry in which we are both engaged as is in my power. The reasons for the great depression in the woollen manufacture of this country are obvious. A short crop of food in 1846, in Great Britain, caused a famine in 1847, and a greater commercial crisis than has been for fifty years on the other side of the water. This caused a very large exportation of manufactured goods to this country, as they could not be consumed at home. Then came the last winter and spring, the political and financial troubles on the

Continent, with similar effects on consumption and exports to this country. For the last eighteen months this country has been *inundated with foreign fabrics, not one-quarter of which were needed for comfort or luxury.* The quantity of French and German broadcloths sold in New York the present year is perfectly enormous, and would amaze the wool-growers were they possessed of the facts. These goods have been sold generally at great sacrifices, which fell on the creditors of the makers and shippers, who had become bankrupt. Our own manufacturers have suffered severely by the great fall of goods, prices of which were never so low as at this time. Our own stock of goods was so large that we stopped a portion of our works, and discharged over a thousand hands.

This kind of thing cures itself, and my belief is firm that another year will show a greatly improved state of things. Whether wool will advance in price the coming winter or not, is beyond my judgment; but I have no doubt it will be higher within a year. The supply of domestic wool is not above the machinery. The clip of 1847 was entirely worked up. Do not for one moment entertain the idea of abandoning the business; instead of which make preparations to go on increasing. All the old and new machinery will be in full operation within one year. It would be about as wise for us to send our horses to Europe to be shod, as to depend upon importations of our woollen goods. It depends upon the wool-growers of this country how far the business of fabricating shall be carried; give us the wool at German prices and we shall soon supply ourselves.

The woollen manufacturer is in a relative position to the wool-grower as the miller is to the wheat-grower. The amount invested in sheep farms and sheep in this country is *more than four hundred millions of dollars*, while not over one-twelfth of that amount is the cost of woollen-mills, machinery, &c. It therefore rests with those representing these hundreds of millions of dollars to decide how far their interests shall be extended. Strike the woollen interest out of existence in this country, and what would be the value of the lands for the production of food?

The producers of food in this country obtain a foreign market only in seasons of famine, and I ask you if it is safe for so great an interest to depend for their prosperity on the frowns of Heaven? Would it not be wiser to make a market at home, and calculate how much food there is in the hundreds of thousands of tons of iron now imported yearly, which could as well be made here. Our government is the cheapest and best in existence, and we have the elements of prosperity beyond that of any nation of which there is a record. Let us all aim to make our beloved country glorious.

Believe me, your obedient servant, SAM. LAWRENCE.

Lowell, September 28, 1848.

R. R. R., Esq., Washington, Pa.

My dear Sir:—Since Bishop Campbell assumed the guardianship of the fine wool interest of this country, I have looked on as an amateur. You are aware that for a great many years previous I gave that branch special attention. If the Bishop has not informed you it was his duty to do so, that the French government and Belgian also are allowing high bounties on the exportation of their manufactured woollens; and all goods made of wool from those countries are imported in this way, say, an article costs in Havre—

	100 dollars.
Bounty	12
	88,00
Duty 30 per cent.	26,40
	114,40

Should be cast 100 dollars.
Duty 30
130

I believe the bounty is 13½ per cent., but am not sure. The woollen manufacturer is to the wool-grower precisely in the same relative position as the miller is to the wheat-grower. In sheep and sheep-farms in this country four hundred millions of dollars are invested. In woollen-mills and machinery thirty millions. Who is to look into this matter? [The wool-grower or the manufacturer?] Our form of government is the cheapest and best in existence, but its policy is far more unnatural than that of the ostrich. The prosperity of our glorious country depends quite as much upon the success of the wool and woollen interest as upon any other great branch of national industry. Let this interest droop and the whole country would feel it. Our food producers think a great deal of exporting to Europe, which only happens in times of short crops. Let them rather calculate how much food is consumed in the manufacture of a yard of broadcloth in our own country, carrying the whole thing out in its various ramifications! I would make any reasonable sacrifice to sit down with you and some others and discuss this thing. Something must be done to put the country on the right basis. There is a jealousy in many parts of the country against manufacturers; their influence is comparatively nothing. The agriculturists control the country and should do. This is right; only pray move, and with energy, for the paternal care of *American* industry.

I remain, your friend and obedient servant, SAM. LAWRENCE.

THE PHILADELPHIA AGRICULTURAL SOCIETY'S EXHIBITION,

WE rejoice to hear, went off admirably. An engagement contracted some time back, when we were not aware of the time their exhibition would take place, deprived us of the pleasure of being present, and compelled us to go to Middletown, Connecticut, to deliver the discourse which makes the first article in this number.

How often we wished some of our observing southern friends had been with us lately at cattle-shows in New England! Ah! they are a wonderful people! —real propellers! What would you think of seeing, as we did, some fifteen hundred men come in at the end of a little ride of forty-five miles, to old Worcester at 9 A.M., to go *to hum* that night, travelling the ninety miles in about three hours, and all for less than a cent a mile! Every man well dressed, good cloth seeming to be as common as the commonest things in nature. What is more, you do not see any great men among them! all seem to be on a footing. No great lawyers and great stump-speakers, and rich nabobs driving four-in-hand, that stand out in bold relief for the groundlings to stare at. And then the way they build up banks, and factories, and railroads, and the way that population, and demand, and high prices, make the food, and the fruit, the hay, the potatoes, apples, pears, plums, and grapes come out of the ground, is a caution! Why? The regular farmer there picks up every apple and every Indian walnut, and every shell-bark, assured of customers to buy —one pays for his shoes with dried apples, and another his postage with pig-nuts. Nothing is wasted that could be honestly converted into money or— manure. None are ashamed to work, but all are ashamed to beg. What think you of a savings' bank of some hundred thousand dollars in little Middletown! And the way they *do* make shoes, and planes, and pitch-forks, and rakes, nail kegs and axe handles, for their kind friends in the south! But we only took up pen to fill a space, and the printer says we'll overrun the mark!

INSECTS.

A LOVER of natural history cannot, I think, be a bad man, as the very study of it tends to promote a calmness and serenity of mind favorable to the reception of grateful and holy thoughts of the great and beneficent Parent of the universe. He cannot be a cruel man, because he will be unwilling wantonly to destroy even an insect when he perceives how exquisitely it is contrived, and how beautifully adapted for the station it is destined to fill in the animal world. Few things have afforded me greater pleasure than watching the wonderful instinct which induces insects to watch over and protect their offspring. An instance of this occurred in the case of a sand-wasp. I observed this animal fly backwards and forwards very frequently from the side of a window to a gravel walk near it. After some time I perceived that she collected the finest particles of sand from the walk, with which, under a projection of the window, she formed a cell. When the cell was completed, she flew to a neighboring bush, from whence she selected a little green caterpillar, which with some difficulty she contrived to force into the cell. Having next deposited an egg on the caterpillar, she covered over the top of the cell with a sort of paste made of fine sand, sloping it so that no rain could rest upon it. In this manner four different cells were completed. After a lapse of some time the young wasps emancipated themselves and disappeared. There seems no reason to doubt but that the caterpillars which were so curiously introduced into the cells served not only to protect the young brood from too much heat or cold, which they would have been subjected to had they merely been deposited at the bottom of an empty cell, but also for food, till they were capable of extricating themselves from their state of confinement.

Blumenbach, in his Elements of Natural History, states that an insect of the *sphex* genus will dig a hole in sandy ground, drag a large spider, or the caterpillar of a *phalæna*, into it—lame it by biting off its legs—and then lay an egg in each hole; so that the larva may suck out the spinning fluid of the animal which the mother has buried, and in that way prepare itself a habitation in which to pass through its metamorphosis.

The following remarks by the same naturalist may interest those who have not access to his works.

"It has been calculated that the abdomen of the female white ant, when about to lay her eggs, is two thousand times larger than previous to impregnation. She can lay eighty thousand eggs within twenty-four hours. Insects which undergo metamorphosis are called larvæ, whilst in the state in which they escape from the egg. They are mostly very small on their first appearance, so that a full-grown caterpillar, of the willow-moth for instance, is seventy-two thousand times heavier than when it issues from the egg. On the other hand, they grow with great rapidity, so that the maggot of the meat-fly, at the end of twenty-four hours, is one hundred and fifty-five times heavier than at its birth.

"The carrion-beetle (*vespilio*) scents from a distance the bodies of small animals, as moles, frogs, &c., and buries them underground for the purpose of depositing its eggs. Six of them will bury a mole a foot deep in less than four hours.

"The eyes of insects are of two kinds; the first are large hemispheres, mostly composed of thousands of facets, but in some instances of numerous conical points, and covered on the inner surface with a layer sometimes glittering, sometimes variegated. Those of the second kind are simple, small, and vary as well in number as position. Eyes of the first kind seem calculated for seeing at a distance—of the second for looking at near objects. Only a few insects can move their eyes.

"The *antennæ* are organs of feeling, which are of great importance to insects, on account of their hard, insensible covering, and the immobility of their eyes. They appear to possess their most acute feeling in the antennæ, as man has in the tips of his fingers; and as for the most part they live in darkness, supply the want of light by this contrivance.

"The eggs of some insects are covered with a kind of varnish, to protect them from the destructive influence of rain and other accidents."

It would, however, be an endless task if I were to enter into all the wonders of the insect creation. Latreille eloquently says, "that the wisdom of the Creator never appears to excite our admiration more than in the structure of the most minute beings which seem to conceal themselves from observation; and Almighty Power is never more strikingly exhibited than in the concentration of organs in such an atom. In giving life to this atom, and constructing, in dimensions so minute, so many organs susceptible of different sensations, my admiration of the Supreme Intelligence is much more heightened than by the contemplation of the structure of the most gigantic animals."

SWANS, PIGEONS, AND EMUS.

——— the swan with arched neck
Between her white wings mantling proudly, rows
Her state with oary feet.—MILTON.

LIVING on the banks of the Thames, I have often been pleased with seeing the care taken of the young swans by the parent birds. Where the stream is strong, the old swan will sink herself sufficiently low to bring her back on a level with the water, when the cygnets will get upon it, and in this manner are conveyed to the other side of the river, or into stiller water. Each family of swans on the river has its own district; and if the limits of that district are encroached upon by other swans, a vindication of local rights immediately takes place, and the intruders are driven away. Except in this instance, colonies of swans appear to live in a state of the most perfect harmony. The male is very attentive to the female, assists in making the nest, and when a sudden rise of the river takes place, joins her with great assiduity in raising the nest sufficiently high to prevent the eggs being chilled by the action of the water, though sometimes its rise is so rapid, that the whole nest is washed away and destroyed.

The following instance of attachment in these birds has recently come under my observation. A pair of swans had been inseparable companions for three years, during which time they had reared three broods of cygnets; last autumn the male was killed, and since that time the female has separated herself from all society with her own species; and though at the time I am writing (the end of March) the breeding season for swans is far advanced, she remains in the same state of seclusion, resisting the addresses of a male swan who has been making advances towards forming an acquaintance with her, either driving him away, or flying from him whenever he comes near her. How long she will continue in this state of widowhood I know not, but at present it is quite evident that she has not forgotten her former partner.

This reminds me of a circumstance which lately happened at Chalk Farm, near Hampton. A man, set to watch a field of peas which had been much preyed upon by pigeons, shot an old cock pigeon which had long been an inhabitant of the farm. His mate, around whom he had for many a year cooed, whom he had nourished from his own crop, and had assisted in rearing numerous young ones, immediately settled on the ground by his side, and showed her grief in the most expressive manner. The laborer took up the dead bird and tied it to a short stake, thinking that it would frighten away the other depredators. In this situation, however, the widow did not forsake her deceased husband, but continued, day after day, walking slowly round the stick. The kind-hearted wife of the bailiff of the farm at last heard of the circumstance, and immediately went to afford what relief she could to the poor bird. She told me that, on arriving at the spot, she found the hen bird much exhausted, and that she had made a circular beaten track around the dead pigeon, making now and then a little spring towards him. On the removal of the dead bird, the hen returned to the dovecote.

The only instance I have met with in which the hen bird has not the chief care in hatching and bringing up the young, is in the case of the emus at the farm belonging to the Zoological Society, near Kingston. A pair of these birds have now five healthy young ones. The female, at different times, dropped nine eggs in various places in the pen in which she was confined. These were collected in one place by the male, who rolled them along gently and carefully with his beak. He then sat upon them himself, and continued to do so with the utmost assiduity for nine weeks, during which time the female never took his place, nor was he ever observed to leave the nest. When the young were hatched, he alone took charge of them, and has continued to do so ever since, the female not appearing to notice them in any way. On reading this anecdote, many persons would suppose that the female emu was not possessed of that natural affection for its young which other birds have. In order to rescue it from this supposition, I will mention that a female emu belonging to the Duke of Devonshire, at Chiswick, lately laid some eggs, and as there was no male bird, she collected them together herself and sat upon them.

Nepotism Extraordinary.—The late Miles Lester, Esq., of Upton, Gainsborough, England, who died a short time ago, has left *sixty* of his nephews and nieces £300 each.

In a lecture at the Manchester Mechanics' Institute, Mr. F. Warren said, "the first cotton cloth was made in Derby, in 1773, by Messrs. Meed and Strutt, and it was then prohibited by law from being sold in the market."

THE TOAD.

I REMEMBER some years ago getting up into a mulberry-tree, and finding in the fork of the two main branches a large toad almost embedded in the bark of the tree, which had grown over it so much that he was quite unable to extricate himself, and would probably in time be completely covered over with the bark. Indeed, there seems to be no reason why, as the tree increased in size, the toad should not in process of time become embedded in it, as was the case with the end of an oak-rail that had been inserted into an elm-tree, which stood close to a public footpath. This, being broken off and grown over, was, on the tree being felled and sawn in two, found nearly in the centre of it. The two circumstances together may explain the curious fact of toads having been found alive in the middle of trees, by showing that the bark having once covered them, the process of growth in the tree would annually convey the animal nearer to the centre of it, as happened with the piece of oak-rail; and also that toads, and probably other amphibia, can exist on the absorption of fluids by the skin alone. This is confirmed by the following fact. A gentleman put a toad into a small flower-pot, and secured it so that no insect could penetrate into it, and then buried it in the ground at a sufficient depth to protect it from the influence of frost. At the end of twenty years he took it up, and found the toad increased in size, and apparently healthy. Dr. Townson, in his tracts on the respiration of the amphibia, proves, I think satisfactorily, from actual experiment, that, while those animals with whose economy we are best acquainted, receive their principal supply of liquids by the mouth, the frog and salamander tribes take in theirs through the skin alone; all the aqueous particles being absorbed by the skin, and all they reject being transpired through it. He found that a frog, when placed on blotting-paper well soaked with water, absorbed nearly its own weight of the fluid in the short time of an hour and a half; and it is believed that they never discharge it, except when they are disturbed or pursued, and then only to lighten their bodies, and facilitate their escape. That the moisture thus imbibed is sufficient to enable some of the amphibia to exist without any other food, cannot, I think, be reasonably doubted; and if this is admitted, the circumstance of toads being found alive in the centre of trees is fully accounted for. In one of the volumes published by the Academy of Sciences at Paris, there is an account of a live toad being in the centre of an elm-tree, and of another in an oak. Both trees were sound and thriving.

In additional proof, however, of what has been advanced, I may mention that the respectable proprietor of some extensive coal-mines in Staffordshire informed me that his men, in working into a stratum of thick coal, at a very considerable depth, found what they called three live eels in a small deposit of water in the centre of a block of coal, which died as soon as they were taken out of it. As this assertion may astonish the geologists, I think it right to mention that my informant did not see the eels himself; but his workmen, one would think, could have no object in deceiving him in a matter of this sort. The men called them eels, but they might possibly be the genus of amphibia living in dark caverns, the Proteus, of which Sir Humphrey Davy has given an account in his "Consolations in Travel." I am not aware of any communication with the external world by which eels could reach the place where they were said to have been found. The men in question made an affidavit of the fact before a magistrate. I was also informed by a most respectable clergyman and magistrate in that neighborhood, that two colliers came before him and requested to make an affidavit of their having discovered, in a large block of coal about sixty yards below the surface of the earth, a snake or adder, which was found alive on breaking the piece of coal. These men wished to make the affidavit because the truth of their assertion had been doubted. I should add that the Staffordshire colliers are a trustworthy race of men, and not given to fiction.

Another case was mentioned to me by an eminent physician. A wet spot had always been observed on a freestone mantelpiece, which afterwards cracked at that place, and upon its being taken down, a toad was found in it, dead; but its death was probably owing to the want of that moisture which it had been enabled to imbibe when the stone was in the quarry, and which gradually lessened by the action of the fire, as from the moisture which appeared on that part of the mantelpiece, some time after it was put up, there seems but little reason to doubt that the toad was alive at that time.

There is also a well-authenticated account in the Annual Register, of a toad being found in the middle of a large and hard stone, which had no visible aperture by which it could get there.

Blumenbach, in his Elements of Natural

History, says that it is indisputable that living toads have been found in sawing through blocks of stone, trees, &c.

I may here mention a curious circumstance in regard to some frogs that had fallen down a small area which gave light to one of the windows of my house; the top of which being on a level with the ground, was covered over with some iron bars, through which the frogs fell. During dry and warm weather, when they could not absorb much moisture, I observed them to appear almost torpid; but when it rained they became impatient of their confinement, and endeavored to make their escape, which they did in the following manner. The wall of the area was about five feet in height, and plastered and whitewashed as smooth as the ceiling of a room. Upon this surface the frogs soon found that their claws would render them little or no assistance; they therefore contracted their large feet so as to make a hollow in the centre, and by means of the moisture which they had imbibed in consequence of the rain, they contrived to produce a vacuum, so that by the pressure of the air on the extended feet, (in the same way that we see boys take up a stone by means of a piece of wet leather fastened to a string,) they ascended the wall, and made their escape. This circumstance occurred frequently.

It is a curious fact, that toads are so numerous in the island of Jersey, that they have become a term of reproach to its inhabitants, the word "Crapaud" being frequently applied to them; while in the neighboring island of Guernsey, not a toad is to be found, though they have frequently been imported. Indeed, certain other islands have always been privileged in this respect. Ireland is free from venemous animals, of course by the aid of St. Patrick! In olden times, the same was affirmed of Crete, the birthplace of Jupiter. The Isle of Man is said also to be free from venemous creatures. The Mauritius, and I believe one of the Balearic islands, enjoy the same immunity.

CLING TO THOSE WHO CLING TO YOU.

Cling to those who cling to you;
More than half our sorrow's made
When we are ourselves untrue
To the light of friendship's aid.
But how sweet it is to own
Some kind heart to thine beat true,
After many years have flown!—
Cling to those who cling to you.

Cling to those who cling to you,
Think how those who live apart,
That sweet solace never knew
Friendship sheds around the heart.
Who is there that hath not longed
Once to find some friend prove true?
That *your* friendships be prolonged—
Cling to those who cling to you.

Cling to those who cling to you
Every link of friendship's chain,
If the heart be only true,
Will for ever bright remain.
Never be the first to break
In the chain the link that's true;
Never trust and truth forsake—
Cling to those who cling to you.

J. E. Carpenter.

HOME AND FRIENDS.

Oh there's a power to make each hour
As sweet as Heaven design'd it!
Nor need we roam to bring it home,
Though few there be that find it!
We seek too high for things close by,
And lose what nature found us;
For life hath here no charms so dear
As home and friends around us!

We oft destroy the present joy
For future hopes—and praise them;
Whilst flowers as sweet bloom at our feet,
If we'd but stoop to raise them;
For things afar still sweetest are
When youth's bright spell hath bound us;
But soon we're taught that earth hath naught
Like home and friends around us!

The friends that speed in time of need,
When hope's last reed is shaken,
To show us still, that come what will,
We are not quite forsaken;
Though all were night, if but the light
From friendship's altar crown'd us,
'Twould prove the bliss of earth was this—
Our home and friends around us!

THE WHOLE DUTY OF WOMAN.

REFLECTION.

As the way of a man who walketh, yet knoweth not whither he is going, so is the discourse of one who weigheth not his words.

As the chattering daw that prateth without understanding; as the young magpie with its double tongue talketh by rote; as the monkey jabbers; as the green parrot squalls without ceasing, so is a woman who regardeth not her speech.

Before thou openest thy lips to speak, reflect whether thou knowest the truth of what thou art about to say, or understandest the matter thereof.

Else thou mayest be detected in a falsehood, and thy assertions may be an impeachment to thy understanding.

So shall the stranger, and the acquaintance repeat thy words to thy disadvantage; the sincere will despise thee, and the wiser than thou laugh thy folly to scorn.

Let thy promises be few, and such as thou canst perform, lest thou art reduced to break thy word, and it be hereafter reckoned of no account.

Be not less circumspect over thy actions; for the sayings of thy mouth may be forgotten; but the work of thine hands will make a deeper impression, and may be lasting causes of remorse.

Consider what thou art about to do, before thou beginnest thy work: lest thou labor in vain, and the fruit of thy endeavors turn to no end.

Weigh thy strength and thy design; lest thou faint under thy burden, and fall short of the recompense of thy toil.

Wouldst thou attempt to reach up to the moon, the nurse would laugh and the young child hold thee in derision; yet as well mayest thou undertake a work thou canst not perform.

Examine also the price of thy labor, the consequence of thy deeds, lest, when thou hast finished thy task, thou art dissatisfied with thy wages.

For the consequence of precipitancy is repentance at leisure.

The price of folly is reproach, and the wages of sin is death.

VANITY.

Thou art fair as the snow-drop of the spring, the rose of June blows on thy damask cheek, thine eye outsparkles the blue lustre of the sapphire, thou art stately as the tall fir-tree, and thy presence is commanding as majesty itself.

The east and the west pour forth their treasures to deck thee; the sea and land give up the pearl and the precious stone; thy array is the finest silk; the diamond is a star on thy bosom, and the ruby and emerald are interwoven with the hair on thy temples.

Therefore vanity hath lifted thee up, thou flutterest on the wings of thine own conceit, thou despisest even the ground where the vulgar tread, thy chariot is drawn by white horses, and thy feet are hardly conscious of their own burden.

O deluded woman! the butterfly and the gaudy tulip are emblems of thy fancied importance.

They are decked in the pride of summer, they enjoy the sunshine awhile, but shortly fade and attract the eye no more.

Is thy breath perfume? is thy taste rich? the particolored carnation and the speckled rose are sweet, and the juice of the ripe grape as delicious as thy taste.

But the rude hand of the spoiler cometh, both in the opening of the bud and at the fulness of the bloom, and the untimely frost turns sour the rich flavor of the vine.

So misfortune may crop thy imaginary greatness in the bud of thy joys, or in the full bloom of thy splendor; and the clay-cold hand of disease convert thy exquisite taste to undistinguishing bitterness.

Doth gold pamper thee with dainties, doth the smiling aspect of full-fed plenty delight thee;

Be not exalted beyond measure, for thou knowest not how soon they may forsake thee: when starving poverty shall provide scraps for thy table, and meagre want, with famine on her hollow cheek, shall stare thee in the face.

Art thou quick of invention, is thy mind stored with the talents of wit and understanding, doth the power of elocution sit on thy tongue, do thy periods flow like honey from thy lips: be not vain-glorious of these, nor boast them in thy possession.

For the fool will take a pleasure to peck at thee; thy words will be sifted, and thy speeches examined with the nicest severity.

The malicious and the ignorant will catch at the opening of thy mouth; neither shall the justest of thy sayings escape their criticism.

Nay, they will condemn thee unheard, yea, censure when thou speakest not.

If thou sayest thou wilt act wisely and eschew evil, and the frailties of human nature should overcome thee to do ill, they will then point at thee and cry out, *This is*

the wise woman who buildeth her house on a rock, who is sagacious to do good; let us profit by her example, let us take pattern by her wondrous wisdom.

Avoid, therefore, vain-glory and self-conceit; for she who lifteth herself up will others take a pride to pull down; and, if the day of calamity should come, her fall will be their triumph and their rejoicing.

But the humble shall be honored in prosperity; they shall find favor in adversity; and compassion shall invite them to her home, in the day of trouble and distress.

KNOWLEDGE.

Who is she that travelleth from the farthest parts of the earth, who crosseth the mighty waters, to find out the ways of the children of men?

Who changeth her habitation daily, who dwelleth in the fields and in the populous cities, beneath the straw-crowned cottage, and the golden roofs of the king's palaces?

Fatigue hath wrinkled her forehead, her head is silvered over with age; yet she walketh upright, for experience is her support and her strength.

Her name is Knowledge: she is the daughter of Inquiry, and the mother of many children.

For pleasure, and profit, and experience, and sorrow, and pain, are the fruit of her womb.

Wouldst thou, O fair one, be the guest of her house, be satisfied with what her table affordeth.

For Pleasure standeth at the door and inviteth thee with smiles, and Profit spreadeth the best on the board: but if thou desirest what she hideth from thee, and pryest into the secrets of her closet, Experience will embitter thy drink, and Sorrow, like a churl, make thy cheer and thy welcome naught.

It is not for thee, O woman, to undergo the perils of the deep, to dig in the hollow mines of the earth, to trace the dark springs of science, or to number the thick stars of the heavens.

Let the kingdom rule itself; let the wise men and the counsellors enact laws, and correct them; the policy of government is a hidden thing, like a well of water in the bottom of a deep pit.

Thy kingdom is thine own house, and thy government the care of thy family.

Let the laws of thy condition be thy study, and learn only to govern thyself and thy dependents.

REPUTATION.

Brighter than polished silver, more valuable than *Peruvian* ore, more precious than the pearl in the sea, than the diamond in the bowels of the earth, or all the shining treasures of the mines of *Potosi*, is reputation to a woman.

As the time that is past is gone for ever; as the word that escapeth thy lips returneth not again, so is the good name of a woman, when it goeth from her.

Art thou beautiful as the morning, art thou comely as the evening, do strangers speak thy praise, and thy acquaintance pour their encomiums on thee; yet thy way is a narrow path, from which, if thou strayest, thou wilt never more find it out, thy praises will be turned into revilings, and thy encomiums into keen reproach.

Art thou placed on an eminence among the daughters of women, dost thou sit at the head of the board, do crowds of admirers bow down before thee with reverence; yet thou sittest on a slender pinnacle, from which the sudden breath of indiscretion, or the strong blast of envy, may cast thee down; so shall thy fall be that of a falling meteor; thou shalt be despised in the dust, and gazed at on high no more.

Wouldst thou preserve this jewel of an high price; let not the boaster, nor the professed betrayer, come near thy house.

Be not frequent in the walks, nor in the thronged parts of the city, nor in the high places of the theatre.

Let not thy foot often leap at the sound of music, lest in thy dancing days thy reputation forsake thee.

Encourage not a train of admirers, lest their envy and jealousy of each other cast an odium on thy conduct.

As the way of a man on the ridge of an house, so is the fame of a woman among a crowd of fools; but the coquette is light of heart, and danceth along; no wonder, therefore, she falleth.

Yet affect not to despise temptation; for the prude loseth her good name by the means she taketh to preserve it.

As a man on the brow of a precipice trembleth at the depth below, and fearing to fall, his head swimmeth, and he is gone; so is a woman who boasteth her reputation.

Keep the appearance of evil at a distance; for the show of a crime may be as fatal to thy reputation as the reality of a transgression.

Sport not with thy good name, nor run it heedlessly into danger; for the consciousness of thine own innocence will not protect thee from reproach.

The Plough, the Loom, and the Anvil.

VOL. I. DECEMBER, 1848. No. VI.

POWER OF CONSUMPTION UNDER THE FREE TRADE AND PROTECTIVE SYSTEMS.

WE have on several former occasions desired to call the attention of our readers to the fact that the labor bestowed upon the conversion of food and wool into cloth, and that bestowed upon converting food and coal into iron, and iron into machinery, is not only all pure gain, but that the product of agricultural labor is actually greater in quantity where the loom and the anvil are associated with the plough, and where a portion of the community are employed in fashioning the products of the plough, than where the plough stands alone and all are producers. In illustration of this, we have pointed to the wonderful increase in the power of consuming cloth and iron and other commodities when made at home; and to the equally remarkable decrease in the power of consumption, when, from changes of policy, mills and furnaces are closed, and the farmer is compelled to look to distant markets for the sale of his produce, for which he is to receive pay in the cloth and iron that were before made in his neighborhood. To be satisfied that consumption increases with the facility of supply, and that the wool-grower finds his best customers where the loom is near the plough, one has only to go into New England, and there see, as we have lately done, thousands of men at their cattle-shows, all dressed in a manner to prove that their consumption of wool is vastly greater in proportion than that of the like number of people in States where the plough is distant from the loom. It is one of the first facts that strikes the eye of an observer, who has seen much of the North and the South.

The principal object of this journal is that of showing the farmer and planter, that the plough and the harrow *never have* prospered at a distance from the loom and the anvil, and teaching them that they *never can* prosper when so separated. Its first and greatest object is, however, the dissemination of TRUTH, let it lead to what course of action it may; and therefore shall we at all times be willing to present, for the consideration of our readers, the arguments of those who believe that prosperity is to result from employing men and wagons on the road, and ships on the ocean, in conveying our produce to foreign markets, for which Governor Wright said we ought to prepare, and which Commissioner Burke says we can do successfully, rather than from employing the same labor and capital in increasing the quantity produced, by aid of that division of employments which enables the consumer of food to take his place by the side of the producer of food, instead of flying to the west, there to become himself a producer of food, and to increase the necessity for employing labor in the work of transportation and exchange. With that view we now offer them the following article from a journal (The Public Ledger) that is perfectly consistent in its opposition to all measures tending to protect the farmer in his efforts to bring to his side prosperous consumers, and thus relieve himself from the necessity of continuing to impoverish himself and his land, by wasting labor and manure on the road and in distant markets.

"The depression of the anthracite coal trade has awakened general attention, and the

cause of the prostration has been the theme of much crimination and recrimination in the partisan journals. Among other reasons, it has been alleged that low duties had thrown our ports open to the free introduction of foreign coal, and that the produce of our mines was thus brought directly into competition with the foreign production. For the information of the public on this important point, we addressed the Collectors of the ports of Boston, New York and Philadelphia, the three principal ports of the Union, and have received from them comparative statements of the quantity and cost of coal imported direct into their several districts, for the three quarters of the present year, up to the 1st inst., and for the corresponding period of time last year, as follows:

	Boston.		New York.		Philadelphia.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.
1847.	52,717	———	30,040	$87,983	2,303	$4,694
1848.	57,060	———	22,487	64,874	1,464	2,111
	4,343		8,563	23,109	839	2,583

It will be seen by the above comparison, that, so far from there having been any increase of foreign coal imported the present year, the amount at the three ports named is less by 5,059 tons than for the first three quarters of last year. The same comparison, we have no doubt, will hold good at any port throughout the Union. At Boston, there has been a slight increase, but at New York and Philadelphia there has been a considerable falling off. The whole amount imported, however, is too trifling to merit a word of comment on the score of competition with the produce of our own mines. The Reading Railroad, of itself, brings down in three weeks more coal than is imported into the three principal ports of the Union in nine months. How idle is all the partisan vaporing of protection in the face of such a statement made to appear. If we enjoy so nearly the whole market now, against whom does the trade require protection?"

It is obvious to every one that the great coal trade of Pennsylvania is in an almost ruinous condition. Men who have for years devoted their labor and their capital to this great trade are ruined. Miners and laborers are compelled to seek elsewhere the employment no longer afforded them in the working of the mines. Railroads and canals that have cost twenty or thirty millions of dollars, have fallen in value to one-third of their original cost—and all this is here attributed to *over production*, which means that too many men have been employed in consuming food while producing coal, with which latter the market has therefore been glutted. Look, however, where we may, we see the same difficulty. The market is glutted with food, with wool, with cotton, and with tobacco, and if the men who have consumed food while producing coal had been employed in producing food, the glut of food would have been still greater than it is. Men must work if they would live, and if they cannot earn wages in converting food into coal and iron, they must endeavor to do so by producing food themselves, and every man who is deprived of the power of being a customer to the farmer becomes of necessity a rival to him. Everywhere around, it is the same. Not only are the coal mines being abandoned, but furnaces, and rolling-mills, and cotton and woollen mills are being closed, and labor is everywhere becoming surplus, *preparatory to its transfer to agriculture.* There is a glut of every thing required for the convenience and comfort of man—food—coal—iron—cotton and cotton cloth—wool and woollens—and yet the laboring man finds it more difficult to obtain the supplies required for his family and himself than he did when there was a glut of nothing. Why is it so? Because the places where food and labor were *on the spot* exchanged for iron and coal and clothing, have been closed by the working of the system adopted in 1846, the tendency of which is that of compelling the farmer to send his wheat, of which an acre yields ten or fifteen bushels, across the ocean to pay the distant iron-master for iron, which before he bought from his neighbor with potatoes and turnips and hay, of which the earth yields by tons, and thus to diminish his power of purchasing and consuming iron. Throughout the whole nation the power of consumption has been diminished, and therefore there is this glut of every thing, to continue, and to increase, until the planters and farm-

ers of the Union shall determine *with one voice, and as one man*, that they *will* have at their sides the machines and the men necessary for converting their food and their wool into the cloth and the iron needed to supply their wants. Let them do that, and the glut will cease, for every county in the Union will obtain its place of exchange, where coal, or iron, or cloth, may be obtained for food, and the power of consuming those commodities will increase, because the farmer will obtain larger crops, while saving the labor that is now wasted on the road, and at home for want of a regular demand for it, and returning to the land all the refuse of its products, thus increasing, instead of diminishing, its power of production.

Two systems are now before the farmers and planters of the Union for consideration. By the one they obtain a market at home for commodities of which the earth yields largely. By the other they are forced to depend upon foreign markets, to which they can send only those commodities of which the earth yields little. By the one, they will be enabled to consume largely of cloth and iron, because obtained in return for little labor. By the other, they will be enabled to consume but little of those commodities, because obtained in return for much labor. The tariff of 1842 gave the first. That of 1846 has given the last. Under the first there was no glut, because consumption was large. Under the last, gluts are universal, because consumption is small.

The glut of coal *does not* arise from any material increase in the quantity imported, and thus the assertions of the writer, in the article we have quoted above, are strictly correct, yet that fact proves conclusively the exhaustive nature of the process to which the nation is now being subjected. The duty on coal, and iron, and cloth, was reduced, because it was alleged that high duties diminished the power of consumption. To prove the correctness of this view, it would be necessary to show that the power of consumption increased with the reduction of the duty, and that the quantity imported was greater than would have been the quantity produced. Instead of this, we see that the market is glutted with a quantity scarcely at all exceeding that of last year, when it should have increased at least 600,000 tons, and the friends of the present system triumphantly assure us that this is not because of an increased import, because that increase has not taken place—thus proving that the new system which had for its object an increase in the power of consumption has been followed by a decrease in that power, and consequent deterioration of the condition of the people.

All this will be fully seen by comparing the consumption of coal, a necessary of life, in the last six years of the Compromise Act of 1832, with that in the six years which followed the passage of the act of 1842. The effect of the law of 1846 was suspended for a year by the famine of Europe in that year, and the paralysis which would otherwise have been seen in 1847 was thereby deferred to 1848.

	Imported.	*Produced.*	*Total.*	
1837,	153,450	881,476	1,034,926	
1838,	129,083	739,298	868,381	Average
1839,	181,554	819,327	1,000,881	power of
1840,	162,867	865,414	1,028,281	consumption,
1841,	155,394	958,899	1,114,293	1,049,380
1842,	141,521	1,108,001	1,249,522	
1843,	41,153	1,263,539	1,304,692	
1844,	87,073	1,631,669	1,718,742	Average
1845,	85,776	2,023,052	2,308,826	power of
1846,	156,853	2,343,992	2,500,845	consumption,
1847,	148,021	2,982,309	3,130,330	2,192,687
1848,	140,000 *estimated*	3,000,000 *estimated*	3,140,000	

From this we see that the whole supply of coal furnished to meet the demands of the consumers had reached, in 1837, the quantity of 1,034,926 tons.

The Compromise Bill of 1832 had then become fairly operative, and its effects were being more and more felt from year to year, the consequence of which was, that in 1842, five years afterwards, the whole quantity furnished to supply the wants of the greatly increased population, was scarcely more than it had been at first, and less, of course, per head. From that year forwards we see a rapid change, and in five years more we find it exceeding three millions, with every reason to suppose that in the present year it would attain four millions. Instead of this we see that ruin is spreading among the prosperous producers of coal and consumers of food, because of the want of a market for the products of their labor, and the home supply is likely scarcely to exceed that of last year, while the foreign supply is not increased, *because of the inability to pay for it.* The same capital and the same labor that have been employed would have given almost four millions, whereas it will yield but little over three, and thus are the comforts of the people of the Union *diminished* by the working of the present system, to the extent of some hundreds of thousands of tons of coal, with the absolute certainty that the same effect will be produced next year to a still greater extent. Had the tariff of 1842 remained untouched, four millions and a half of tons of coal would have been needed in 1849, whereas, it is now unlikely that the demand will exceed three millions, and all the foreign coal to take the place of the remaining million will probably not exceed 150,000 tons. The convenience and comfort of the community are therefore *diminished*, by measures adopted under the mistaken idea that the farmer and planter were to grow rich by substituting the *nominally* cheap commodities produced abroad for the *really* cheap ones produced at home.

If we look to the cotton trade, we shall find the same results. We close old mills, and we prevent the building of dozens of new ones, each of which would produce a million of yards of cloth, and thus we diminish the supply of clothing to the extent of thirty, forty, or fifty millions of yards; to supply the place of which we import an extra half dozen millions, the payment for which exhausts our resources, and the import becomes diminished because of our inability to pay for even this small quantity.

We close our furnaces and our rolling-mills, and we prevent the building of furnaces and mills that would produce iron by hundreds of thousands of tons; and to supply the place of these hundreds of thousands we import tens of thousands, the payment of which exhausts the land and its owners, and the power of consumption diminishes, when it would increase at a constantly accelerating rate were this policy of the nation one that would aid the farmer and the planter in their efforts to seduce the loom and the anvil to come and take their places by the side of the plough and the harrow.

Were the farmer offered a new plough, he would inquire if it would enable him to do more or less work in the same time, and if he found it would do less he would decline to take it. Were he advised to change his course of cultivation, he would desire to know if the new one would yield more or less food, or cotton, in return to the same labor, and if he found it would be less, he would adhere to the old one. Let him weigh the systems of 1842 and 1846 in the same manner, and if he find that the latter enables him to obtain more food, clothing, and fuel, than he had before, let him adhere to it; but if he find that under it the power of consuming food, and clothing, and coal, has diminished, and that the market is glutted with the same quantity that in the preceding year was readily absorbed, let him determine to have nothing to do with it. Let him, after having satisfied himself that such have been, and such must continue to be, the results, determine to unite with his friends and neighbors in the endeavor to secure the adoption of the measures now required to enable the owners of looms and anvils to come and take their places by the side of the plough and the harrow.

PLOUGHING.

WHAT NEW ABOUT THAT?

Of all operations this is the most important. Spading would prepare the ground more thoroughly, but only think of the cost!

Captain Yellot, a sagacious farmer, who led the way in improvement in the neighborhood of Baltimore, set the example of good ploughing and thorough tillage—he used to say, that when ground was well prepared, the work was more than half done before the corn was planted. There is no book in the world, where the whole subject of ploughs and ploughing is so well illustrated by diagrams and descriptions as in Stephens's Book of the Farm—an English work of three volumes, of one thousand pages each, and which sold lately, (the English edition,) in Boston, for $30. We have it reprinted in this country, with notes, by the senior Editor of the Plough, the Loom, and the Anvil, for sale, the whole in two volumes for $6. The reader may judge of the fulness of the whole work, when told that under the heads of ploughs and ploughing alone, there are nearly one hundred references in the index.

We are really surprised that any man who has any idea of the work, and $6 at command, does not secure it while he may—and Thaer's Principles of Agriculture, which may be had for $3. The two works together for $8. On the subject of ploughing, the following seems worthy of being extracted from the proceedings of the Onondago county (New York) Agricultural Society, which seems altogether to indicate much more than ordinary care and intelligence to "do the thing up right," as the Yankees say.

REPORT OF COMMITTEE ON PLOUGHING.

The annual expense of cultivating and preparing the earth to produce various crops of grain, roots, and cultivated grasses, is immense. That which will lessen this expense, and at the same time tend to an increased product of the soil, would be considered a public benefit; because the cost of production would be less, the quantity produced greater, and the expense to the consumer decreased.

In the opinion of your Committee, the largest proportion of this expense is caused by ploughing the soil preparatory to a crop. The object of ploughing is always to pulverize the earth, and expose a fresh surface free from weeds or other hindrances which will prevent the vegetation, and subsequent growth of the crop to be cultivated. The time is within the recollection of all who have arrived at mature years, when numerous ploughings were considered indispensably necessary to prepare the earth for the reception of seed, to insure a reasonable prospect for the production of the various grain or root crops.

Subsequent experience has shown these opinions erroneous, and that when the earth is free from weeds and foul grasses, one ploughing properly performed is better for any crop than to have the process repeated. But in order to have the earth in so clean a condition that one ploughing shall answer for the winter and small summer grains, the process of summer fallowing is sometimes necessary, and when this is resorted to as a clearing process, *it should always be most thoroughly performed*, so as not to require repetition, for the process of summer fallowing is quite expensive, not only in labor, but also in the loss of the use of the land for nearly or quite one entire season. Many cultivators also think it tends to exhaust the soil. But when the ground is clean, the one ploughing which is given for each crop should be performed in a first-rate manner. But perhaps it may be said there is a diversity of opinion what constitutes good ploughing. To some extent this is true.

Your Committee will proceed to lay down some general principles which they deem important:

First, the ground should *all* be ploughed, and in no case *less* than six inches

deep. The fertility of the soil will be greatly increased if the depth is gradually increased to twelve inches, and a greater depth is desirable.

Secondly, the *furrow* should be well turned. And to do this the *width* of the furrow slice must always (except in summer fallowing) be graduated to the *depth* of the furrow. If the furrow is too deep for the breadth cut, the slice will stand edgewise. If the slice is too wide for the depth of the furrow, a "balk" will be left on which nothing ought to be expected to grow, and if the next furrow is properly ploughed, a hole will be left where the preceding furrow was improperly turned.

Thirdly, where the surface of the ground will permit, the furrow should be *straight*, that the work may be more easily performed and have a more workmanlike appearance than it otherwise would have.

Fourthly, where the earth is light and sandy, the flat furrow is best, because it leaves the soil more compact, and less likely to be injured by drought. If the soil is stiff and inclining to clay, the furrow is best if left at an angle of forty-five degrees, because the harrow will most effectually operate on the surface, and under each furrow a small channel will be left, which will assist in disposing of the surplus water which may fall upon the surface, and also will render the soil more loose and friable.

It may be said, these are simple rules, which every ploughman knew before. To this we reply, while so large a proportion neglect to *practise* them, we think it proper to call attention to them. The art of ploughing has advanced very much since the formation of this society, and the Annual Ploughing Match has in our opinion been one of the principal causes of it.

THE SEPARATION OF THE PLOUGH AND THE ANVIL.

The Mill Dam Iron Works.—These extensive works, formerly carried on by H. Gray & Co., and which gave employment to a large number of hands, are now nearly or wholly given up, and the deserted buildings have a melancholy appearance to those who observed the business-look of the place a year or more ago. We hear that the Worcester Railroad Corporation talk of purchasing the site as a location for their machine shop.—*Boston Traveller.*

Pennsylvania Iron Works.—The Miners' Journal, of Saturday, says: "Several of the principal establishments in this borough have, within a few days past, been compelled to discharge a large number of hands on account of the scarcity of work for them. Several colliery works, too, have recently curtailed the force employed in them, and there appears to be no work of any magnitude going on in this region at present. Labor is consequently in poor request, and the rates of wages extremely low."

We commend the above notices to the consideration of our agricultural readers, as specimens of the paragraphs which now daily meet our eye, begging them to reflect that every man expelled from a colliery, a furnace, a rolling-mill, a woollen or a cotton mill, and thus deprived of the power to earn wages to enable him to *buy* food, must go to work to endeavor to *produce* food, and thus are customers converted into rivals. With every increase in the number of his customers the farmer is enabled to improve his land, becoming rich himself. With every increase in the number of his rivals he is compelled to waste more labor and manure on the road and in foreign markets, impoverishing his land and himself.

OLD ENGLAND—OLD VIRGINIA—AND OLD MASSACHUSETTS.

READ AND YOU SHALL SEE—WHAT YOU SHALL SEE.

ITEMS like the following, extracted from an address to the ancient Massachusetts Agricultural Society, by James Richardson, Esq., are calculated, one would suppose if any thing could, to draw off the attention and heart-yearnings of the farmers and planters of Virginia, from the squabbles of party, and the pursuit of office, to their own condition and prospects, and to the consideration whether it be not time that measures should be laid in the policy and legislation of the State, if not of the general government, for drawing into activity and enjoyment resources such as nature has lavished upon no other equal area on the face of the earth.

In Mr. Jefferson's day, among the last things thought of was, for a Virginia gentleman, or the son of a Virginia gentleman, to place himself, for all the hopes and all the means of subsistence, in a state of dependence on the caprices of political fortune and the smiles of men in power at Washington. Mr. Jefferson himself even made it a matter of regret, in his correspondence with his old revolutionary friend, General Smith, of Baltimore, that it was found difficult to get respectable men to fill responsible posts under the government. Now there are no posts so poor but there are men poor enough to do them reverence; and the sons of men born to better times and better things, scarcely get rid of the egg-shell before they fly on the top of a neighboring stump, flap their wings, and pronounce half their countrymen to be totally unworthy and unfit for all public employment; proclaiming their own readiness to serve their country in—*the best office they can get!* And yet with all her great men, (and for stump-speaking she can beat the world,) with all her patriots, doubly refined in knowledge of the Constitution, and boiling over with zeal to serve the commonwealth; we find that lower Virginia, fully capable of sustaining five times its present population, without being crowded, embracing thirty counties, having in 1810 a population of 258,246, had, in 1840, a period of thirty years, increased only 15,000. Here, then, with all their fervor of patriotism, and all their deep reading of the Constitution, with all their suspicion of a wooden horse, in every corporation for lending money or building factories, we have a section of country of 8875 square miles, the most anciently inhabited part of the State, intersected with natural canals paying no tolls, and needing no repairs, open at all seasons of the year, on which the population is distributed at the rate of only about thirty to the square mile! and on which the ratio of increase has been only about *one and one-fifth per cent. for the last forty years!* enjoying all the time, as they suppose, the largest liberty, under a government republican in form, and nominally independent—but all the time sending abroad to Mother England for the produce of her looms, and her anvils, instead of compelling, as recommended by Mr. Jefferson in 1816, in his letter to Mr. Austin, "the manufacturer to take his place by the side of the agriculturist."

We shall presently see how different is the condition of Massachusetts, where the loom and the anvil have taken their natural but subordinate position in the neighborhood of the plough,—a State where people have the sagacity to know that the strength of two men combined can achieve what a thousand could never accomplish by individual strength; and therefore do they follow the dictates of common sense, by offering every encouragement to the combination of every species of power, monetary, intellectual, and physical; while in Virginia, there seems to be, not merely a hereditary,

but a sort of instinctive readiness to anathematize combinations of all sorts and for all purposes. Is it then to be wondered at, that exhaustion, poverty, and dispersion go on increasing from year to year?

Let us have leave to go into Milk-street or Pearl-street in Boston, and select a merchant, or into Lowell or Salem, for a shrewd self-made manufacturer, who never mounted a stump to make a speech in his life, and who never wrote thirty-seven columns on a constitutional point, imagining himself all the time a Lucius Junius Brutus, Solon or Lycurgus; but give him the government of the State, with power to make laws, to encourage combination, and to attract and reward genius and industry, and our life upon it, if not counteracted by the barbarous anti-American policy of a yet higher power, in twenty years he would have her coal mines and her iron mines, her water power and her wool-growing and wool-manufacturing power, all in full blast, and Richmond and Norfolk teeming with thriving populations of 100,000 inhabitants.

But we are forgetting our extracts from Mr. Richardson's address—from which we beg the reader to proceed to the perusal of what we propose to say next, about the *statistics of a town of two-and-a-half years' growth* in the midst of a rocky and a sandy country, where, in spite of rocks and sand, and hills clad with snow one-quarter of the year, agriculture still flourishes, and every farmer is out of debt, *because*, there the ploughman's whistle mingles in harmonious concert with the sound of the shuttle and the hammer. Hence it is, that while that glorious region, lower Virginia, has in thirty years increased not two per cent. in fifty years, Massachusetts has increased nearly one hundred—but look at the difference in the proportion of the people at the plough and those at the loom and the anvil in the two States. In Virginia, employed in agriculture 318,771, in manufactures 54,147. In Massachusetts, in agriculture 87,837, in manufactures 85,176. With about one-quarter part of the soil yet uncultivated, England and Wales maintains a population of three hundred to the square mile, but English looms and anvils manufacture not only for themselves, but her people are bowed down with taxes, and the whole world is taxed to enable her to keep up fleets and armies, that against all nature and the interests of the whole world she shall force the world as she does, (the United States included,) to take the products of her looms and her anvils. The whole civilized and uncivilized world pays tribute to her colonial policy—to her determination to force the wool and cotton of other countries to come to her looms, instead of our forcing her looms to come to our cotton and our wool. Are farmers and planters to be for ever ridden by party hacks, in perpetual blindness to their own interests?

"An impression of the progress and importance of agricultural improvements may be received from a glance across the Atlantic to the land of our ancestors. The little Island of Great Britain contains a less extent of cultivated land than the whole territory of the State of Virginia, and but a very little greater extent capable of any cultivation;* and yet this small speck on our earth's surface sustains over sixteen millions of people, some in profusion, many in plenty, and nearly all in comfort, with the aid of foreign bread stuffs to feed them less than two weeks in the year;—besides feeding an immense number of animals,—horses kept for service, splendor or sport, and one sheep to every acre of cultivated land on the whole island; yielding a sufficient quantity of wool, though not of a suitable quality, to clothe their whole population, and the whole population of the United States.†

* According to the latest surveys, Great Britain, including England proper, Scotland and Wales, contains 56,833,330 acres in the whole—cultivated land 34,014,000 acres—land uncultivated and capable of cultivation 9,934,000 acres—and land incapable of any cultivation 12,885,330 acres. The State of Virginia, it is well known, contains 40,000,000 of acres.

† The lowest calculation as to the number of sheep kept on the island of Great Britain a present is 36,000,000. Their population now is not far from 16,000,000, and that of the United States somewhat over 12,000,000. [This was in 1832.] The quantity of wool

"Though *our* progress in agriculture has been far from discouraging, and the quantity of bread-stuffs exported not inconsiderable,—yet the straw of the grain of that small island for a single season, at the current price of common straw here, is of greater value than the whole of the bread-stuffs exported from the United States for ten years.* And we may safely assert that should the productions of that small spot of earth be entirely destroyed but for a single year, not all the surplus food produced on the whole earth would be sufficient to save their population from famine. Now look back on this land of our ancestors in the time of Julius Cæsar, and what does it present? Some hundred thousand demi-savages, subsisting by fishing and the chase, with painted limbs, clad in the skins of beasts, armed with scythes and stakes hardened in the fire, and resisting the mailed bodies and well-tempered blades of the Roman legions."

HOW INDUSTRY THRIVES AND TOWNS GROW UP,

WHERE THE LOOM AND THE ANVIL TAKE THEIR PLACE BY THE SIDE OF THE PLOUGH.—STATISTICS OF LAWRENCE, MASSACHUSETTS.

In October last, we had the pleasure to accompany one of its enterprising founders in a ride to the town of Lawrence, commenced just three years since on the banks of the Merrimac, with water-power and other advantages not to be mentioned in comparison with those which nature has provided at the great Falls of the Potomac or at Richmond, and at many other points in the Southern States. Curious for information, and anxious to let our friends in the South see what can be done by men who know how to encourage combination, and how to laugh at and take advantage of the ignorance and blindness of those who think that the plough thrives best at a distance from the loom and the anvil—we took the opportunity to play the Yankee, and to ask a smart chance of questions, the result of which the reader will here find. He will need no assistance to enable him to *calculate* how much the value of land is enhanced by having, here and there all over the State, people in all sorts of employment ready to buy the *tons* that rich land will produce, instead of the *bushels* of wheat and corn and pounds of cotton, that only can be grown where the plough is distant from the loom and the anvil—when, in a word, the consumer is at a great distance from the producer, and only to be reached by great consumption and loss of time and manure in going over bad roads and wide seas. We commend the growth of this young Yankee town to the good people of Richmond, and the effect of it on the landed interest to the land-holder in the neighborhood of Richmond.

What a teacher would such a town be at the great Falls of Potomac, to the good people in Montgomery county, as to the "proper rotation of crops!" to the want of a knowledge of which has been exclusively ascribed the exhausted condition of that county.

For these statistics we are indebted to the civility and attention of Samuel Webber, jun., Esq.,—one of those young New England men, who carry old heads on young shoulders—another choice fruit of condensation of population; for constant attrition will keep off rust, and sharpen and polish mind

annually produced in Great Britain, exceeds 140,000,000 of pounds; and allowing, according to their best calculations, five pounds to the head, including both sexes and all ages and sizes, the quantity of wool raised there would clothe the population of both countries, estimating the population as above.

* According to Sir John Sinclair, the straw of Great Britain, calculating three-fourths of it for manure at 3d. per stone of 22 pounds. and the other fourth for feeding stock at 6d. per stone, is worth 16,225,000 pounds sterling—equal, at $4 80 per pound sterling, to 78,880,000 dollars; the present price of common straw here, being from 33 to 37½ cents per 100 pounds, amounts with great exactness to the price stated by Sir John Sinclair—and the average amount of bread-stuffs exported from the United States in the last ten years is about 7,000,000 dollars per annum."

and manners, as it does even steel and stones. Boys in some States follow the plough, such as in others are followed by servants, to keep them from being poked by the cattle or falling into the water!

The town of Lawrence is situated on the Merrimac river, about midway between Lowell and Haverhill, and contains some six square miles of territory, nearly equally bisected by the above river. The actual origin of the town may be dated in 1844, when the Messrs. Lawrence and others bought about 3000 acres of land in this place, preparatory to the location of a new manufacturing town. In 1845, the gentlemen above-mentioned petitioned the legislature of the state for a charter for a corporation to be known as the "Essex Company," with power to build a dam, construct locks and canals, and create water-power to use and sell for manufacturing purposes, with a capital of $1,000,000, in shares of $100 each. This charter was granted in March, 1845, and on the 16th of April following the company was organized, and the officers appointed. Charles S. Storrow, Esq., then agent of the Boston and Lowell railroad, was appointed their treasurer and agent, and acted as chief engineer until April, 1846, when the valuable services of Captain Charles H. Bigelow, formerly of the engineer corps, were also obtained for the company; and to whom, through Mr. Webber, as aforesaid, we are indebted for much valuable information, contained in the following statistics.

In May, 1845, Mr. Storrow came upon the ground, and, August 1, excavations were commenced for the foundation of the dam, the first stone of which was laid September 19, of the same year.

In the meantime the plan of the town was laid out, and the legislature of 1846 granted charters to several other corporations, as follows:

February 2, 1846, to the "Bay State Mills," with a capital of $1,000,000, since increased by the legislature of 1848, to $2,000,000, for the manufacture of woollen and other goods. February 3, 1846, to the "Atlantic Cotton Mills," with a capital of $2,000,000, for the manufacture of cotton goods. March 10, 1846, to the "Methuen Bleaching & Dyeing Company," with a capital of $500,000, for the manufacture of cotton and woollen goods, and for bleaching, dyeing, calendering and printing. March 25, 1846, to the "Union Mills," with a capital of $1,000,000, for the manufacture of cotton, wool, and flax. Making the whole capital incorporated here for manufacturing purposes, $6,500,000.

Consequent on the commencement of these operations, was the joint purchase, by the Essex Company, and the Locks and Canals Company, of Lowell, of the Great New Hampshire Lakes, comprising a surface of water of 120 square miles, and purchased with the view of equalizing the power of Merrimac river, and producing a flow of water at all seasons, equal to the average yearly amount.

April 16, 1846, the grounds of the Bay State Mills were laid out, and April 16, 1848, the first water-wheel of the company was set in motion. April 28, 1846, was the first sale of land at auction by the Essex Company. June 9, the ground was first broken for the Atlantic Mills, and July 10 the first stone was laid in the foundation of the foundery connected with the Essex Company's machine shop. These are the most important dates of the commencement of operations, and fearing to occupy too much space, with more minute though interesting particulars, we will pass to the present situation of the town.

Three only of the different companies, incorporated as above, have as yet commenced operations—the Essex, Atlantic, and Bay State Mills, and the amount of work done by them to the present time is very nearly as follows:—commencing with the works of the Essex Company, the first in order is

their dam of solid masonry, 1629 feet in length, divided thus: length of overfall, 900 feet; south wing, 324 feet; north do. 405 feet, running to unite with guard-locks. The whole structure is firmly embedded in, and bolted with iron to the solid rock. Thickness 35 feet at base, 12 ft. 6 in. at lower end of sloping crest-stone. Batter on the front, 1 inch to a foot; on the back below the crest-stone, 45°; greatest height, 40 ft. 6 in.; mean do. 32 feet. Face and top of granite, with hammered and dove-tailed joints, bolted in many parts with iron. The whole masonry of the dam, and a considerable portion of the adjacent wing and river-walls are laid in the most compact manner with cement mortar. The mass of masonry is about 27,500 cubic yards. Hammered surface of granite, 122,000 square feet. Rock excavation, 1700 cubic yards. Cost, $250,000, including a heavy embankment in rear. Effective head and fall, 28 feet, for the whole Merrimac river.

Their main canal is on the north side of the river, and is in length 5330 feet; width at upper end, 100 feet; at lower do. 60 feet, taken on the surface of the water. Depth, 12 feet, of middle portion, and 4 feet at side walls. Area of water-section, 944 square feet at upper, and 464 square feet at lower end. Earth excavation, 175,800 cubic yards. Mass of side walls, 11,000 cubic yards. Cost, including guard-locks, navigation-locks at upper and lower ends, and waste-weir, $185,000.

The Essex Company have erected a spacious machine-shop of stone, 404 feet long by 64 wide; 4 stories high, with 3 large porches in the front and rear. The lower story is 17 feet high in the clear, admitting the free ingress and egress of complete locomotive engines. All the floors are sustained by a double row of handsome iron pillars. The water is brought to the wheels in an underground penstock, a distance of about 540 feet from the canal, and is carried from thence in a covered raceway, of two arched passage-ways of masonry, each 13 feet wide, 15 feet high, and 1000 feet long. Two iron turbine wheels are used for driving the shop, either being capable of carrying all the machinery in case of necessary repairs on the other.

The forge-shop connected with the above, is 232 feet long, by 53 ft. 8 in. wide, and 17 feet high in the clear. It will contain 32 forges of different sizes, with trip-hammers of various dimensions, suited to any work.

Another turbine-wheel is placed here, of the same force with those used in the shop, for driving the hammers, and the blast for the forges and foundery: its raceway of stone masonry debouches into the great raceway of the shop. The forges are arranged in the middle of the building, and the smoke is conveyed by an underground cylindrical flue of brick, 4 feet in diameter, to the great chimney in the yard.

This chimney is a circular stone shaft, 14 feet exterior diameter at base, 8 ft. 6 in. diameter at top, and 142 feet high. The interior flue is of brick, 5 feet clear diameter, surrounded by an air-chamber nearly to the top, and receives the smoke from the steam heating apparatus, the annealing furnaces, and the forge-shop.

The foundery is 154 feet long, by 90 feet wide, with walls 22 ft. 6 in. high. It is thoroughly well lighted and ventilated. Its present product is 6 to 8 tons per day, and its future capacity may reach 30 to 35 tons daily.

The warehouse, store-house, pickling-house, annealing-house, and heating-house, will constitute a range of buildings 315 feet long, by 43 ft. 6 in. wide, and mostly 2 stories high. The foundations of all these buildings are laid, and the warehouse, annealing-house, and heating-house constructed. A pattern-house is soon to be built, 150 feet long, 53 ft. 6 in. wide, and

3 stories high. All the buildings in the machine-shop yard, above enumerated, are entirely of stone, furnished by the company's ledges.

Several lesser buildings for the storage of iron, coal, sand, &c., and for manufactured machinery, have been or are soon to be constructed. A railway connecting with the various main lines entering the town, completely encircles the machine-shop premises, and is conducted in and about the different buildings.

This machine-shop and its appurtenances are to be devoted to the manufacture of cotton and woollen machinery, locomotives, turbine-wheels, and in general of all machinery of which iron forms the principal part.

A square of 50 commodious brick tenements, good enough for any man to live in, has been erected for the accommodation of the workmen employed in the shop and foundery, &c., and 50 more are in contemplation. When in full operation, 7 or 800 men will be employed in the works.

The Essex Company have also constructed a main sewer for the use of the town. It is built of brick, in cement where it passes under the canal, and the remainder of stone masonry. It is half a mile long, and sufficiently large for a man to walk erect—say 6½ feet high, by 3 feet wide.

The Atlantic Cotton Mills were incorporated with a capital of $2,000,000, of which $1,350,000 has been paid in for present purposes. The site of their mills is 1500 feet in length, measured along the canal, and the proposed number of spindles 50,000, for the manufacture of coarse cottons. The power employed may be reckoned as equal to that of 1000 to 1200 horses. The number of hands to be employed will be probably 1500 or 1600.

The buildings of this company will consist of 4 mills, each 220 feet long, by 63 ft. 8 in. wide, and 5 stories high; 4 picker houses, each 73 ft. 4 in. long, by 53 ft. 4 in. wide, and 3 stories high; 3 cotton houses, aggregate length, 650 feet, and 53 ft. 8 in. wide, by 25 feet high, sufficient for the storage of 20,000 bales of cotton. A range of buildings 400 feet long, by 42 ft. 8 in. wide, 2 stories high, for repair shop, cloth room, counting-room, storehouses, &c.; 10 blocks of boarding-houses for operatives, making a range of handsome brick buildings, 3 stories in height, and amounting in all to over 2600 feet in length.

Of the above, two mills with all their appurtenances have been already constructed, being more than half of the whole. Also the feeders, raceways, and the major part of the wheel-pits of the remaining two mills. The machinery for mill No. 1 is already placed, and that for No. 2 is ready to be so. These two mills will go into operation as soon as the turbine-wheels, now constructing, can be set up. Three of these wheels are placed in a wheel-house between each pair of mills, and so arranged that one mill will be driven by each of the external wheels, while the centre one can be used as auxiliary to either of the others, or to take the place of either in case of accident or repairs.

The mills are heated by an apparatus entirely separated from them, and for this purpose steam will be used. One handsome octagonal brick chimney, 145 feet in height, has been built, and another similar one is to be added.

The work already executed for the Atlantic Company, may be approximately estimated as follows, viz.:

No. of bricks laid,	10,661,439
Masonry in cubic yards,	44,700
Granite in cubic feet, (mostly hammered,)	35,611
Slate roofing in *acres*,	4⅓
Earth work in cubic yards,	260,000
Total expense of constructions hitherto, about	$600,000

This work has all been done for them by the Essex Company, and some work has been done by the Essex Company prospectively for another corporation, in establishing a plank piling between the canal and the river, and in building a large brick culvert under the canal, both of which operations could be effected with vastly greater convenience before filling the canal than after, and were done accordingly. For this purpose 67,500 cubic yards of earth were removed, and 120,000 bricks consumed.

The Bay State Mills erected, in 1846–7, three blocks of spacious boarding-houses for their operatives, each 250 feet by 36, 3 stories high, containing 8 tenements each, with 4 Ls in the rear, 16 by 18 feet, 1 story high, and containing 877,856 brick to each block, with sewers running under the sheds to the same, supplied with water from the canal by a cast-iron pipe, and discharging through a main sewer placed at right angles to the above, into the Merrimac, after passing under the canal and river mill, and containing in all 1,005,039 brick.

Also the east of their three mills, 200 feet long, by 48 ft. 8 in. wide, with front and rear porches, each 20 feet by 23, and 8 stories in height, being 105 ft. 8½ in. high to ridgepole, lighted by 382 windows, and containing 1,901,673 brick, with foundations of massive stone-work, 40 feet deep in front, and 28 ft. 6 in. in rear, and costing altogether about $150,000.

They also erected a building along the line of their river-wall, 998 feet long, by 40 wide, with wings at right angles to the line; one 240 feet by 40 feet, and one 240 feet by 48 feet. The centre of this mill, on the river, is 42 feet by 52, and 5 stories high, the remainder 3 stories, though some part of it is divided into 4 stories of less height each, for dry rooms. This mill contains 3,828,160 brick, and is lighted by 911 windows, and will be partly appropriated to manufacturing purposes, and partly to dry rooms, dye and boiler houses, coal sheds, &c. In each wing are to be 12 boilers, to supply the necessary steam for dyeing and warming, with chimneys 11 feet square at base, and 135 feet high, containing, the one, 157,516 bricks, and the other, 167,818 do.

This year, (1848,) the centre mill has been erected, of the same size as the east one, but with wings, 62½ feet long, and two stories high, to contain boilers for supplying the necessary steam for heating the mill, and for the dressing and finishing departments. (The east and west mill will be supplied from the boilers in the wings of the river building.) This mill is lighted by 463 windows, and contains 2,162,532 bricks.

There are yet to be built another mill, and a range of buildings, 800 feet by 38, along the canal, for counting-rooms, storehouses, watch-house, &c., which will form, with the river mill and its wings, a hollow-square, or rather parallelogram, within which stand the three mills above mentioned, two of which are now built, and the foundation ready for the third or west one, making an almost solid mass of buildings, 1000 feet by 400.

This will be, when completed, the largest woollen manufactory in the world, and the only one in which all the processes are concentrated, for making some of the goods intended to be produced. It will consume 2,000,000 lbs. per annum of the finest quality of American wool, which is expected to be supplied by the flocks of the Great Western Wool District, including Ohio, Pennsylvania, and Western New York. It will require a proportionate quantity of dyestuff, leather, and other manufacturer's articles, and will employ about 2500 hands. The power will be obtained from 7 breast-wheels of the first class, each 23 ft. 4 in. long, by 26 feet in diameter, and of 125 horse power each, 2 of which wheels will be placed in each main mill, and one in the river mill. These mills are intended to contain 80 sets of cards, 144 jacks of 180 spindles each, and 8 of 200 each, with

a sufficient number of broad and narrow looms to consume the yarn produced. The present intention is to run one mill on cassimeres, one on broadcloths, and one on shawls, and it is proposed to make goods of a style and quality never before produced in America.

But a small portion of the machinery of this company is yet in operation; 7 sets of cards, 2000 spindles, and about 60 looms are now running, and producing an article of plaid shawls, equal, if not superior in style, fabric, and colours, to any imported, and it is proposed in the course of the winter to set up 100 looms on the same floor with those now running, making a weave-room 476 feet by 40, filled with twelve-quarter looms.*

The work now done by this company may be summed up as follows, viz.:

Earth removed, in cubic yards,	242,063
Rough stone, (foundations,) in perch,	64,402
Granite laid, in cubic feet, about	80,000
Bricks laid,	11,951,398
Slate roofing in *acres*, nearly	4

And about 4,500,000 more brick will be laid ere the works are completed.

The total cost of constructions so far, in round numbers, may be estimated at $800,000.

These works were designed and executed by Capt. Phineas Stevens, of Nashua, N. H., and are in every respect models of solidity and strength, besides having been executed with great skill and rapidity.

These three companies will, when in full operation, maintain a population in the town of about 15,000, including 5000 directly employed in the mills, and the town may be expected to increase in that proportion: that is to say, for every 1000 employed in the mills, 3000 may be considered as the increase of population.

Gas-works have been established by the associated companies for lighting their mills, at a cost of about $30,000, and so constructed as to be capable of increase when called for by the wants of the town.

A foundation has been laid for a valuable library, by a donation of $1000 from the Hon. Abbott Lawrence, which has been appropriated to the purchase of scientific works, by a society legally organized as the Franklin Library Association.

Eight religious societies have been formed, and most of them have erected suitable places of worship. An elegant town-house is under process of construction, and a large and handsome brick grammar school is nearly completed. Public and private schools have been established, and are well managed and fully attended.

A bank has been opened, with a capital of $200,000. Three weekly papers have been established. A fire insurance company has been formed, and an efficient fire department has been organized; and it is now proposed to build reservoirs in different parts of the town, to be kept full of water by the force-pumps of the different mills.

The Essex Company have presented to the citizens a common in the centre of the town, of 17 acres, which is to be appropriately laid out, and ornamented with trees and fountains. Two fine hotels are in operation, and an aqueduct company has been chartered, to supply the town with pure water for domestic purposes.

Since the commencement of the works, the Boston and Maine Railroad (to Portland) have altered the location of their track so as to pass through the town, and are now building a large repair-shop and engine-house on the opposite side of the river. A railroad has been built to Lowell, one to Salem,

* Twelve-quarter, *i. e.*, three yards. A technical term, referring to the width of loom.

and one is now under construction to Manchester, N. H., giving unequalled facilities of transportation to any part of the country.

The whole power here is calculated to be about equal to that of Lowell, and it is confidently expected, that at no distant day we may see on this ground, three years ago almost a desert, now a flourishing town of 8000 inhabitants, a manufacturing population second only to Lowell in size, and equal to what Lowell now is.

From the success of Lowell, the hopes were formed on which this gigantic experiment was founded, and from Lowell have been drawn much talent and mechanical skill. Founded by the same men, for the same purpose, it affords ample evidence of the power of American Industry, and the energy of New England men; and where, four years ago, little was heard save the lowing of cattle or the scythe of the mower, the air now rings with the sound of the hammer and the scream of the locomotive, while the rise in the value of farms, for miles around, bears ample testimony to the benefits which the Plough may derive from the Anvil and Loom.

Now, in many parts of the country, it may be supposed, that the men who can command the means of founding and carrying forward such gigantic undertakings must soon become enervated by the luxurious indulgences which such means must place within their reach; and hence that, as in some other parts of the world, the care of such establishments would be devolved on subordinates, leaving the principals to pass their hours daily in social and convivial enjoyments. Yet what ignorance of the habits of these enterprising Yankees would such a supposition betray! Reared in habits of intellectual activity and systematic attention to business, they find their greatest pleasure in that which has been the invariable practice of their lives, and thus it is that they persist in the personal care and supervision of their affairs, as long as their physical powers, prolonged by a course of temperate industry, remain unimpaired; nor even then do they cease to evince the force of early associations. On the contrary, you shall see these venerable old gentlemen, the Brooks's, the Perkins's, the Appletons, and others, coming from their magnificent villas in good weather to their old haunts in Boston, if only to hear how the world wags, just as "old Whitey," the war-horse, turned out to grass for the remnant of his days, at every "sound of the trumpet" will continue to say "Ha, ha: and he smelleth the battle afar off, the thunder of the captains and the shouting."

Few who have not seen it on the spot can have an idea of the labors *these* men of means undergo—and that of all labors the most wearing and tearing—the labors of *thought;* for besides the direct management of their own vast operations, they have to maintain a world-wide correspondence at home and abroad. You shall see such a man as S. Lawrence, for example, returning to Lowell from a flying visit to large concerns at Boston, hurry from the cars to take his seat in the mills, there to examine with his own hands and eyes hundreds of pieces of goods as they are brought and laid before him, and go thence to answer with punctuality and care voluminous inquiries, it may be, from wool-growers in the West, or from others, who propose to embark in the business of manufacturing in the South.

Ah, Reader! if you would see the effects of a spirit of *combination*—of a readiness to facilitate, instead of denouncing, the association of men and means, to lend money and to build factories and railroads, and to do for the development of internal resources, and the creation of wealth and power, by union, that which in other States is never done, for want of it; go to New England—to Rhode Island—to Connecticut—to Massachusetts. By the by, we remember last winter dropping in at the hotel in Annapolis to dinner, where there were many members of the legislature, when one of them, "a limb

of the law," or rather a sort of half-lawyer half-planter, selected by planters of a neighboring county, for his aptitude at legislation, displayed his super-refined knowledge of the political economy that belongs to agriculture, by vehement denunciations of incorporations of all sorts—to lend money—to erect factories—or to make roads. He would enact laws that should be a warning to every man who should dare give aid or countenance to such associations, on any account, little or big, that he should do it at the peril of involving his whole estate. Is it, then, we repeat, where the farmer and the planter select such men for law-makers, any wonder that exhaustion, poverty, and dispersion go on increasing from year to year? The French have a motto, *L'union est la force.* This gentleman's motto is the reverse, he thinks the fagots gain strength by *separation!!*

DIFFERENCE IN THE QUALITY OF GRAIN PRODUCED IN A NORTHERN AND SOUTHERN CLIMATE.

The able Editor of the South Carolinian says:—

We go at length into this scientific description of the component parts of wheat, which consist of gluten, gum, starch, sugar, bran, and water, so that our remarks may be thoroughly comprehended. Starch is by far less nutritious than gluten, and abounds in wheat in the proportion of about 6 to 1 of gluten. The latter is then the valuable nutritious matter in wheat, and from all that has been developed by the aid of science, it has been clearly proven that gluten can be varied and increased by climate and the character of the fertilizers used to promote the growth of the plant. The mere difference in climate, upon a fair trial, and by analysis of the grain, has resulted in the following satisfactory statement, in favor of the warmest regions in which wheat is successfully grown:

Warm Climate.

Starch	56.05
Gluten	14.55
Sugar	8.48
Gum	4.90
Bran	2.30
Water	12.30
	100.49

Let the reader look below at the result of the analysis of wheat grown in a cold climate, and compare the great preponderance of starch with that of the former. Also observe the large amount of gluten and sugar contained in the grain grown in a warm climate, and estimate the comparative value of that which contains so large a proportion of these essential ingredients which constitute in the main the nutritious qualities of the grain, with that which is greatly deficient in those substances:

Cold Climate

Starch	71.49
Gluten	10.96
Sugar	4.72
Gum	2.32
Bran	1.00
Water	10.00
	100.49

These statements fully show the great superiority of our climate over more northern regions for producing the most nutritious grain.

ADVANTAGES TO BE DERIVED FROM A MORE EXTENDED USE OF OXEN

IN THE HUSBANDRY OF THE UNITED STATES. (Concluded.)

Breaking.—The sooner this is commenced, the more complete will be the command of the teamster. It would be well, if convenient, to have them *named* and haltered, and taught to stand and to start, to "gee" and to "haw," when not more than a year old, and slightly worked in the summer and autumn after they are two. *Gee* and *haw* are the terms used in most parts of the country. The first indicates that the yoke is to incline off to the right, or from the near side on which the driver should always take his stand. The yoke, however, should not be put on their necks until they are to be worked, as they might acquire a habit of running off in it, which it will be found very difficult to correct.

The directions which follow are taken principally from practical observations by T. P. Stabler, of Montgomery county, who has performed in Maryland all the requisite labor on a farm of one hundred and sixty acres, with but one horse in addition to his oxen; and of Mr. Gilman, then of Alexandria. "The proper time," says Mr. Stabler, "for putting them to work, is at three years old; and such as have not been handled, as above recommended, while growing, should be driven round the field for a day or two, before being yoked, so as to tire them." The propriety of this is proved by the greater ease with which they are broken, when taken and yoked directly out of a drove, before they have time to recruit from the fatigue of travelling. Instead, then, of being yoked two together, they should be tied by the horns (with a rope slipped over and resting on the top of the head) to the side of a house, taking care that there be no place for the horns to become entangled, and stand tied in this manner till they cease to pull by the cord, which will in most cases be in a day or two. They may then be led very readily, and taught to turn, stop, or start, singly, just as a colt may be, instead of coupling two together at first, which any man in the care of horses would condemn, as being most likely to end in the destruction of one or both, which has not unfrequently happened with young steers when forcibly yoked together in the first instance.

"When two young cattle," says Mr. Stabler, "are yoked and turned loose with their tails tied together to run and plunge about, they are almost certain to acquire a habit of running away; and even should this not be the case, one, and sometimes both, lose a part of their tail in these violent exertions. When they are sufficiently broken to the halter, they may be placed side by side, for the purpose of receiving the yoke, having reference to their relative size, strength, and mastership; because, if one is stronger and more free than the other, he should be placed on the off-side that the team may rather incline to, than from the driver."

If one should be larger than the other, he will be likely to be stronger and more free; and, should they be put to the plough, the furrow ox being the larger, the yoke will be kept nearer a level than in the other case. It requires but little observation to see that they are easier to be turned to the right, or made to "gee," than to the left, or to "haw," or "come hither:" therefore, if the master-ox be on the off-side, he will assist in controlling the near or left one in "coming round;" but when reversed, and the master-ox on the near side, and he not altogether willing to "come here," the team is some time stationary; for let the then off-ox be ever so willing to obey the voice of the driver, the horn of the near one speaks a contrary language, equally

intelligible. After the yoke is put on securely, their tails should be well tied together, and they suffered to stand tied as before until a strong pen is built round them, not more than sixteen or eighteen feet in diameter, taking care that the ends of the rails do not extend inwardly. The ropes should then be loosed, if possible, in such a way that they will not be sensible of it. Here they will soon learn to turn themselves about, without one violent exertion, or the least fright. They should be tied up as before, at night, their tails untied, and the yoke removed, to be replaced in the morning as before; and the day following they may be led or driven in a larger space. By this time the cause will be gained in a manner calculated to ensure a prime pair of cattle. They may now be attached to something light, and led about for a few hours, daily and gradually increasing the draft, and greasing their necks occasionally, to prevent galling. When put to the cart or harrow with others already broken, *contrary to the usual practice*, they should be placed before, instead of behind them; by which arrangement it will be found that if frightened the old cattle will not let them run; but, if otherwise, they, by running against the older ones, may frighten them also.

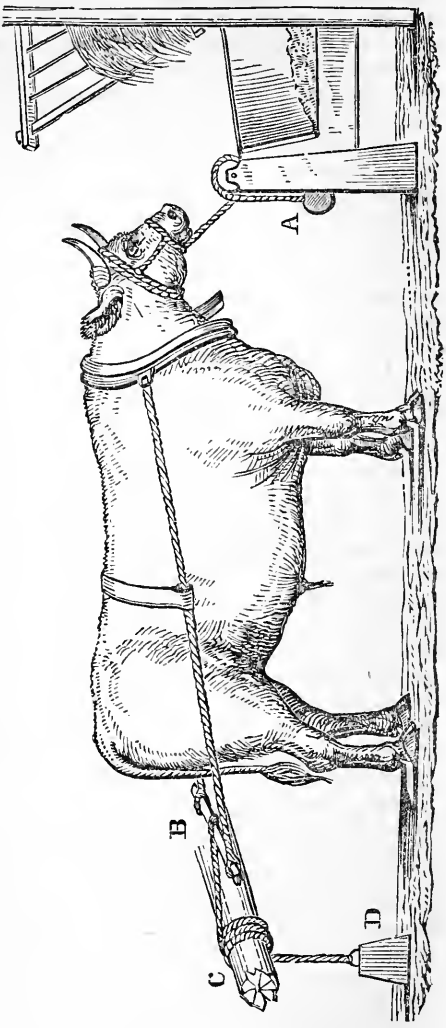
In Kentucky they practise another mode of breaking steers, which is thus described;—Where the establishment is a large one, and there are some to be broken in, every year, the fixture and practice here recommended would seem to be eligible and judicious—"Get a strong post eight feet long by two thick; plant it three and a half feet in the ground, well rammed; round or level the top of the post, and leave a pin to it, or make a mortice and insert a strong two-inch pin of tough wood in it, perpendicularly at the top, six or eight inches long. Then get a tough sapling, twenty-five feet long; measure off at the small end of it the usual length of a yoke, and bore the holes for your bows. Then bore three holes, or more if you choose, four, eight, and twelve feet from the other end of the sapling, of the size of the pin in the top of the post, giving the shortest lever first; draw your steers up, let them be young or old, gentle or wild, it makes no difference; yoke them to the end of the pole; but instead of tying their tails together, if you wish to avoid bob-tailed oxen, tie their loins together with a good rope, wrap up their head halters, clear the front, and let them go; round and round they will go with a rush; drunk—drunker still they grow, until, groaning, down they drop. For a while they lie panting and looking wild; at length they leap as if suddenly frightened, rush round and round again, grow drunk and drop again. Leave them, they will repeat the experiment, until reeling, they will stop or stand. In a few hours you may lead them around by their halters. Uncouple them from the pole, or yoke them to your cart, and drive them where you please with safety." The preceding method is recommended with confidence from personal knowledge by Mr. William P. Hart, of Kentucky.

There is no point in the comparison between oxen and horses which more strongly illustrates the economy of ox-power than the difference in the *expense of gearing*.

For each horse employed on public roads, where it is in constant use, the harness costs, according to the best information, as has been seen, twenty dollars; being one hundred and twenty dollars for a team of six, leaving the swingle or whiffle-trees, as they constitute a part of the wagon, out of the question; and this harness is not expected to last more than six years; while for six oxen, the whole gearing, consisting of three yokes and two chains, would not cost more than twenty dollars, and would probably last twenty years.

A singular method of accustoming young animals to draw is practised in France; and, although it must be admitted that few nations have been more the slaves of routine and of old habits, or slower in the progress of improve-

ment in agricultural implements, yet the system they pursue in this instance, as here illustrated, looks and reads so plausibly as to appear worthy of trial, and to bespeak confidence in its efficacy. It is well known that nothing is more humbling to the wildest and most indomitable animal than the sufferings of *extreme hunger;* and among the French, in the very act of satisfying its cravings, they habituate young animals to the yoke and harness. For this purpose they attach them to the manger by means of a cord which runs through a ring, at the extremity of which a weight is attached, as represented at A, in the annexed Plate, so that the animal may, at pleasure, approach or recede from the manger. A collar is put on the animal with two cords fixed to a bar or swingletree, to which another cord is attached at B, which passes through the pulley at C, and to which is suspended a weight as at D, to be increased or diminished at pleasure. Things being thus arranged, fodder is put in the rack. The animal, when pressed with hunger, approaches his food, in doing which he raises the weight, and keeps it suspended as long as he continues to eat, and thus contracts the habit of drawing in a few days. He is free to relax his exertions, for whenever he recedes, the weight reposes on the ground.



"In many respects," says Mr. Gilman, "proud man must look up to the beast as his superior: man's reason is replete with error; but instinct, or the inference drawn by a brute, from certain sounds and motions, after having once learned their purport, is *infallible.* I have seen the best drilled soldier mistake, for the instant, advance arms for recover arms, but never saw a well-trained ox mistake *gee* for *haw*, or *haw* for *gee:* hence system is indispensable in the management of working cattle. He who would work them with ease and facility, should maintain a strict uniformity in his conduct towards them. They must have names; therefore, calves intended to be raised for working should be named while young, to which they become familiar by the time they are ready for the yoke. Any thing appropriate to their color, shape, &c., is proper; such as bright, broad, line, spark, back, star, turk, golden, &c."

"The buffalo breed of cattle, or those without horns, will not answer well for working, as horns are necessary in backing a cart, and in carrying it down hill. This may be obviated by having a plain harness with breeching fastened to the yoke of the oxen to the tongue, as is the practice in Pennsylvania. Oxen should never be changed in the yoke after having been broke; the near and off-ox should always remain as such; by changing them, they become confused, and all the benefit of their tuition is lost."

"A temporary change, however, can be made in one instance to advantage; this is when they hang off from each other, as they are apt to do in bad travelling, when they get fretted; they then cut each other's feet with their shoes; shifting them puts this out of their head for that time."

"There are, however, several ways in which oxen may be geared for work; they are willing to earn their bread any way; they have been tried and found to pull by a yoke on the neck, by a shaft lashed across the forehead, and traces to its ends; by traces fastened to the horns; by harness like horses; and they will pull by the tail. From these various modes, it is the husbandman's duty first to study the nature and convenience of the ox; secondly, economy and his own convenience, and then select that which embraces most of these desirable objects."

There are but two of these modes mentioned that can be adopted with any degree of satisfaction or success; these are the yoke and the harness. From the former being in general, not to say universal use, the inference is a natural one, that some inconvenience must attend the latter. The form of the ox is one objection to harness; his belly is so much wider than his shoulders, it is embraced so hard by the iron traces as to impede his wind, as well as to be injured by galling. The yoke, on the other hand, being of hard wood, appears to be an instrument that would gall, but I never knew any injury done by it. The neck of the bullock seems by nature fitted for the yoke; the skin, naturally thick, soon becomes so callous as not to be hurt by friction; it is there his strength lies, even to a proverb.

In point of economy, there is a wide disparity between the harness and yoke; the expense of the former to that of the latter, for eight years' wear, would be as ten to one, and the time of gearing and ungearing is as three to one; in other words, a yoke will cost only five dollars, which will average eight years' wear, and can be put to oxen in two minutes.

A yoke which is properly made for oxen of equal size and strength will have no particular end for the near or off-ox; but the bows being sometimes untrue, will fit to the neck better one particular way. This the nice teamster will observe, and always put them so. An ox can feel as sensibly as a man the pains of tight or unfitting accoutrements; but not being so fluently gifted, and being too noble and patient to shrink on that account from his task, it particularly behooves every driver (who cannot all day wear a key or penknife in the foot of his boot) to be vigilant that the tackle sits easy and free on his team.

When oxen are unequally matched as to strength, the strongest is apt to carry his end of the yoke several inches before the other; this makes the yoke uneasy to them, and is soon remedied by putting the staple of the yoke nearest to the end of the strong ox. It does not, however, always follow that the stronger ox carries the fore end of the yoke. It often occurs that an inequality of strength begets such ambition in the weaker ox as will ruin him by his overstraining himself for an even yoke. The driver should be attentive to this circumstance, (if it ever occurs with him,) and remedy it, as has been just pointed out.

It is unnecessary, in yoking well-tutored oxen, to lug the yoke round the yard after them, as they are easily called to that. I have often called the

ox I wanted from a drove of all sorts of cattle. Stand the yoke on one end; take out the off-ox's bow; steady the yoke with the left hand, and with the right hold up the bow towards the ox, and beckoning with it, call him by name to you; slip the bow under his neck; turn the yoke down upon it; enter it in the bow-holes, and put in the bow-pin; then take out the other bow, and lifting up the near end of the yoke with the left hand, with the bow in the right call the near-ox also by name, who will come and "bow his neck to the yoke," and is harnessed the same as his companion.

An ox-goad, to drive with, is made of hickory, or any tough wood, three and a half to four and a half feet long, as may suit the whim of the driver, about the size of a man's finger, with a prick or sharp point of iron in the end, projecting not more than a quarter of an inch. This is more cheap and simple, and has been found to answer much better than a whip, or a long green withe. The ludicrous practice of using the latter, and of having a driver on both sides of the team to keep them straight, or of fastening a rope to the horn of the near-ox for the same purpose, cannot be too soon exploded. Riding on oxen is a shameful, lazy practice, that should also be done away with. Oxen may, and ought to be so taught, that by speaking to them and making a kind of beckoning motion with the goad, they will come to; or, in other words, turn to the left without the trouble of an assistant on the off-side, or a rope to pull them round.

I would have one thing remembered in driving oxen, (which also applies to every species of servants;) I mean the impolitic habit of a uniform harsh deportment, and of keeping the goad constantly going over them; it is a needless tax upon the lungs and sinews; the oxen will not do so much work for it; and, what is worse, they become so callous from this perpetual rough discipline, that they cannot easily be brought to any extra exertion when it is indeed necessary.

The benefit of a calm management has been very apparent to me when I have been driving in company with these peevish geniuses; and coming to a steep hill, I would then speak sharp and determined to my team, and ply the goad pretty freely, if necessary. This treatment, so novel, would be fully appreciated; every one of them would pull as for his life, and the hill would be quickly surmounted; while the driver who has always been speaking harshly, and always been plying his goad, could not here make use of any new argument to stimulate his cattle to the exigence of the moment. The consequence was, he would often have to receive assistance from a team no stronger than his own. Drivers should acquaint themselves with the burden of their oxen, and never load them beyond it; it discourages and hurts them.

Because they are very strong, many unthinking taskmasters appear to believe them omnipotent. When they are properly taken care of, they are not apt to be sparing of their strength; they are sometimes profuse with it.

I have often been beset with difficulties when at work alone in the woods with a yoke or two of oxen, and have then thought I could perceive traits of reason in them; for, in proportion to my anxiety and exertions to extricate myself, have I seen their's spontaneously to increase.

That all cattle should be sheltered in cold and wet weather, is obvious to every person; but to those that work, it is indispensable; their health and strength depend upon it.

From the severity and duration of our winters at the northward, our barns are generally spacious, and calculated to hold as much as possible of our grain and hay. No doubt, however, but this is good economy in every climate in the United States; as the farmer loses as much in quantity and quality of his produce in a short time, by stacking out, as would build a barn.

Our old-fashioned barns, I believe, are not susceptible of much improvement. Those which cattle are wintered in are built a small distance from the house, on a rising ground, with a yard opened to, and descending a little towards the south, if such a spot be near; it being thereby warmer, kept cleaner, and the wash enriches the adjacent ground. The barn has two large doors opposite each other for the convenience of driving loads of grain and hay; on one or both sides of this thoroughfare is a stall for cattle, say ten feet wide and six and a half high, and running the whole width of the barn; so that if a barn were forty feet long, the stalls would take up ten feet on each end, and twenty would of course be the width of the thoroughfare; which latter being also used as the threshing-floor, is floored with two-inch plank, well joined.

The partition between this and the stalls is only three feet high, for the convenience of feeding cattle, whose crib joins the partition, and is thus made:—A piece of timber, the length of the stall, about four inches thick by eight wide, is laid down on edge, parallel with the partition, and two and a half feet from it; this makes a crib on the floor, being the most natural one that cattle can have to feed at. It is perfectly clean, as the stall-floors have a gradual descent of about three inches. Immediately over this timber is another smaller one of the same length, fixed to the joist above; in both of these timbers from end to end holes are bored at three feet distance, and smooth round stations or studs, three inches in diameter, are fixed therein; round each of these stations is bent a small hickory hank or hook, sufficiently loose to play up and down thereon; a wooden bow passing through this hoop, embraces the neck of the ox, who is thereby kept at his post, yet still has every rational liberty. He has room to eat his food, lie down or stand at his pleasure. (See drawings on page 359.) These stalls have small windows, four feet from the floor, and a convenient distance from each other, through which to throw the manure. Satisfactory experience of the safety and economy of this mode of housing cattle has made it universal in that quarter.

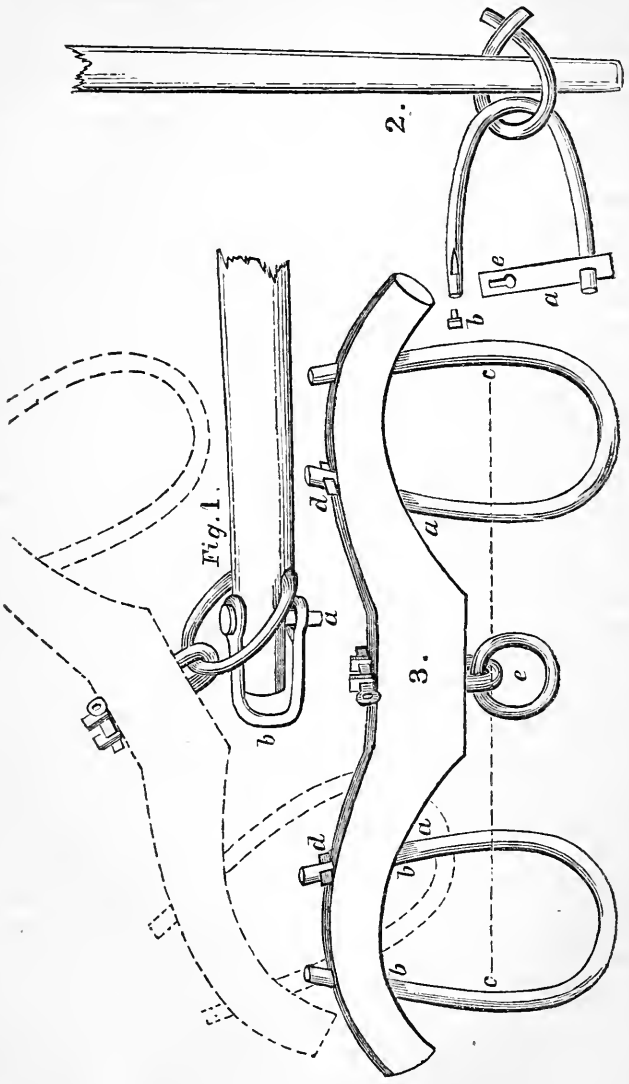
On tying up cattle for the night, respect should be had to mastery among them; the strongest should be put in first, and at the further end from the door, and so on, according as they hold dominion over each other, leaving the cows, yearlings, &c., next the door, in case of civil war among them.

It is interesting when "the curfew tolls the knell of parting day," and the farmer's boy opens his stall-door and gives a nod of invitation to his "leading characters," to see them forming a line of march, entering the door, and taking their places precisely according to rank, without martial music, word of command, or confusion.

The thorough-bred teamster never suffers himself to partake of his repast before his oxen have begun theirs. They require little else in winter but good wholesome hay and water; but when sufficient time cannot well be allowed them to dine on hay, then corn in the ear is the best thing that can be given them. Pumpkins are also very grateful to them, and being remarkably prolific, may be raised with little trouble. In winter, cattle are tied up and fed at about sunset; fed again at eight o'clock; again at daylight; then at sunrise they are ready for the labors of the day. This mode of feeding is considered preferable, being fresher in small quantities, eaten more freely, and less liable to get under their feet, and be wasted.

Carts being cheaper than wagons, and handier about the ordinary business of a farm, are therefore to be desired. Different kinds of bodies may be attached occasionally to one pair of wheels; an open one for hay, sheaves, &c., and a close one for fruit and vegetables. The naked wheels are handy to haul spars, poles, and all kinds of long timber on. In hitching a cart to the oxen, the tongue or spire thereof passes into the ring of the ox-yoke, as

far as the shoulder in the tongue will permit; an iron instrument called a *copes* pin, resembling the capital letter U, is put on the end of the tongue, embracing it above and below, and the copes pin is inserted through the end of the tongue and through the copes. This copes is for the purpose of hitching the second yoke of oxen to, when necessary. (See the annexed drawing.)



Wherever oxen and yokes are used, chains become indispensable; four of these, each ten feet long, with a hook in each end, or part of them with a ring in one end and a hook at the other, are enough for two or three yokes of oxen.

The drawings above are necessary for a better understanding of what has been said.

Fig. 1 represents a cart-tongue hitched to a yoke, as in the act of draw-

ing; *a* is the copes pin, which goes through the tongue, and by which the yoke draws; *b* is the copes by which the second pair is hitched, when necessary.

Fig. 2, a stanchion and bows, by which cattle are secured at their crib; *a*, the cap lies flat on the top of their neck; the end of the bow at *b* is sometimes like a button, and is put in the hole at *c*, and springs into its place.

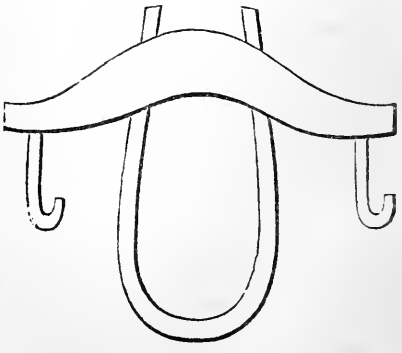
Fig. 3 is the model of a yoke for a middling sized pair of oxen. Whole length, three and a half feet; distance of bow-holes, *a* to *a*, twenty inches; from *b* to *b*, in the clear, six and a half inches. The bows being something of an oval form, and *c* to *c* being the greatest swell, and where the ox's shoulders come, the staple *e* should be in a direct line between, so that the strain will come right, in drawing: *d d* may be flat keys or round pins of wood; one in each bow is sufficient. The stuff of which the bows are made must be at least one and a half inches in diameter.

There is no good reason why the ox should not be worked singly; so might cows when not at the pail very well do the single ploughing, and haul light loads in carts; and it would be yet more economical and expedient to spay and work heifers under certain circumstances. In Spain and France it is a common practice. Every judicious farmer will endeavor to get all possible remuneration for the certain expense attendant upon the keeping of *every thing that consumes the produce of his land.* Even the dog that eats what would keep a pig, besides guarding his house, protecting his fields, and finding his game, is made by the calculating New England man to *churn his butter.*

It is observed that less food is necessary for spayed heifers to keep and fatten them than is required for the ox; and Mr. Marshall, in his rural economy of Yorkshire, remarks, that it is a fact well established in the practice of that district, that they work better, and have better wind than oxen.

It is a common thing to see a single ox in a cart at Norfolk in Virginia, among a people as little as any other observant of improvements going on in agricultural machinery. That whole States, even where oxen are used, should forego the use of single oxen, serves to show how proverbially slow is the change of habits among agriculturists. Large bulls of immense strength are often kept and fed through the entire year, for the sole purpose of their services for eight or ten cows, when they might haul immense quantities of wood and manure in vehicles adapted to the purpose.

For an ox working singly, some recommend a single harness with the collar reversed; but for the reasons he gives, and which are obvious, the single yoke recommended by Mr. Stabler, and here exhibited, is greatly to be preferred. When the collar is used, and the draught heavy, the pressure of the traces on the sides is obviated by the yoke. The length for a single yoke must be proportioned to the thickness of the animal, so that the traces will be as far apart when fastened to a small hook on the under side of each end as is required to prevent his sides from being chafed. The following will show the proper shape of the single yoke:—



It will be observed that by placing the hooks perpendicularly through the

ends of the yoke, the draught is applied precisely as in the double yoke, and the bow consequently keeps its proper place.

Mr. Stabler, a nice observer and a practical man, residing in a middle State, sets it down that a horse when at work must have at least three gallons of grain a day, and for six months in the year one hundred and twenty-five pounds of hay per week. Supposing him to be at work only two-thirds of his time, and during the remainder to be kept on hay or pasture alone, he must consume upwards of ninety bushels of grain, and two thousand eight hundred and seventy-five pounds of hay in a year, which latter is amply sufficient, with such pasture as the horse must have, (and some additional coarse food in the winter,) to keep the ox in prime order for work without the use of any grain. Thus it appears, that for every ox substituted for a horse, there are ninety bushels of grain saved in the year.

From data given, Mr. Stabler shows a saving on four oxen instead of four horses in twelve years, of *two thousand four hundred and fifty dollars*— and concludes his observations on the subject with this wholesome advice:—

"It cannot be too strongly urged upon those who are about embarking in agricultural pursuits as a means of securing a livelihood, (and who may be free from many of the prejudices entertained against oxen,) to make the experiment at least, and give the thing a *fair trial*, before they encumber themselves with that *moth*, a stock of farm-horses; in doing which, it will easily be seen they hazard nothing; for should any wish to abandon the plan after a sufficient trial, one summer's grass will enable them to obtain, in cash, an advance on the first cost of their cattle, if young and thrifty; and such are always to be had."

ITEMS FROM ENGLISH PAPERS.

Butter-making.—There is a paragraph in your paper headed "Butter making," in which the writer condemns the use of turnips for feeding cows, as giving the butter and cream a bad taste, and expresses his surprise that there should not be any method to prevent it. I occupied a farm of 500 acres, and kept a large dairy of cows, and never had the taste of Turnips in the butter, by applying hot water and steam, at different times, to the milk and cream, which entirely took away all flavor of the turnip. We generally made from 1*d.* to 2*d.* per lb. of our butter more than market price.

Flooring.—Mr. Drummond copied, about two years ago, a receipt for making a flooring; twenty-seven gallons of gas tar, three tons of sand, one bushel of lime, and upon trying this about a year afterwards, found it would not answer, but one of the workmen, by accident, mixing a much larger quantity of lime, it formed a most excellent flooring. The exact quantity of lime is not known. [Can any one furnish us with an experience on this subject.]

The Gapes.—A farmer's wife must take the bird on its back in her left hand, holding its beak open with the fingers of that hand; and with the right holding the end of a small quill feather properly trimmed and dipped in sweet oil, she must, watching her opportunity, slowly insert the feather end two inches into the windpipe of the unfortunate bird, and turn it once round and withdraw it. The bird will cough up the worms which occasion the disease.

TOTAL ACREAGE OF ENGLAND, AND ITS DIVISIONS.

As in the prosecution of agricultural and political comparisons and inquiries, it may often be desirable to know how much there is of different kinds of lands in different countries, and especially in that country from which we sprung, and to which we are, if we did but know it, yet in many respects absolutely subservient—we think it well to give, for the sake of remembrance and reference, the following estimate, from a writer who is considered among the best of authorities.

In his analysis of the "occupations of the people," Spackman says, p. 35:

	Statute acres.
Amount of arable lands and gardens	10,252,800
Meadows, pastures and marshes	15,379,200
Wastes capable of improvement	3,454,000
Incapable of improvement	3,256,400
Total acreage of England	32,342,400

According to Darby, there are in

	Square miles.	*Population.*	*To the sq. m.*
Eastern Virginia	8,875	262,524	30
Middle Virginia	24,297	655,266	26
Western Virginia	28,130	147,514	5
Total	61,302	1,065,304	
Or of *acres*	39,233,280		

Had Virginia been all along governed by the policy which encourages combination, and thus tends to the concentration of population, which prevails in Connecticut and Rhode Island—a policy which mingles in harmonious concert the whistle of the ploughman and the whistle of the railroad car, with the sound of the shuttle in the loom and the hammer on the anvil—what would have been her population at this day of our Lord 1848?

WOOL AND WOOLLENS,

EXPORTED FROM GREAT BRITAIN TO FOREIGN COUNTRIES—INCLUDING THE UNITED STATES.—FARMERS, LOOK AT THIS.

Official returns, dated 18th July last, have been published, showing that during the last two years the export of British sheep and lambs' wool from Great Britain in 1846 and 1847, to thirty-one different countries, was, in 1846, 5,851,888—in 1847, 5,550,680.

The largest quantity was in 1847 to France, the next to Belgium, the next to Holland, and the *fourth* to the *United States*, being 29,488; but of British woollen and worsted *yarn*, the whole amount was, in 1846, 8,630,608—in 1847, 10,065,231. Here again the United States was the sixth on the list of *favored* nations, having received from good mother Britain, of whom we have *declared* ourselves "*independent!*" 179,264, every pound of which ought to have been spun in our own country, by men who should have eaten our own beef, and mutton, and pork, and bread, and cheese, and potatoes, and turnips. How long will John Bull continue to laugh in his sleeve at the boasted sagacity of the Yankee, who fancies himself free, and who every fourth of July joins hands to dance around his liberty poles, singing—"*Let independence be our boast?*" Alas, how much this world is governed by *humbuggery*, from the great National Wittenagemote down to what? why down to the A——— Institute!

THE COUNTY THAT CAN'T RAISE AN AGRICULTURAL SOCIETY.

It is published, not "in Gath," but *confidentially* in the "*St. Mary's Beacon*," that an attempt lately made in that county, in Maryland, to get up an Agricultural Society, proved an utter failure. One might suppose from the number of gentlemen appointed there, to attend the Agricultural Convention in Baltimore, in October last, that every other man in that county was an active member of such an association. Quite sure we are, that a club composed of the persons nominated on that occasion, would most advantageously compare in abilities and experience with some who, in the north, are so systematically puffed up, as to loom largely in—the papers.

But where farmers lack the energy and spirit to associate for the benefit of their profession, may it not be suspected that there the loom and the anvil are kept at a distance from the plough and the harrow? How is that fact in old St. Mary's—surrounded, intersected, and indented as is no other county in the world, by magnificent, and bold, and beautiful bays, and rivers, and harbors? Are they all planters and farmers, with no men and women at other trades, such as are to be found in all sorts of occupations, in all parts of New England, ready on the spot to consume all the milk and butter, the potatoes, and parsnips, and apples, and pears, that can be produced, and all helping to build up banks, and factories, and railroads—all busy making ox bows, and ox yokes, and rakes, and pitchforks, and axes, and axe-handles, and planes, and shoes, and shirts, and tubs, and buckets, with which to pay, and a little overpay, the farmer and the planter of Maryland and Virginia, and the Carolinas, for their corn, their wheat, and their cotton; all of which are made and sold by the bushel and the pound, demanding laborious and costly culture of large surface, and therefore forbidding concentration, and those improvements of all sorts, that can only be realized where concentration takes place? When that does take place, the farmer gets a market for bulky and valuable commodities of a perishable nature, sure of a sale on the land or within the smoke of his chimney—hence the ever-increasing productiveness and value of land in Delaware, and in New England. When deconcentration takes place, things of little value, such as will bear transportation, can be made; and hence dispersion and impoverishment. An acre of land that will bring thirty bushels of wheat, worth thirty dollars, will bring five hundred of potatoes, worth two hundred and fifty dollars. Is it under a policy and influences like these, which prevent the approximation of the plough, the loom, and the anvil, that good old St. Mary's, the first spot in the state settled and consecrated to liberty and toleration, seems to have been paralyzed in her growth, increasing only *three hundred in ten years!* while abounding in calcareous and other rich fertilizing substances; all, in fact, that need be desired, to increase her agricultural resources, lacking only the customers, "by the side of the agriculturist," to buy the products of agriculture? Does St. Mary's manufacture her own wool—does she tan and make up her own leather? What does she manufacture for sale, except wheat, and corn, and oats, and tobacco, that are carried away beyond her limits? How much of what she gets out of the ground, and how much of all that she sells, is sold *within her borders*, and its refuse returned upon the land? In New England, every thing that comes out of the ground is sold within the county and the township, and yet the consumers, like young and hungry birds, with open mouths, cry for ever, more—more—and if one farmer does not get the refuse of his own land, another does. But where the consumer is

at a distance from the producer, is it not "always taking out of the meal-tub, and never putting in?" Will the Beacon cast us some light on this subject, and tell us how it is that with such a munificent array of nature's bounties, the good old lady should, in point of numbers, be standing still, almost at the bottom of the list, in a noble state of which the historian has already recorded—"The increase of her population, for the last forty years, has been *nearly equal to one per cent.!*" For love of the state that bore us, we pray again—"give us but light."

THE OCTOBER FAIR IN PRINCE GEORGE'S.

It was truly gratifying to see, in the reliable "Marlbro' Gazette," such a good account of the late exhibition. It says:

"Those who visited the Prince George's Agricultural Society in former years, must have noticed the gradual improvement in the various departments—and in every thing exhibited at its late meeting there was displayed more perfection than on any previous occasion. The contributions of the ladies were both useful and beautiful. The display of fruits, flowers and vegetables, excelled the rich collections of former years. The stock yard was well filled with superior animals, affording ample proof that the attention bestowed on raising improved animals has more than compensated for the care and expense. We cannot do justice to the fine cattle exhibited—and must content ourselves with referring to the reports of the various committees which will be published next week. A most interesting feature of this branch was the competition for the 'Calvert Premium.' It will be recollected that the liberal and zealous friend of agriculture, C. B. Calvert, last year offered, through the columns of the Gazette, to give the male calves of his celebrated Durham stock, free of charge, to such gentlemen as would oblige themselves to exhibit them for the premium of the Society, annually for three years. Eleven gentlemen availed themselves of the offer, and the committee who passed upon the calves, speak in the highest terms of their appearance. They have made an interesting report on the subject."

Truly, there *is* a great difference between giving away improved short-horn calves, and selling them, as in England for the last forty years, at from fifty to one hundred guineas. It is well that *something* can prompt gentlemen of ample means to take measures for the improvement of their stock; but after all, the question arises, how far is it expedient, with a view even to general improvement, to *give* away the means of accomplishing it, unless it be to men of spirit unable to buy?

In the general way, that is not most valued which may be had, even without the trouble of asking; and when those who are able to buy wait to have a thing given to them, to whom can they expect to sell? Will not the next generation wait not only to have the best things given them, but sent them in the bargain, with a polite note entreating them to accept? By-the-by, though we have read with lively pleasure the account of the show, we have looked in vain for any indication of a desire to inquire into the *laws of the State that bear upon agriculture.* Whether, for instance, something might not be done to enable the planters and farmers of Prince George's, to avail themselves of their unemployed means of raising as many more sheep as would add fifty thousand dollars to the income of the county, without an additional outlay on that amount of one per cent.? Are there not streams enough in Prince George's to manufacture all the cloth that is used in the county, and might not the county supply the wool fine enough for all purposes, and the vegetables and corn, and fruit and meat for the operatives employed in its manufacture, without intrenching on their present income from other sources? Why for ever persist in putting their trust so exclusively in tobacco? Suppose even that the duty was to be reduced in England, and the consumption quadrupled or quintupled: have we not in the west land enough and labor enough that can in no way be

so profitably employed as in producing tobacco at four dollars a hundred? And is it not, therefore, morally certain, that the supply will for ever tread closely on the heels of demand, and so keep down the price? Let, then, the planter and farmer of Maryland and Virginia study how—by what action of the government—those who manufacture iron and cloth for us abroad shall find it their interest, and be tempted to come, and, while they are manufacturing for us here, eat the cabbages, and the turnips, and potatoes, and apples, and milk, and butter, and veal, and mutton, that might be made in Prince George's, with half the labor and cost that they are made in New England. Then he would sell *tons*, where now he sells pounds weight of wheat and tobacco.

We see in these proceedings at Marlbro', conducted by gentlemen of acknowledged and superior intelligence, no attempt to agitate the question of the *fence laws*, and the *inspection laws* of the state—though the fencing in that very county has cost more than the land would sell for. When farmers meet, one would suppose it would be to inquire and discuss, as merchants and manufacturers do, the bearing of the laws, and policy of the government on their particular pursuits; but, alas! for instruction in all that, they surrender the privilege of thought and inquiry to old field *party leaders*, whose orders they implicitly obey. The whole country may be compared to a great pyramid, the base of which, broad and strong enough to hold all the rotten materials above, is composed of the substantial farmers and planters of the country. The next tier above consists of the seekers after numerous small offices, for which they rely on the influence of the next tier above them again, composed of a smaller number, who aspire to something a little higher—state legislators, &c., who, in their turn, are the creatures of lawyers without briefs, and doctors without patients, looking for seats in Congress, rising up at last to an individual sitting in a great palace, who holds the purse-strings—who constitutes the apex of the political pyramid, and who saves, to all below him, the trouble of thinking for themselves; and in regard to whom it sometimes happens that still the wonder grows that one small head should carry all he knows. Such is the system under which the farmer and the planter allows himself to be governed, without any attempt at individual inquiry and independent action. Societies seem to be organized, not to inquire into the political economy and condition of the landed interest, but to give away, for large calves and fat sheep as much money as they can collect—while those in whose names and for whose benefit they associate, continue to pay $15,000,000 *a year for military establishments and schools.*

Foot-Rot in Sheep.—In answer to your correspondent respecting the foot disease at present in sheep, I beg to inform him that I have had some very bad, and I think I have cured them by the following plan, (at least they are nearly well,) and I only operated on them about ten days ago. I cut off all the hoof that required it; I then washed their feet well in very strong salt brine; after that a man rubbed in some salt, and did not care if they bled a little. I am quite satisfied this has answered, but I continue to examine them and rub more salt if they appear to require it, first washing the feet well in brine.—*A Subscriber.*

Lime a means of preventing Plant Wounds from Bleeding.—This year, I saved some fine pelargoniums from bleeding to death, after being cut down, by dusting slaked lime over the wound. It might have the effect of preserving other plants under similar circumstances.—*Falcon.*

WOOL GROWING,

A GREAT AND MUCH NEGLECTED RESOURCE FOR AMERICAN FARMERS.

In the firm belief that under a policy that should force the manufacturer to come with his light and inexpensive portable machinery to the wool grower, and the cotton grower, with their expensive unportable machines of production, instead of sending the wool and the cotton to the looms; or, what is the same thing, buying the cloths of other countries; in the firm belief that under such a protective and common sense policy, the growing of wool might be infinitely extended, and with profit, in the United States, we shall continue to bestow particular attention on that branch of industry. As the best means of promoting the best understanding of the subject, we have begun by offering the best book that in our judgment has yet appeared to enlighten the inquiring farmer in all the branches of sheep industry. We find the following in the Vermont State Agriculturist. It evidently comes from the pen of a writer practically familiar with what he undertakes to illustrate.

All kinds of wool are worked up in manufacturing. One mill may use one kind, and another a different one, the differences being based on the intended quality of the fabric, and on the kind of machinery used. Manufacturers, therefore, buy their wool with reference to the object in view. The carpet-maker does not want the fine wool necessary for broadcloth, nor can the latter be made from the coarse South American article employed by the former. The price of wool is always graduated according to its quality and the price of the intended fabric; and manufacturers can generally procure in some part of the country the article they need. They are not, therefore, confined to any particular section, and, consequently, it is of no consequence to them what kind of wool the farmers in their immediate neighborhood produce, as they can often buy cheaper at a distant market. The charge of *interested views*, therefore, which I have so often encountered, is without foundation.

But now, what kind of wool is it most profitable for our farmers to raise? Coarse wool can be produced at the West, very much cheaper than in Vermont. Coarse wool can be imported from South America for much less than it can be raised *in Vermont*. Most of our farmers keep small flocks, and can, therefore, pay them all necessary attention. Our climate is severe, and the expense of keeping sheep is a matter of considerable consequence.* *It is, therefore, a matter of great moment to our farmers, whether they get fifty cents or a dollar per head more for their wool than is now generally obtained.* How can this be done? Plainly by raising fine wool. I am fully of the opinion that fine Saxony sheep of the right kind do as well in our climate as any others, and will be found much more profitable. To prove this, one has only to look at two flocks now kept within six miles of Burlington, both of which have been kept at least two years in their present situations. One of these is Saxon, and the other Merino. I am bold to say that no one, after a careful examination of the two flocks, and after witnessing the effects of wintering upon them, can decide in favor of the Merinos. This examination will prove the best argument, and can be accomplished with but very little trouble. As regards the *profit*, the following figures will best exhibit *that*.

The flock of Messrs. Perkins & Brown, the wool of which is now at the Burlington Mill, averages two pounds to the fleece, and is considered cheap at 75 cents per pound, or $1.50 per head. The general average of Vermont wools, according to the best authorities, is about 2½ pounds—say

* The estimate by those with whom we have conversed, is from $1.10 to $1.15 per head, as the market price of the food consumed in winter.—*Edits. P. L. & A.*

three, at from 28 to 30 cents—say 30 cents per pound. This will give a balance in favor of the fine sheep, of 60 cents per head.

The wool of Messrs. Perkins & Brown may be considered light, but that is partly accounted for by its *condition*. Their wool will shrink but 28 per cent., when the Vermont wools will generally shrink from 40 to 42 per cent., and sometimes as high as 50 per cent. Not a tag, nor a particle of dirt of any kind is to be found among this wool; and it would add to the value of ordinary wools were they offered for sale in similar condition.

It is often supposed that fine wools are so much lighter than coarse, that the difference in price is balanced by the deficit in quantity. But this is an error. The finest wool in the world, that from which Cashmere shawls are made, is valued on the spot at $1 per pound—the yield being about two pounds, or $2 per head.* The common Vermont wools we have already estimated at 90 cents per head, although the yield in weight is one-third greater. The difference between fine Saxons and Merinos is not so great as that, but it will be sufficient to induce the culture of fine wools in preference to those of a coarser quality. C.

Burlington Mills, April 21, 1848.†

EFFECTS OF DEPENDENCE ON FOREIGN MARKETS.

We take the following passage from a leading free-trade paper,‡ and beg to commend it to the careful perusal of our agricultural readers:

"It is extraordinary, that amidst all this state of things, all the difficulties with which we are surrounded, there is nothing within ourselves calculated to cause them, or give them any permanence. It is our intimate connection, in all financial and mercantile matters, with the Old World, that is destroying our prosperity, and inflicting upon us evils which we shall not recover from very soon. Our domestic affairs have, for a long time, been in a healthy condition; our productions have been unusually abundant; and all the elements of wealth have been properly husbanded; but the state of affairs in Europe has tended more to depress prices for our products than any thing that has transpired within our own limits. Whatever affects the consumption of our products abroad, depreciates prices for all that we have on hand. Our products and manufactures are valued at about $2,000,000,000, of which only about $100,000,000, or one-twentieth part, is exported; and whatever affects the value of the portion exported, affects the value of the nineteen-twentieths reserved for domestic consumption. We are thus at the mercy of foreign countries. If any thing of a political nature transpires abroad, calculated to unsettle the public mind and destroy confidence, we feel it through its influence upon prices for our products. If a financial revulsion spreads over the whole or any part of Europe, the markets for our products are injured or destroyed, and immense losses fall upon our merchants and producers. We have to bear the brunt of every political, financial, or commercial disaster, which occurs in any and every part of the world. The raw material, for the most important branch of manufacturing, is produced in this country, and we are, therefore, dependent upon those countries which consume this staple so largely. If markets for manufactured goods are injured by any revulsion or revolution, the manufacturer can stop his machinery, discharge his operatives, and for a time remain inactive, with the loss merely of the interest on his capital; and when he resumes, the raw material will be found so much depreciated that moderate profits are realized, without any

* Ure's Dictionary, article Cachemere.

† But if all were to turn to the growing of *fine* wool, where would come the wool for carpets, blankets, and coarse clothing? Still, where land is high, farms small, and keep expensive, doubtless the fine wool is most profitable, but the course of things ought, and we apprehend will be, that the pastures, and the manufactories for *coarse* wool, and woollens, and cotton as well, will *finally be in the South*—leaving enough for the more ingenious and pains-taking Yankee to do with his more perfect machinery, to manufacture the *finer fabrics* for our own country and consumption, and ultimately for foreign markets; after the world shall have succeeded in breaking down its colonial vassalage to England, and established real *free trade*.—*Ed. P. L. & A.*

‡ The New York Herald.

material improvement in prices for manufactured goods. The manufacturer is thus more favorably situated than the producer. The first can raise prices for his fabrics by stopping the supply, while the latter has no such alternative—he must keep on producing, no matter what the price; he cannot discharge his hands and let his land lay fallow, neither can he turn his attention exclusively to the cultivation of other crops; cotton is his staple product, and his capital is all invested in facilities for its production. The manufacturer is only compelled to stop working his mills, until prices for the raw material become sufficiently depreciated to enable him to start again. *Not so with the producer. If the foreign demand becomes reduced by difficulties of a foreign character, and prices rapidly fall off, he cannot stop the growth of his crop, and confine it at that stage, until prices recover and become remunerative; it must be picked at maturity, and a market found at some price.* The producer is, therefore, at the mercy of the manufacturer; and, as such a large per cent. of the crop is consumed abroad, we must not look for, or expect, any immediate change in the relative position of the two parties.

"Great Britain is connected with every country on the face of the earth, of any commercial importance; and, consequently, through that country, we are nearly as intimately interwoven with the commercial operations of the world. Great Britain is such a large consumer of our staple products, that we are deeply interested in her prosperity; and it is, therefore, highly important to us, that every thing tending to her progress and advancement becomes settled upon a sound and healthy basis. We have long deprecated the position we occupy relative to that country. It is humiliating and decidedly injurious to our most vital interests. With greater resources, with more elements of wealth within our limits than any other nation in existence, we are absolutely dependent upon the preservation of peace in even the smallest power in Europe. We are rapidly extricating ourselves from this thraldom, but until we are completely removed from the influence of foreign affairs on our internal commerce, we shall periodically experience all the fluctuations in prices, &c., which have, so far, in our history, marked our progress."

It is our intimate connection with the Old World that is destroying our prosperity. Our domestic affairs *were* in a prosperous condition, and they were becoming daily more prosperous under the system that existed prior to 1847—that system which had for its object the bringing together of the plough, the loom, and the anvil. The manufacture of iron having grown in four years from 350,000 to 700,000 tons, and the production of coal from 1,000,000 to 3,000,000 of tons, these two articles alone had provided for the farmers a market for their products almost equal to the largest amount ever exported, and immense numbers of prosperous spinners and weavers were enabled to consume largely of the products of the plough, while engaged in fashioning other of its products, to the vast advantage of the owners of land. In an evil hour, the farmers and planters determined upon a new course of policy, the effect of which has been to close the furnaces, the rolling-mills, the woollen-mills, and the cotton-mills of the Union, and to put a stop to the building of new ones. The necessary consequence of this has been, and must continue to be, that the men who should be working mines and furnaces, and cotton and woollen mills, and those who should be employed in building new ones, are compelled to fly to the west, there to become producers of food, because they are not permitted to follow their own inclination, and remain at the East, consumers of food.

Let but the whole people of the Union adopt it as their fixed and determined policy that the loom and the anvil *shall* come and take their place by the side of the plough and the harrow, and ten years will not elapse before the necessity for seeking in foreign lands a market for our surplus food will be at an end. The owners of ploughs and harrows will then grow rich, for they will then be enabled to return to the land the refuse of the products of the land, and their crops will yearly increase in quantity: whereas, let them continue the present course of policy, and they will become poor, because they will with every year waste more labor and manure on the roads—with every one they will more and more exhaust the land—and with every one they will be more and more compelled to fly to the West, there to seek new lands to be again exhausted.

THE MARYLAND PRIZE ESSAYS.

TO SHOW HOW BEST TO RENOVATE WORN-OUT LANDS.

We have read these essays, as far as published, with the attention due to their authors and to the subject—our own apprehension is that the exhaustion and desertion of lands like those in Maryland, possessing so many advantages and resources, geographical and natural, is to be attributed, not to any general ignorance of the proper rotation of crops, or of the indispensable application of manures—nor even so much to ignorance of the general principles of agriculture, such as the necessity for thorough draining and thorough tilth. All these things are generally pretty well understood. In our belief the root of the evil lies deeper. It lies, if farmers would take the trouble, and learn to trace it, in defective or mischievous legislation. It lies in the encouragement given to foreigners to keep their manufactories abroad, instead of forcing them to come with their capital and their machinery here. It lies in enabling them to ship to this country, in the shape of manufactures, cloth, iron, &c., the *food* out of which these articles are made, and which they as much represent in our country, as if the potatoes, and the cabbages, and the flour consumed in making them, were imported directly to the United States. There is not a yard of cloth, or a ton of iron, or any other thing essential to national independence, for which the water-power, and the iron and coal, and other materials might not be found along the Potomac from Cumberland to Georgetown, and elsewhere in our own country.

The very articles, and the only articles that can be cultivated in our own country, that will bear transportation to markets so distant as markets must always be where the consumer is so distant from the producer, are of a nature to exhaust the land and leave the landholder without the means to improve it—exposing him to the necessity of going to the West, where cheap land may be had with little capital, and where he may be sure at least of bread for his family.

There is one fact intimated in Mr. Stabler's essay, which is probably not generally known, and in that proportion new to his readers, where he states that land which had before been insensible to the action of plaster of Paris, when raised by clover, or otherwise, to a certain degree of fertility, becomes alive to the influence of that cheapest of all fertilizers, where it will act at all; and this, like other facts and considerations that might be adduced, would seem to show, that its action is not due to its *attraction of fertilizing powers from the atmosphere.* Hence it is, that we are left, so far as we are aware, still in the dark as to the secret of its *modus operandi.* It seems to be one of her hidden arcana, which Nature has so far succeeded in covering up from the persevering scrutiny of the man of science. If in this we are mistaken, we shall be among the first to rejoice at the exposure of our ignorance of what is deemed a desideratum in agricultural inquiry, for, as we trust, we have not yet to learn, that the first step in the pursuit of knowledge is to feel our own want of it.

If Colonel Capron's opening suggestion, of the importance which ought to be attached to the increase of money capital, in proportion to that which exists in the land, be not altogether new, as it is not, he has yet rendered service by the forcible reproduction of arguments too rarely insisted on and too little attended to. There is a land mania, that prompts men to go for quantity more than quality. Still the great question is, *how Maryland and*

Virginia farmers are to command the money capital necessary to give activity to their other resources? and here we respectfully think the means suggested by the Colonel will fall short of, and prove inadequate to the end. He recommends the sale of a part to raise means for improving the residue; but, as we have more than once inquired, where all are sellers, who is to buy? This difficulty being overcome, (and some money is assuredly necessary to begin with, if a man is to realize his object within an ordinary lifetime,) and all which follows in this admirable essay makes the way clear to the renovation of worn-out lands and dilapidated fortunes. It is this, however, this very difficulty, which, to our apprehension, presents the gordian-knot—would that, for the sake of the good old States above-named, we had the sword of Alexander to cut it. Look at the solid columns of advertisements of "*Lands for sale*" in the Virginia papers; and if we don't see the same signs of embarrassment in regions nearer to the Colonel, we fear it is not that they do not exist. How much of the land in his own county would it require, if peremptorily brought under the hammer, to pay the debts of the county? and what is the prospect of relief?

That *something* presses like an incubus on the bosom of old Maryland there can be no doubt. What is it? And must not that something be removed, before her poor lands can be made rich, and therefore does not the answer to this problem lie at the bottom of this whole inquiry? If in the midst of a field known to possess in a high degree the usual elements of fertility, where all around looks rich and rank, promising an abundant yield, one spot becomes sickly and refuses to grow; don't the farmer know that there is something wrong, and looks, expecting to find in the soil, at that spot, superabundant moisture, or some poisonous quality working at the root of his grain? What then is the poison that checks the growth of the population, wealth, and power of States like Maryland and Virginia and the Carolinas, while all their sisters are growing apace? States, which, were it not impious to say so, one might think had been created by Providence in "a moment of enthusiasm;" and yet from which the people are constantly moving off! Look at little Delaware! Lands everywhere improving—rising within our remembrance from 6 to 25 bushels of wheat to the acre, and from $20 to $100 in price.

Look at the county referred to! unexcelled in natural fertility—unequalled in the ease with which her soil may be cultivated and recuperated—yet what do we behold in respect of her condition as evinced by her statistics? going in the ten years previous to the last census from 20,216 down to 19,539! Look again at the working of the system (and penetrate the secret if you can) under which the agriculture of Maryland is *laboring;* and we find that with advantages unsurpassed, if equalled—rich lands—easy navigation—water-power—timber—lime—coal, and iron—delightful climate—open to the ocean at all seasons—nearest to the great West—and if not pregnant of great men, to develope her resources, never too proud to go to her neighbors on either side in search of them; and, after all, what do we witness? Look again at the census. In 1830, 446,913 population. In 1840, 469,232—increase 22,319—but where? Was it in the counties? Do you find any more people there, or as many as fifty years ago, working at the loom and the anvil, calling for the products of the plough and the harrow, that the produce of the land may be consumed upon, or its refuse go back upon the land? Not a word of it!—on the contrary, every thing they make for sale goes into *one great central reservoir*—and the refuse, after consumption, upon the gardens and garden-farms around Baltimore, Philadelphia, and New York. Thus of the increase of 22,319 inhabitants in the whole State, in ten

years prior to the last census, no less than 21,688 occurred in the city of Baltimore! leaving 631 for the 19 counties! So much for farmers and planters wasting their substance in the cost of *transportation and exchange*, yielding to the mere go-between exchanger what ought to be, all or nearly all, divided between the producer and the consumer—as would be the case if the fashioners of foreign goods were forced to come and settle down by the side of the agriculturist in our own country, to buy of him to whom he sells —for it cannot be denied, that every ton of coal, and every ton of iron, and every bale of goods that we buy from abroad, represents, and consumes, in its production, a certain and a large amount (the calculation is $25 worth for each ton of bar iron) of the produce of the plough.

Yet of British iron alone, we imported in three days of last month 26,114 tons, at a single port; enough to have employed all the iron-works of Pennsylvania for a week, and tantamount to the importation from England in that article alone, in three days, of $652,850 of agricultural and horticultural produce!—the only difference being that, instead of wheat and potatoes being sent, the British operative consumed them on the spot, kept the manure and the profits of the manufacturer at home, and exported to us the wheat and the potatoes in the shape of iron. We have elsewhere shown, moreover, beyond contradiction, how much more there is of coal and of iron consumed in our country, when they are produced in our country, than when imported, even at a nominally less price.

This is not the way they carry on the war in New England, where the loom, and the anvil, the lapstone and the (tailor's) goose, are in sight of every farmer. There the farmer sells his milk and his potatoes to the man from whom he buys, or to him who makes in his own neighborhood his coat and his shoes, his hats and his harness, his axes, rakes, scythes and ploughs. He at the plough in Rhode Island—in Connecticut—in Massachusetts, can scarcely imagine any thing that is really needful, which is not manufactured within an hour's reach of him; and if there you don't find the country filled with great men and stump orators exuberantly eloquent, you find all exempt from debt—well dressed, active, lively, and going ahead: and yet, strange to say, there are banks, and factories, and railroads, all over the country! There are everywhere customers alongside of the producers—as Mr. Jefferson recommended; the manufacturer has taken his place alongside of the agriculturist; and where there is combination and facility of union of small means, for general benefit, there will there be schools and churches. The young men will get wives and the young women husbands, obeying the great injunction of God and the first law of Nature, to "increase and multiply," offering the highest premium and assurance for the "renovation of worn-out land," for after all it is "*population that makes the food come from the rich soils.*"

If we don't give place to Colonel Capron's essay entire, it is because we have not room for it in this number,—neither is it possible to publish the half of the valuable suggestions we meet with in agricultural addresses. There is in the one before us specification and exactness of detail, in the way of outlay and income, which have not been given in his previous essays —and which, as a mere work of example, is as salutary as such accounts are rare, in that region. It happily exemplifies what deserves to be transferred from his essay, as a copy into every school-book in the State for farmers' sons, in place of—"command you may, your mind from play," which is not altogether so true as that "farm accounts are absolutely necessary to carry out any system." The last thing for which we could make any pretensions would be capacity to analyze his tabular statements—otherwise we may re-

turn to this essay hereafter, making such notes, amplifying and critical, as may seem to be appropriate. After all, the secret of his success in the simultaneous increase of his crops and improvement of his land, may, we apprehend, be found to consist chiefly in these, his own words: "All vegetable productions have been consumed upon the place, and all the wheat, &c., have been sold and converted in other feed and consumed by the teams and other stock."

Finally, might it not aid the distant reader, (unenlightened by the local knowledge of those residing in Maryland,) if informed of the number of the manufacturing population residing around a water-power, in the heart of Colonel Capron's agricultural operations, and how far the railroad passing contiguously along its border, if not through it, communicating equidistantly with the capital of the Union and the commercial emporium of Maryland, may have, notwithstanding the fulness and candor of his accounts, yielded him facilities and advantages not yet altogether apparent, and which may serve to take his case very much out of the ordinary category of *worn-out farms of Maryland?* To revert again to the subject of the money capital needed for farming—Colonel Capron knows that in New England, where the anti-bank mania has never taken root, any small farmer of industrious habits and good character can borrow the means at a neighboring bank, for putting up the requisite improvements and for buying manure; but certain and beyond peradventure as he has shown to be the results of bought manure, judiciously applied, how is the small farmer on worn-out lands in Maryland to get the means to buy even lime enough—one thousand bushels—to manure ten acres? Where is the bank in Maryland as in New England, belonging to and under the management of industrious manufacturers, mechanics and shop-keepers, and sympathizing middling and small farmers like himself! We ask where, and echo answers, *where.* No! the utmost "facility," so called, the farmer on worn-out land, no matter how industrious, can get is, a partial advance from his commission merchant, in Baltimore, (for even he must be within the reach of a bank-runner and a notary,) until he can send forward the little crop he *has* to sell. Let him go to one of the Baltimore banks, however sympathizing, in its title, with the "farmer's" and the "planter's" concerns, and he must first find "town endorsers," and then get "*accommodation!*" for sixty, or it may be, a great favor which he is made to *feel*—sixty days and *one renewal!* Yet his lime don't begin to tell under a year! If he travel over bad roads, or communicate by a twice a-week mail with the Farmer's Bank—the Farmer's Bank, mind you—at Annapolis, why even then he is told—"give us an acceptance on a good house in Baltimore."

For all this we are not blaming the banks. They have only fallen into the course of proceeding which might have been foreseen when they were chartered. We are only stating the case *as it is.* Such are, it cannot be denied, the sort of facilities, quoth! which it has been the wisdom of Maryland legislation, enacted by the Representatives of the landed interest, to throw in the way of the industrious owners of "worn-out lands" in Maryland! facilities under which the people of the country have become more and more embarrassed, and their numbers diminished—their young people, (the few they breed,) going in search of facilities, either into the great cities, there to swell the number of those who live as mere exchangers between the plough and the loom; or—they go away to the West, there to swell, by transportation to the sea-board, the products of the ploughs they leave behind them, at work on the worn-out lands that gave them birth.

GENERAL TILGHMAN'S ADDRESS.

We have but this moment, when scarcely space for a line is left us, received General Tench Tilghman's address at the Prince George's exhibition. Its language, like its author, is easy and graceful; but still we respectfully apprehend that there are obstacles to the general improvement of Maryland agriculture, which have eluded his penetration, wide and searching as it has been. If, however, those who have large farms, much beyond their means to bring them into productive activity, according to good systems of husbandry, would, or could, cut off, here and there, small farms, and put on them the necessary accommodations for tenants, and could and would "tenant out" such portions, under improving leases, there would doubtless be an uprising of the country. In place of the disorder and decay which he so faithfully portrays, a general melioration and thriving aspect would ensue—but the question occurs again—whence would come the tenants with means to improve? Where men are running away and dispersion is going on, instead of being cut up, farms grow larger; but plant there the principle of concentration—find out what that magnet is which draws men together, and invites them and makes it easy for them to combine their powers in order to give additional efficacy to their individual means, and an easier development and application of natural resources, and then farms begin to be cut up as in New England—for there land rises in value until a man can't afford to keep what he don't use.

It is not so much that the men of Maryland lack the capacity to manage large estates, but that they need the means which must always be proportioned to the area to be cultivated and improved. Give to Tilghman Crawford, on West River, the money capital to command the labor and the machinery, animal and mechanical, and he would regenerate a whole county, provided he could get suitable subordinate co-operatives. But it ought not to take a Crawford or a Capron, for any good farmer ought to manage well any estate not too large for its various operations, to come under his daily inspection. There are no more exemplary specimens of finished husbandry to be found anywhere, probably, than may be seen on Colonel Singleton's estates in Carolina, where a single field of cotton spreads over one thousand acres. In neatness and perfection of tillage, according to our observation, the rice and the cotton plantations of the South, by no means fall behind the cultivation in New York and Pennsylvania, if you go beyond the reach of towns and the markets afforded by dense populations, where the loom and the anvil, the saddler, and the shoemaker, and the hatter, are there to call for the produce of high culture. There is—it cannot be denied—there is, in Maryland and Virginia, that want of capital which can only be created where there is combination on the spot, and population on the spot—where, in a word, the ratio of consumers to producers is large, so that the least of time and labor shall be lost in the act of transportation and exchange—and the refuse of its production be returned to the great machine of production of all and for all —*the earth!*

It happens, singularly enough, that in the very two counties referred to most particularly by General Tilghman, for their laudable spirit in getting up and maintaining agricultural societies, one of them doubly favored in that way, both of them have been declining, not from, but in spite of these societies, during the time of their existence, so far as a sensibly diminishing population may be considered as the sign of decay. In ten years prior to the last census, Prince George's had fallen off 677, and Talbot 3000. But we have not room to pursue the reflections suggested by these exemplifica

tions of the condition and wants of agriculture in our good old native State, to which the standing of their authors would alone be sufficient to attract the public notice. But as what may be said on these topics, in reference to Maryland, if well founded, must be applicable to a large portion of our country, and therefore worthy of additional consideration, we shall return to the subject in our next—taking for a text the sentence in General Tilghman's address, beginning—"The want of day laborers is felt everywhere, except in the neighborhood of large cities." Agreeing with him as to the existence of the malady, we may respectfully differ with him both as to the *cause and the remedy!*

AGRICULTURAL JOURNALS INCREASING—HOW ENCOURAGED.

While it is gratifying to see that the number of journals devoted to the interest of this great pursuit is rather increasing, it is mortifying, at the same time, to witness how languid is the demand compared with that which calls new party papers into existence every day; and yet more, to see how miserably and meanly the proprietors of agricultural papers are rewarded, for all their outlay and wear and tear of pocket and of mind and body. That sort of reading and information which is most intimately connected with the vital interests of the farmer and the planter appears to be held in the very lowest esteem, and hence the necessity for placing the price of agricultural journals below that of the meanest and the most vulgar vehicle of party trash to be found in the country. You may find in any country, in any State in the Union, hundreds of respectable men, very vehement patriots, and very wise men in their own conceit, who do not hesitate to wager $10 on a horse-race, or an election, or to give $2 and get fuddled on a bottle of champagne, who yet hesitate and refuse to give the price of a bushel of wheat for an agricultural journal, that shall keep them well posted up in all the practical improvements making in the line of the very pursuit which constitutes the business of their lives; and for ignorance of which, if possessed of a proper pride, they ought to hang their heads in shame and confusion. True it is, that men who have been reared in desuetude and contempt for books and book-knowledge, rarely become alive to that greatest, and cheapest, most accessible and most civilizing of all enjoyments, after they have attained to settled manhood and their habits have become fixed. Thus it is, that with them a large portion of life which, with the man who is fond of reading, constitutes the most delightful part of his existence, passes in sullen apathy, or in beastly sensuality—but has such a man no thought for his children? Has he any right to withhold from his sons, while their habits are being formed, the most fruitful sources of knowledge in the way of their future pursuits and the most powerful stimulus to excellence, because they have not been enjoyed by himself? Of what, we would like to know, has a son so much right to complain of a father, as for withholding from him the means of knowledge—another word for virtue as well as power—which increases by all it feeds upon, and the love of which rarely takes root unless planted in the days of his youth? His filthy lucre he may give or withhold, for with it there is no natural or necessary association of knowledge, virtue or happiness; a fool for luck, has passed into a common expression—and of those who are born to fortunes, to how many has it proved a bane and a curse? But what words can characterize the improvidence, not to say cruelty, of the father, who can easily impart, and yet withholds from his children, the thirst for information and the means to gratify it?

What a curious document it would be! What melancholy reflections it would create, to see a *catalogue of the books and journals provided for the use of their families, by farmers well to do in the world*, in many counties that we wot of! How does it argue in proof of our boasted "progress," under our much-vaunted republican government, that agricultural journals, to get any support, must come down to or under $1 a year, and then waste half the amount in the collection of arrearages, from subscribers who, after the first year, remember to forget to pay! And yet how often have we resolved that we are the most enlightened, the bravest, the most wonderful, and the most progressive of all the nations of the earth!

THE VERMONT STATE AGRICULTURIST.

We respectfully welcome the coming of this new member of a fraternity, laboring as we all are, on short allowance, but with good heart, to benefit the great productive industry of our country; and we welcome our new colleague the more heartily, as he enters on his task evidently with a high and worthy appreciation, not only of the ends to be aimed at, but of the proper means to be employed, and with first-rate capacity to use them with effect—of all this the reader may judge by a single sentence.

The cultivation of the soil, says the Editor, "though consigned in olden times only to the unlearned and unmannered of the race, appears of late to have manifested a wonderful tendency to improvement. For many centuries the employment of the brutish peasant, despised by the educated, oppressed by the powerful, and neglected by statesmen, has learned during the past few years to claim for itself the highest rather than the lowest place in the list of human occupations. From the classic land of Germany, from the vine-clad hills of France, from the princely country seats of aristocratic England, from all parts of our own dear home of liberty and equality, comes the prolonged echo of Washington's far-famed sentiment: 'Agriculture is the most healthy, the most useful, the most noble employment of man.' The researches of a Davy, a Liebig, a Johnston, a Chaptal, a Dana, [a Ruffin, and a Buel;] the influence of many men placed in the highest positions in society; the enactments of legislatures; and above all, the efforts of the press, have at length roused the spirit of investigation, and set thousands of inquiring minds upon the track of new discoveries. Men are becoming conscious of the true dignity of a profession so closely conversant with the infinite wisdom and beauty of the works of the Creator. Labor has been at last ascertained to be not the perversion, but the end of the human organization; and the first minds of the civilized world are no longer ashamed to till, with their own hands, the soil from whence they sprung."

In the Editor of the Vermont State Agriculturist, we may hope to have one, at least, who will co-operate in demanding from the government as much for disseminating a knowledge of the sciences necessary to give the highest degree of efficiency to agricultural labor and capital, as the government, at the expense of the farmer and the planter, now bestows for increased efficiency in the arts of war; and by means of which, according to General Jessup, the whole militia of the United States may be converted into well-disciplined soldiers in about ninety days.

Should Messrs. Hopkins and Clarke unite with us in thus claiming for the great art of production as much at least as is now appropriated of the people's money for the barbarous arts of destruction, they will be the first whose voice has been heard to cheer us in that line of conscientious duty.

Most cheerfully will we step aside and leave them, as being younger, and more alert, and powerful, to take the lead in such a path, following in their wake at such respectful distance as we may.

N. B. The Vermont Agriculturist contains 16 pages quarto, and the price is but $1!!

SOUTHERN WHEAT-GROWERS.

"*To Wheat-Growers of Georgia, and such portions of South Carolina, Alabama, and Tennessee as do business at Augusta.*—The undersigned, having in progress the erection of two merchant mills on the Augusta Canal, which it is hoped will turn out 100,000 bbls. of flour per annum, wish to encourage the cultivation of wheat at the South. For that purpose they offer and will pay the following premiums:

1st. $100 (in a silver pitcher) for the best 50 bushels of wheat.
2d. $75 for the 2d best do.
3d. $50 for the 3d best do.
4th. $25 for the 4th best do.

The grain to be delivered at the mills of the undersigned in the city of Augusta, on or before the first Tuesday in September, 1849. It will be examined and the premiums awarded, by three competent and disinterested gentlemen.

James L. Coleman.
John Cunningham.

Augusta, October 13, 1848.

There is, we presume, no doubt of the superior quality of flour from southern wheat, as to dryness and capacity to endure, without souring or getting musty, the effects of time in southern latitudes—hence the preference given to Richmond and Baltimore flour for the great market of Rio Janeiro and other southern ports.

It is gratifying to see the spread, in the south, of the persuasion that the nearer the manufacturer comes to the great and expensive machine of production, the better for all parties. The motion is a natural one, and would take place everywhere, if vicious and monopolizing legislation did not interpose to prevent it. It is as natural and mutually beneficial to have the weaver go near the cotton with his loom, and the blacksmith go with his anvil near to the horses to be shod and with his ploughs near the fields to be cultivated, as it is for the mill to go to the grain to be ground. But here is an attempt to turn labor and capital from the production of cotton to that of bread—the consequence of which will be that to the amount that the cotton-grower is benefited, the wheat-grower is depressed by a still greater surplus of *his* staple. What then is the remedy which applies to both and relieves both? Clearly to increase, in our own country, the number of consumers for both staples, *to consist of persons who do not produce either.* The estimate is, that in the act of bringing a ton of iron into market there are $25 of agricultural products consumed—yet in three days recently there was imported into New York as much iron as was equivalent to the importation of several hundred thousand dollars of English or Continental agricultural products.

Georgia Manufactures.—The Savannah Republican says:—We are gratified to learn that the United States government has made a contract with the Milledgeville factory for the delivery of 300,000 yards of Cotton Osnaburgs. This contract was made after a comparison by a government agent in New York of the Milledgeville with other like fabrics from other manufactories. This is not only a high compliment to the work done in Milledgeville, but affords unquestionable proof of the remark so frequently made, that, for obvious reasons, manufacturing in cotton can be done cheaper in Georgia than in the Northern States.

NEW AGRICULTURAL IMPLEMENTS.

The next best thing for a farmer, in search of knowledge of improvements in the practice of his profession, after travelling with his eyes open and his ears open, (for there is a good deal in that,) through old England, and *New* England, is that of *reading*. The two may be profitably combined, but if only one is practised, personal observation would seem to be the better of the two, because then you will see and can make inquiries on the spot about a thousand things that do not find their way into print. We would defy any southern man, going from regions most highly favored of Providence, and yet from which the young men are flying away, and the young women remaining in single blessedness—we defy any man possessing any power and habits of observation, to go to any part of Connecticut or Massachusetts, without seeing how indispensable are consumers near the plough to insure prosperity to the plough. But this fact is more fully discussed and illustrated in all its phases in "The Plough, the Loom, and the Anvil."

The purpose here is to state that two implements have lately been invented in England, which it is said will "*supersede ploughing!*" The first is a machine for *cutting drains, four or five feet deep*, doing it at *one-tenth* the expense of manual labor; and the work so beautifully even and superior, as to admit of no question; and every one who knows any thing of the sources and the course of modern improvements in agriculture, knows that deep and effectual draining is the first step which ought to be taken towards agricultural improvement. But the expense of it has been hitherto so enormous, that the richest lands in the old States have not been brought into use: nor can they be in any State, except where there is the presence of a prosperous and numerous class of consumers to demand and pay for the heavy, bulky, and perishable commodities, that would enable the farmer to meet the expense of the operation. Even the population of New England is not yet thick enough, to drain even that most magnificent country along the Connecticut river. For, let us talk of population as we may, even in our most thickly settled States, concentration (with its obvious blessings) has only commenced. Compare, for instance, Great Britain with her 118,000 square miles, with New York and Pennsylvania of about the same area. The first containing, in 1840, twenty-four millions, while the two last numbered only between three and four millions! But we are forgetting the two new implements which it is said will "*supersede ploughing.*" The second one is a *subsoiler*, by which "any given quantity of soil may be brought to the surface." In favor of the benefit of subsoiling, the reasoning is as plain as a pike-staff, and yet it lies in the compass of a nut-shell. Thus has it been most plainly stated:

That where land has been ploughed time out of mind, the bottom becomes solid as a road; the water is either entirely prevented from penetrating deeper than the plough goes, or it takes a very long time in getting down; and when the roots and fibres of growing crops get so deep, they cannot penetrate further, but curl round and round, the crop looks sickly, and the farmer wonders what is the matter: where by using this subsoiler, the land is well loosened, the water gets quickly down to the drains, the roots grow right away, without any impediment, and the crop, of course, comes to greater fulness and perfection. It is a fact of which the agricultural public seems not to be aware—or at least, we should say, it seems to us to be a fact, that too much ploughing has done immense injury to the land. Its surface has been so often scratched and exposed to the *wasting* (not the *absorption*) of rains, like washing potatoes in a basket, that the very life of it has been washed out and carried off. Now, if this subsoiler will pulverize, as is

stated, to any depth to let down the rain-water and the roots, and "supersede ploughing," leaving the cultivator or harrow for surface work, to keep down grass and weeds, its value is not easy to be calculated.

Now the next thing is to know the cost, and to get models of these things. Who will write out for information and for drawings? Will the State Agricultural Societies? will the American Institute? *Nous verrons!* But if an instrument of equal importance in *fashioning* the products of agriculture, instead of producing them, were announced, how long would it be before it would be imported for the use of the manufacturer?

We have again and again, for years, called for and predicted the invention of labor-saving machinery, for ditching and draining, and behold here we have them announced. Some years since that very ingenious machinist, *Mr. Page*, of Baltimore, invented a contrivance for *ditching by horse-power*—can any one tell us why it was not brought into use? If the first attempt lacked something of effectiveness and perfection, that was nothing more than was to be expected; or was it laid by under that impatient temper which prompts men of genius to fly from one thing to another? and why is it that a beginning so promising as that seemed to be was not consummated and carried into practice? We sometimes almost wish we had a ruler possessing the munificence of an Alexander, or the combined genius and munificence and power of a Napoleon, to offer to a Henry, a Norris, or a Page, an adequate reward for applying portable *steam-power to ditching and harrowing and other agricultural purposes.* If to be done by means of Indian-rubber, the *good year* is not far off that we would witness its realization.

Weight of Fowls.—"A very Constant Reader" asks whether the 2 lbs. and $2\frac{1}{4}$ lbs. spoken of as the average weight of chickens fed up to ninety days old, refers to the live-weight or the weight of fowls trussed for the spit. Of some fowls born on the 9th of June this year, the live-weights on the 7th of September averaged $2\frac{3}{4}$ lbs. and 3 lbs. They were not of a large kind, having more or less of the wood pheasant blood in them, and had been well fed in a good walk, but were never cooped. Laying hens of the same breed, four or five months old, averaged $3\frac{1}{2}$ lbs. weight. He thinks some statistics of this kind might lead to useful results, especially with reference to the age at which it is most profitable to send various kinds of fowls to market. Guinea fowls, he notices, at three months old were larger than common fowls. He asks if the price of fowls in London or in our large cities is regulated by the weight; and if so, what is the average price of, say a hundred weight of fowls three months old, averaging $2\frac{1}{2}$ lbs. or 3 lbs. live-weight? In many parts of the country an egg is the same price, whether it be $1\frac{1}{2}$ oz. or $2\frac{1}{2}$ oz. weight, and fowls are a good deal subjected to the same rule. He believes, however, that if there were any fixed price by weight, and poulterers willing to contract for considerable numbers, now that the railway system is so well developed, large quantities would be sent from various parts of the country to the London market. It would be well worth while feeding fowls, which just now (September) are selling in many parts of the country for 1*s.*, so as to fit them for the London market at 2*s.* or 2*s.* 6*d.*—*English paper.*

Weeds.—Ferns may be destroyed by perseverance in cutting them off as they appear. Centaurea also.—*Ibid.*

IMMIGRATION AND AGRICULTURE.

We have the means of approximating the truth, as to the number of immigrants arriving at our sea-ports, and from what countries they come—but could not measures be adopted to ascertain to what *trade* or *occupation* the adults belong, and yet more, to *what States they go to "settle"* on arrival? Is it not wonderful, how little of that great element of increasing power falls to the lot of Maryland, Virginia, the Carolinas, and Georgia, whose immense districts, of upland counties at least, present such incalculable advantages? Are the rulers and great men asleep in those States, or are they alive only to the spirit of party and office-hunting, that they do not look into such questions and devise the means of sharing the labor and capital that are every day pouring into the country from abroad? Why do not the great men of Virginia—for she has always abounded in great men—great in the newspapers, and great upon the stump, great upon the race-course and great on the floor of Congress—why do they not lay their heads together, to make Norfolk, toward the south and west, what New York is towards the east and north? What advantage does New York possess that Norfolk does not possess or counterbalance? Why not start steamboats from Norfolk to New York and to Europe, to carry tobacco, and flour, and passengers, and bring back goods and passengers? If the Germans coming from the countries to which Virginia sends her tobacco could be landed in Norfolk, what an opening for them in the mountain and upland regions of the State!

There came from England, from the single port of Liverpool, during the half-year ending June 30, 1848, in 405 ships, immigrants to the number of 65,128; and of these, how many does the reader suppose came to the United States? Why *only* 62,756. The residue divided between fifteen different places and countries. Now how many of these on arrival went south of the Delaware? And who can calculate the amount of wealth, and the productive power of the minds and the sinews of these 62,756—say 125,512 added in one year—to the resources of the States that caught them? As to the *intellectual* riches they brought—the power of genius, which transcends that of muscle, as steam does that of horse-power, the *New England* States monopolize that chiefly, because they alone have the practical good sense to set their true value on concentration of population and variety of employment suited to all.

Poultry.—The article on Poultry, from the Newcastle Farmers' Club, is wrong on several points which we cannot here correct seriatim. The addition of a fifth toe is certainly one very distinguishing characteristic of the true Dorking breed, whatever may be said to the contrary. The absurd statement about Cochin China hens laying two or three eggs per day, is copied from the second edition of Richardson's "Domestic Fowl," a work so inaccurate as to be more likely to mislead than to guide the amateur. The Cochin China is, nevertheless, a very valuable variety, and is to be procured in London, though at rather a high price. But the task of naming prices and recommending dealers is a thankless one, which is better avoided. Nobody would keep hens in "wards" who could possibly allow them to be at large. The mode cannot be profitable, except on a small scale for high-priced fancy breeds. There is at present no good, useful book on Poultry that can be depended upon. One on the subject, by the author of the articles on "Ornamental Poultry," which have appeared in our columns, is now in the press.—*English paper.*

ON THE CULTIVATION OF FRUITS.

THIRTY years since, "*Horticulture*" was a prominent feature in the title of the paper commenced in Baltimore, by the senior Editor of the Plough, the Loom, and the Anvil, under every discouragement, for the advancement of all branches of rural industry. From that day to this, we have never ceased to apply every incitement we could think of, in the way of argument and example, of denunciation and praise, to shame the negligent and to encourage those who are attentive to the cultivation of fruits and vegetables.

If we had our way, in doing what we believe would best promote the true welfare of society, we would have Congress vote a gold medal, or a pension, sooner to the man who, like Doctor Bayne, leads the way in horticulture, in the midst of a country neglectful of that elegant, innocent, and useful art, than to reward in that way the slayer of ten thousand guerillas. And were we President of the United States, so help us Heaven! we would feel bound to select such a man, for such a service to his fellow-men, for the governorship of a province, sooner than we would one who could say in a public despatch (we care not what may be his party politics) that "the most beautiful scene he had ever beheld was when, by moonlight, he could see and hear the crash of the houses in the thickest settled part of a Mexican town, falling under the force of his well-directed cannon-balls," destroying doubtless the lives of hundreds of women and children.

But in all the examples we have seen to excite the proprietor of land to a closer attention to horticulture, here are strung together the greatest number of remarkable instances of the *profit* of fruit culture: for it seems, after all, that if men are to be moved you must touch them in the "*pocket nerve*." Much more beautiful, however, is it to see a gentleman or lady prompted to the care of fruit and flowers, under the refining inspiration of a love of such pursuits, for their innocence and their amusing nature, and for the enjoyments they afford them the means of imparting to their family and friends. Who believes, for instance, that when Wilder is watching the budding and the fruiting of a new pear, or the blowing of a new japonica; or Mrs. George Law, of Baltimore, is busy among her vines, or in her green-house, and beautiful shrubbery; that their pure delights are contaminated by sordid calculations of pecuniary interest? For the mass of mankind, however, it is true there is not so much—though with all there is some—time and means that may be given *con amore* to such objects. With those, then, who are compelled by necessity, or led by a coarser nature, to heed only such occupation of time as will tend to fill the purse, the following may have its weight.

We may add a case of a single vine of the Isabella grape, growing in the rear of the office we lately occupied, which, spreading over a surface of some twenty-five feet by ten, bore six hundred bunches of fine grapes—enough to give to the family table twenty bunches a day for thirty days! Yet how many—nay, how few, there are of farmers on a scale of 500 acres or more, who have it in them to provide a single bunch of grapes, or an apricot, or even a really good apple or pear in the whole year!

(From the Horticulturist.)

PROFITS OF FRUIT CULTURE.

Having seen, in a late number of the Horticulturist, an account of a cherry tree that produced ten dollars' worth of fruit in one season, permit me to give a chapter of facts on fruits, most of which are within my own personal knowledge.

Mr. E. Cable, of Cleveland, O., has an orchard of an hundred cherry trees, now twenty-two years old. In the year 1845, his crop sold for upwards of one thousand dollars. Mr. C. manages his orchard better than any other person in the Union, so far as my know-

ledge extends. The trees are planted out twenty-five feet apart, the ground kept properly enriched and cultivated, but no crop is put in.

Elisha Swain, of Darby, near Philadelphia, has the remains of a cherry orchard, numbering seventy trees, mostly of the Mayduke variety. In the height of the season, his sales amount to upwards of eighty dollars per day. Mr. S., to ensure a good crop every season, digs in a horse-cart load of manure to each tree in autumn.

Hill Pennell, of Darby, has twenty apple trees, of the Early Redstreak and Early Queen varieties, that stand on half an acre of ground. In 1846 these trees produced three hundred bushels of fruit that sold in Philadelphia market for seventy-five cents per bushel, or two hundred and twenty-five dollars for the crop.

Mr. Pennell has a grape vine of the Raccoon [Fox grape] variety, that covers the tops of fourteen apple trees. It has never been pruned, but produces seventy-five bushels of grapes yearly, that sell for one dollar per bushel. The apple trees produce good crops of fruit, and under the trees is produced a crop of grass; thus making three crops from one lot of ground.

James Laws, of Philadelphia, has a Washington Plum tree that produces six bushels of fruit yearly, that would sell in market for ten dollars per bushel. Five of the above plums weigh a pound.

Mr. Laws has a small vineyard of Isabella and Catawba grapes, near Chester, sixteen miles from Philadelphia, three-eighths of an acre of which came into bearing in 1845. The sales amounted to three hundred dollars at eight cents per pound, or at the rate of eight hundred dollars per acre from vines only four years old.

Brinton Darlington, of West Chester, Pa., has a Catawba grape vine, that produces ten bushels of grapes yearly. This crop is worth forty dollars at market price.

Jacob Steinmentz, of Philadelphia, has a Blue Gage plum tree that produces ten bushels of fruit in a season, worth in market thirty dollars.

My friend, Ellwood Harvey, Chaddsford, Pa., the present season, gathered thirteen quarts of gooseberries from one plant.

A gardener near Philadelphia has two rows of gooseberry plants, one hundred and fifty feet long. One afternoon he gathered, with his own hands, six bushels of fruit, and the next morning sold them in Philadelphia market for twenty-four dollars.

A gentleman of Philadelphia having two apricot trees, that produced more fruit than his family could consume, concluded to send the balance to market, and expend the money it would bring in purchasing wood for the poor.

Judge Line, of Carlisle, Pa. has had two Syrian apricot trees that have produced five bushels to each tree in a season. In the Philadelphia market, they would have commanded one hundred and twenty dollars, in the New York market one hundred and forty dollars.

Hugh Hatch, of Camden, N. J., has four Tewksbury Winter Blush apple trees, that in 1846 produced one hundred and forty market baskets of apples. Without any extra care, ninety baskets of these were on hand late in the spring of 1847, when they readily sold at one dollar per basket.

The following facts relative to fruit-growing near the North river, I have never seen published. Three years ago, Mr. Charles Downing, of Newburgh, N. Y., informed me that a fruit-grower of his acquaintance in Fishkill Landing, N. Y., had gathered fifteen barrels of Lady apples from one tree, and sold them in New York for forty-five dollars. The same gentleman you speak of, in your Fruits and Fruit Trees of America, as having sent to New York sixteen hundred bushels of plums in one season, has sent to New York apricots, and received fourteen dollars per bushel for them. The above gentleman has often said that his plum trees, which are set out about the buildings, and take up but little room, pay him more profit than the whole of his valuable farm of two hundred acres. Another fruit-grower in your neighborhood has sent four hundred bushels of Frost Gage plums to market in one season, and received twelve hundred dollars for them.

Yet with all these facts before us, there is no full supply of any kind of fruit in the Philadelphia market, except peaches. Many farmers and gardeners neglect setting out fruit trees from a natural negligence; others dislike to pay fifty cents for a fine plum tree; others again are afraid that everybody will go to fruit-growing, and bring down the price to almost nothing. But we would ask, if there is any more danger of everybody commencing on a large scale the culture of fruit, than there is that everybody will commence the raising of onions, or the making of razor strops, or the cultivation of roses?

Philadelphia, Pa. B. G. Boswell.

How deep Roots will go.—The roots of corn, clover, and flax will go down three feet in a favorable soil, and even turnip roots in an open soil will go down more than two feet.

SOILS—CONSTITUENT ELEMENTS.

For any one who reads the following, on *soils and their constituent elements*, no further argument will be needed to show the expediency of the law passed at the last session of the Maryland legislature, at the instance of Mr. Coad, of St. Mary's, for the appointment of a chemist, to traverse the state for the analysis of soils and fertilizing substances, and for the delivery of lectures on the application of the appropriate sciences to the business of agriculture. We are not exactly informed what measures have been taken in execution of the law; but it is easy to see, or at least to hope, that in the performance of his duties by the person appointed, the farmers may possibly at last be led, incidentally at least, to inquire whether they too have not a right to demand something for the establishment of schools, fitted to diffuse, among the rising generation, some knowledge of chemistry, botany, mineralogy, mechanics and engineering; in return for the many millions levied on them annually, for the maintenance of military schools and establishments, and the publication of hundreds of thousands of military explorations and surveys? So far, there has been too much of that tame servility to other interests and classes, for which the best excuse is ignorance of what belongs to us; but may we not hope that the day is dawning when the cultivators of the soil will begin to reflect on what is due to those who pay three-fourths of the amount raised for the support of government; and the whole of that amount, at least three-fourths are paid for the support of men and means that *may some day be needed for the work of war and bloodshed!*

We remember that soon after the law was passed, it was given out that it were a scandal to the state not to take for granted, that the governor would not look to, or be governed by, party views or obligations, in the matter of a purely scientific appointment; nor have we any reason to apprehend that he has been guilty of any such prostitution of power—on the contrary, without knowing or caring a rushlight about the party politics of the appointee, except to hope that he would scorn to hold his trust on any such footing, we allow ourselves to hope for the most auspicious results from this first step in the march of public inquiry and attention to the claims of agriculture, suggested previously by senator Naill.

We need scarcely add the promise of our readiness in any humble way that we can, by this journal, to facilitate the accomplishment of all the objects contemplated by the law and the officer, worthy as he doubtless is, who has been appointed to fulfil it.

That the reader may form some definite idea respecting the composition of soils, and of the practical value of correct chemical analysis, we select the following table from Sprengel, who stands high as an authority in all subjects connected with agricultural chemistry. In a thousand parts of dry soil there were found of—

	No. 1.	No. 2.	No. 3.
Organic matter	97	50	40
Silica	648	833	778
Alumina	57	51	91
Lime	59	18	4
Magnesia	8½	8	1
Oxide of iron	61	30	81
Oxide of manganese	1	3	½
Potash	2	trace	trace
Soda	4	do.	do.
Ammonia	trace	do.	do.
Chlorine	2	do.	do.
Sulphuric acid	2	¾	do.
Phosphoric acid	4½	1¾	do.
Carbonic acid	40	4½	do.
Loss	14	0	4½
	1000	1000	1000

Now, this table is very interesting and instructive to the inquiring farmer. He learns from the analysis which it contains that the several substances to which we have already referred, enter more or less into all fertile soils, and, consequently, that the unproductiveness of any particular soil must be owing to the want of some of these ingredients, in their proper proportions, or to the presence of some deleterious matters—such, for example, as an excess of the salts of iron. That this knowledge of the nature and composition

of soils, when based upon accurate analysis, is not more curious than it is practically useful, we shall now proceed to prove. It is almost unnecessary to remark that no improving farmer will close his eyes against whatever light may approach him that will afford him clearer and more satisfactory views of the composition and capabilities of that which occupies his every-day thoughts, and upon which he and all creatures depend for subsistence —the soil he cultivates. In reference to the preceding table, Sprengel observes that the soil of No. 1 was among the highest in the scale of natural fertility, and had yielded heavy crops for sixty years without the application of manure. The second was below the average of the district in point of productiveness, nevertheless yielding good crops by judicious manuring. The third was all but sterile, affording scarcely any produce; but by the means of superior culture and manure might be made comparatively productive. Now, let us just take a glance at the contents of this table, and we cannot fail to learn something that will throw considerable light on the arcana of farming. The amount of organic matters, or that which gives peculiar richness to a soil, it will be seen, is more than double in No. 1 than No. 3, while the latter contains a greater quantity both of silica and alumina. Take lime, another important substance in estimating the capabilities of soils, and it will be seen that, while No. 1 has no less than fifty-nine parts of that material out of every thousand, No. 2 has but eighteen parts, and No. 3 only four parts. This indicates great dissimilarity. Again, let us turn to potash and soda, two very essential ingredients in all fertile soils, and it will be seen that, while No. 1 possesses two and four parts respectively, Nos. 2 and 3 contain of these valuable salts only a mere trace. And, if we look to chlorine and sulphuric and phosphoric acids, it will be seen that No. 1 contains an appreciable portion of them all; No. 2 a much less quantity, while No. 3 affords only a trace of their presence. It is of importance to remark, that in the most sterile soils what is commonly wanting are salts and phosphates. The foregoing will amply repay the closest investigation of the practical farmer, and will show him what important aid analytical chemistry can extend to his pursuits. Who can impartially look at these investigations without perceiving a greater beauty, a clearer reason, and the means of a more certain control over the various operations of the farm? Sprengel informs us, in reference to the second of these soils, that with good culture and manure it produced heavy crops of clover, turnips, and potatoes, particularly with the application of gypsum—a substance in which it will be perceived, by referring to the table, the soil was very deficient. For instance, how remarkably great is the difference between lime and sulphuric acid in No. 1 and No. 2! Now, the remedy in this case of No. 2 appears obvious, viz., the application of gypsum, which is a sulphate of lime, that is, sulphuric acid combined with lime; this manure being in both the materials, of which the soil is deficient. Agricultural chemistry affords numerous instances of a similar kind; and how much safer and more profitable is it for the practical farmer to be guided by the unerring principles of science in all his proceedings, than to depend merely on mere guesses or haphazard experiments!—*Pharmaceutical Times.*

Slugs.—The most effectual remedy against the depredations of slugs and snails, is to strew fine sifted ashes, with a little soot and lime, well incorporated together, over the ground directly seed is sown, and again when the plants are coming up, the lime and soot will form a coat over the stems and leaves of the tender plants, until they are strong enough to resist the enemy, and the sharp rough particles of coke or coal ashes will prevent their passing over it. The best time to sprinkle is when the dew is on the ground, or after a shower.—*Cantium.*

ON THE DEATH OF A YOUNG AND ENTERPRISING FARMER.

The following we take room to copy, from the Mark Lane Express, deeming it no insignificant proof of the rising estimation in which agriculture and its successful and industrious followers are getting to be held, in a country to which we are always paying tribute; but—*not of the right sort.*

Who ever sees in an American paper, any words of respectful lamentation, at the death of an eminent American farmer, *as such?*

Were we to lose a Newton or a Minor, of Virginia, or a Thompson or Jackson or Jones, of Delaware; or a Davis of Montgomery, or a Goldsboro of Talbot, or a Ducket of Baltimore county—said to be among the many crack farmers of their States respectively, you would hear them lamented as good citizens, and good men, good husbands, and good parents; but would it touch any chord of sympathy in American bosoms, to deplore their loss as *good farmers?* Is public sentiment improved up to that point in its estimation of the most dignified and important of all human employments?

It is indeed a painful task which falls to our lot in having to announce the death of our esteemed friend, R. B. Harvey, of Harleston, Norfolk, cut off in the prime of life, his age being only forty-four. We fully concur in the eulogium passed upon him in the following remarks, extracted from the *Norwich Mercury*—

On Wednesday morning, at Pulham, St. Mary, in the forty-fourth year of his age, Mr. R. B. Harvey. The comparatively sudden demise of this agriculturist at the moment when, having reached his hopes as a breeder of Leicesters, and when his talent and industry had won for him the golden opinions of his brother farmers, and had placed him in the high position as one of the Council of the Royal Agricultural Society, can but be a matter of deep regret to all agriculturists who hailed the attempts made by such men as Mr. Harvey, to unite the theory and science of the closet with the practice of the field. Besides his agricultural and professional occupations as a valuer and auctioneer, Mr. Harvey found time for literary and scientific pursuits. He was a large weekly contributor, on agricultural matters, to the *Bury Post*—and in him we ourselves have lost, not only a firm and highly esteemed personal friend, but one to whom we are indebted for periodical reports on the state of the agriculture of this county; valuable both for the accuracy of the information, and for the judgment and observation they displayed on all matters connected with that subject. Mr. Harvey was an acute observer, and was gifted with an intellect beyond the range of common men. He was most energetic and zealous in the pursuit of any object he had once undertaken—a quality exemplified, we are afraid too fatally, in his rapid decline and death. On Monday se'nnight, he held an auction, which, we are told, he continued throughout the day to conduct without food or refreshment, although then suffering under the results of an attack of cholera, and of anxiety for his wife's serious illness. On the Wednesday following, he again attempted to fulfil his duty at another sale, but nature gave way under the effort, and he was obliged to be conveyed home. Such was his desire, that nothing he had undertaken should be left undone, to his client's injury, that, although seriously ill and in bed, he made arrangements the day after, with a friend, to secure their fulfilment, and, at the conclusion, as if overcome with the labor, he turned himself to rest, taking an ominous "farewell of his friend"—who felt a prescience that it was a last adieu. On Wednesday morning he breathed his last, within a short distance of his sick wife, who, confined by a most dangerous illness in another room, had been unable for some time to visit the partner of her joys and sorrows. Our deceased friend's career was short, his termination was sharp and decisive; but short as it was, it was marked by constant utility and industry, and by

a desire to move onward. The tenantry of Norfolk could have better spared a greater man. Nay, they will never possess any member of their body who will be more zealous in furthering the great interests of agriculture—more earnest to maintain the high character of a Norfolk farmer—nor one who better deserved at their hands the respect which is due to talent, industry, perseverance, liberal feelings, and an honest and upright discharge of the duties of the station in which it pleased Providence to place him, and from which he has been thus early summoned.

Flax-steep Water as a Manure for Flowers.—I used the water in which I had flax steeped as a manure for flowers last year. I followed up the experiment this year; and although I was from home for five weeks, during which time none of the plants had been watered with the flax-steep, still I am able to say that those dahlias to which I used the water early continued to keep ahead of those not so treated. The latter grew from two and a half to three feet high, while those to which steep-water was applied, grew from seven to eight feet high, when three of them broke down, the sticks being too weak to support them against the wind; but their beauty, from the abundance of bloom, surpassed any thing that I have seen. I have not manured my garden for these last four years, being determined to keep it poor, in order to try what effect flax-water would. have in producing good full-grown flowers in cold, worn-out soil. I am now able to assert that none of my neighbors had such a blow of roses or dahlias as I have had; and to them I can refer, as they were witnesses of the fact. I had, by the use of flax-water last year, dahlias from ten to twelve feet high, loaded with the most perfect flowers. This rich liquid manure (for it deserves the name) will be found invaluable to market gardeners, and growers of flowers. I find it to annihilate the green-fly.—*J. Dickson, British Flax Mills.* [With this communication we received a sample of the dahlia blooms in question; but they were so much spoiled by travelling that no opinion of their merits could be formed.]

Calves.—I have found the following method to rear calves the surest and cheapest: let the calf run with the cow for a week, then shut it up, giving it about ten minutes' sucking night and morning, having ready small par-boiled carrots scraped backwards; let the dairy-maid introduce the carrot into the calf's mouth, it will soon suck it. Continue this easy process for a few days, then cut in small pieces the boiled carrots and put them into a trough, the calf will soon eat them greedily; as soon as it does so, no longer boil the carrots. Now give it as many carrots as it will eat, and put into a little rack some good hay, with young rye and tares. Thus attentively managed, the calf will chew its cud in a fortnight; gradually reduce the time of its sucking, and finally wean it at the end of a month; then tether, on fine days, in good grass, still giving it the carrots at night; let it go into a warm, comfortable, clean pen. The cow from the beginning is either fatting another calf or filling the pail for the dairy. In the following winter let it have plenty of good hay and roots, with chopped straw and linseed, a quarter of a pint to a quart of water, put into a jar or saucepan and placed on the hearth on hot ashes; in the morning it should be done but not burnt. I have succeeded well with this simple method, and at eighteen months the heifers have generally had their calves by their side. Should they scour during the year, I give in balls one tablespoonful of Epsom salts, two of flour, and two of whitening or chalk.—*Anon.*

VINE CULTURE IN OHIO.

Cincinnati, September 17, 1848.

Dear Sir:—Your letter was handed me a few days since, on my return to Cincinnati, having been from home for eight months, on account of ill health. Your correspondent wishes further information in relation to the pruning of the vine. As stated, we usually plant the cutting at an angle of forty-five degrees, or rather two cuttings, meeting within one or two inches at the top, and widely separated at the bottom; that we may, if both grow, remove one, without disturbing the roots of the other. We usually plant the upper eye, about half an inch below the surface, and let one shoot only grow the first year, and break out the lateral shoots from the three first eyes of the young shoot, after which we suffer it to branch. The following February, we cut the shoot down to three eyes, and allow the two strongest to grow; and if very vigorous, we break out the laterals of the strongest shoot for about three feet, and from the five first eyes of the other shoot, after which they are allowed to branch without further notice. The following February, when the vine has grown vigorously, we cut the strongest shoot down within three feet of the ground, and tie that branch up for bearing, generally binding it in the hoop shape. The other, and weaker branch, we cut down within five eyes of the ground. The long branch will generally throw out blossom-buds at each eye, and when beginning to bloom, we stop the end of the shoot, cutting it off two buds beyond the blossom; after this, we let this shoot grow at random. The other shoot, that was headed down to five eyes, we let grow three or four shoots, according to the strength of the plant, and break out the lateral branches up for five or more feet, according to the vigor of the plant, to the point to which we expect to prune for bearing the next Spring. The following February, we cut out the bearing shoot or shoots of the past season, close to the main stock. We then have three or four young branches from five to ten feet long. Two of these we usually cut down within five or six feet of the ground, for bearing fruit, and if there be three remaining, cut off one of them close to the main stock, and head down the two remaining shoots within four or five eyes of the main stock, and let two eyes grow from each, according to the strength of the vine, and richness of the soil, breaking out the laterals from these shoots for five or six feet, and topping the laterals of the blossom branches, as before stated. In like manner, each following year, in February, the bearing wood of the preceding year is cut out close to the main stem, and of the young shoots, two or more are cut down within five or six feet of the ground for bearing, and cutting down two of the young wood within five eyes of the main stem, to produce young wood, and if there be more young wood, cut it out close to the main stem. Each year thereafter, the bearing wood of the preceding season is cut off close to the main stock, and new wood for the following season always obtained from near the ground. Too much bearing wood is usually left, from a desire to obtain a large crop of fruit. The consequence is, if the vine is overloaded with fruit, it ripens badly, and does not bear strong young wood for the following season. Our foreign vine-dressers are also too apt to head the young shoots too much. In the colder countries of Europe they top the branches of the new wood, when five or six feet high, to aid it in ripening, and thin out the leaves, to let in the sun to ripen the fruit. In our hot climate the fruit is the better for a partial shelter from the sun. If the bearing branches are stopped after the fruit has set, it is apt to check the growth of the wood on the bearing branch. The wood prematurely ripens, and the sap ceases to flow, and the fruit cannot ripen, but shrivels and drops off. In the pruning, I have the Catawba in my mind. There are some varieties of de-

licate growth, which require much closer pruning; and the Catawba will, in poor soil, also require it.

The rot has been very destructive the past season, and my vineyards have, on an average, suffered a loss of two-thirds of the fruit. But many vineyards have escaped entirely, and the grape culture has increased so much that we shall this season make double the quantity of wine that has been made any previous year. My tenants, two months since, expected to make twenty-five thousand gallons of wine. They must now learn to be contented with eight or nine thousand gallons. The grape this season ripens better than usual; and it will be the fault of the vine-dressers if their wine be not of extra quality. My *must* is one-twelfth richer than in any former year. I regret to say, that some of our ignorant vine cultivators will "do as they did in Germany," break up the *mark*, mix it with cider, or water, and add it to the previous pressing. It was attempted by a person whose wines I engaged a few days since, but we detected the fraud, by applying the sacorometer. I do not believe our grapes are more subject to rot than they are in some of the best wine countries in Europe. My wine cooper, who is from Champagne, France, informs me, that he learns by his letters, that they have lost four successive crops by the rot, and that many poor people have, from necessity, cut up their vines, and planted potatoes and cabbages in their place. In Europe, they usually turn over their ground, by trenching two feet, and cut off all roots near the surface. On steep-side hills, we turn over the soil from eighteen inches to two feet deep, and make sod or stone embankments to the benches. We seldom take the trouble to cut off the roots near the surface, and we have many fine bearing vineyards, where the ground was ploughed only, and no surface roots cut off. But I believe the practice would be a good one, as in a hot, dry summer, the vine will suffer where the roots are near the surface. Where the sub-soil is clay, the roots will remain near the surface. It might have some effect in preventing the rot, to compel the roots to go lower down. In relation to our domestic wine, I risk nothing in saying, that our dry Catawba, and sparkling Catawba wine, is destined to take precedence of the dry and sparkling wines of Europe. No foreign wine retains the aroma and flavor of the grape so well as the Catawba. If you even make it into vinegar, you can tell the grape it is made from. But we have the prejudices in favor of European wines to overcome. I will give a singular instance to prove it. A few years since, a dozen of our winebibbers were selected to test the quality of the wines made at the vineyard of Mr. Resor, and my own. The Spanish Manzanilla wine, which is more fœtid than any other of the stinking goat-skin wines of Europe, had been introduced by Mr. Foote, and had become a great favorite, particularly with a certain gentleman of our city, esteemed one of our best judges, and he was one of the twelve judges selected. I slipped in a bottle of the Foote Manzanilla, that he had sent me as a present. Unfortunately for Mr. Resor, his wine was turbid, and had not a fair chance. While the other gentlemen were tasting the different bottles, and pronouncing judgment as they progressed, and separating the best from the other, my gentleman silently tasted of all the bottles, but said nothing, reserving himself as the umpire, in case of a difference of opinion. After tasting all, he remarked, "I will not now say which is the best bottle, but I will say which is the worst," and placed his hand on the bottle of Manzanilla. I replied, that "I agreed with him in opinion, but was fearful he would change his, when informed what wine it was;" and added, "that bottle was a present from Mr. Foote, of his celebrated Manzanilla, that you admire so much." "Is it possible?" said he, and took a second glass, when he smacked his lips, and ejaculated, "Well, I declare, so it is. How could I have made the mistake?" H. Longworth.

AGRICULTURAL FAIR AT FAIRMOUNT, BALTIMORE.

As we announced, incidentally, our design to attend the Agricultural exhibition on the 9th ult., at Baltimore, it may be expected that we should render some account of it; but for this we have little time, and, if possible, less space.

We can only say, therefore, with the benefit of not a little experience in the way of observation of such things, that it was among the best in some very important departments, especially when it is considered that it was the first that has ever been gotten up in the United States; but candor compels us to add, that, in some other branches, and such as *we* have been in the habit of considering among the most essential to rural and domestic management and comfort, we might say rational enjoyment, it was one of the most meager and deficient.

The first thing that must have struck the mind of all who witnessed it, was, *the extent and completeness of the arrangements.* On the part of the president and his assistants, nothing was omitted that forecast enlightened by experience could suggest, or zeal and enterprise supply. It was fortunate for the great interest at stake, that the incipient measures for this great annual display of the agricultural industry of Maryland should have devolved on the liberality and activity of such men as Mr. Glenn and Mr. Calvert, the presidents respectively of the Baltimore Agricultural Club and of the State Agricultural Society. But all know how much depends, in all such cases, on the energy of a few, while the many look on, as ready to carp in case of failure, and say—"Ah! I said so—I told you how it would be!" as they are sometimes slow to award the praise which is due, and which is in fact the only reward, and even more than is looked for, by those whose energy is only to be appreciated by the exhibition of what it brings into view—so much excelling, as in this case, the public anticipation.

On the part of the President of the Society, who seems, since his appointment, to have thought of nothing but how he should justify the confidence which imposed it upon him, the wonder was as general as it was natural, how he could have anticipated so many, even the smallest matters that were necessary to the successful and easy working and going off of the whole affair. For one of the largest and best exhibitions of cattle and sheep that ever took place in this country, stalls, printed labels, food, water, bedding—every thing was provided beforehand. There were tents handsomely constructed and arranged, with all the conveniences, for every committee. In short, instead of waiting for sore and vexatious experience of deficiencies, to indicate what would be necessary, he had every thing ready provided that the most ample experience could suggest. Instead of waiting for supplies of the needful hereafter, he boldly "took the responsibility," backed by Mr. Glenn, and feeling sure that he was moving in a good cause, determined to "*go ahead!*" and hence it was that, though it was the first, as we may hope, in a long series of Agricultural Fairs ever improving and to be improved; there was on the ground, as we see it on board of ship—"*a place for every thing, and every thing in its place.*" We choose to say thus much, as an humble set-off against that palpable, not to say culpable, apathy and indolence on the part of hundreds who ought to feel an equal interest, and who are yet slow to contribute in any form to the success of undertakings to benefit and advance the principal business of their own lives.

It is not to be expected, that in a work like this, the spread of which is equally over the whole Union, and the aim of which is to disseminate principles of the practice and of the economy of the plough, of universal application and importance, that space could be allotted to details of personal and

of local interest; we must therefore content ourselves with declaring, in the first place, the great pleasure it gave us to see and take by the hand, once more, so many farmers and planters from all parts of old Maryland, worthily known and distinguished for their intelligence and patriotism—gentlemen differing, it may be, in political opinions, but all agreeing in the soundness and wisdom of the policy which would place the interests of the plough in the lead of all public concerns; and now that we may flatter ourselves with the advent of an era, propitious to a calm examination and assertion of the claims of agriculture, to precedence before all others, may we not hope that those who follow it, in a sense of what is due to themselves, will hereafter make the measure of attention to it, on the part of public men and candidates for public favor, the test of popular confidence and the ground for public distinction? In token of an awakening sentiment, promising a consummation so devoutly to be wished, we may note the unanimous adoption of the following resolutions, offered by W. T. Earle, Esq., of Queen Anne's County, at a large meeting of the State Society:—

"*Resolved*, As the sense of this Society, that as far as the Government of the United States may be deemed constitutionally competent to the establishment of schools, academies, or other institutions, for the diffusion of the sciences applicable to any art or industry; it would better become a Republican Government, resting for support on the free will of the people, and would better comport with the true interest and glory of the country, that provision should first and most especially be made to disseminate a knowledge of the sciences connected with the *great art of cultivating the earth.*

"*Resolved*, That a copy of this resolution be communicated by the President of this Society, to the Members of Congress representing this State in both branches of that body, in the hope that they may feel themselves called upon to use their best exertions to have it carried out in the legislation of the country, so far as it may be deemed expedient to make any appropriation for educational or scientific institutions of any sort."

For one, we heartily thank Mr. Earle for entering this wedge,—it being, we believe, the first expression on the part of a State society, of a determination to persuade our Honorable Representatives in Congress to recognise the landed interest as really a State concern *worthy of some consideration!* These resolutions will afford excuse for *one* meeting at least of the *Agricultural Committee!*—which will be more than was held by that of the Senate at the last session, although, in his eloquent support of an humble memorial in behalf of the agricultural community, Senator Johnson, who would have referred it to a special committee, was answered, that the standing committee was *all-sufficient!*

To return to the exhibition. That of *cattle*—the most important—was perhaps the most varied, numerous, and excellent that has been anywhere exhibited in the United States. When we say numerous, we mean not in the number of oxen, for in New England you may sometimes see more than a hundred yoke of very superior cattle in a string. We mean in the number of thorough-bred of the most distinguished races—Short-horns—Devons—Ayrshires and Alderneys—many of them imported or directly descended from imported stock. Mr. Patterson, who kindly sent down a small detachment from his magnificent herd, did it, as was understood, to gratify the public curiosity, to see some specimens of what Devon cattle are, in their full development of excellence; and was content to let them be seen, without seeking the distinction to be won by premiums—thinking very justly, in his case, that "good wine needs no bush." The difficulty of procuring any of his is sufficient proof at once of their purity and perfection; and while he goes on to import the best bulls of that race to be had in England, and to throw off all that throw out the least blemish, even in his almost fastidious judgment, they must continue to maintain their supremacy. We were ourselves requested in the summer of 1847, to bespeak of him some ten or a dozen

young ones, but could only succeed in getting a bull and two heifer calves for Colonel Hampton.

The show of sheep was truly admirable. Those from Mr. Reybold's celebrated flock alone would have lent attraction to that department of the show; but when to the number of very superior Leicesters, and South Downs besides, we add the draft from the famous flock of Colonel Ware of Virginia, the product of such continued and skilful attention, no more need be said to persuade those who were not present to be satisfied that the show of sheep was enough to demonstrate that we have an ample basis on which to enlarge the flocks of Maryland and Virginia, when the taste of the good liver and the politician shall have been reformed into a preference for good mutton, and a desire to have the loom near the plough, so far at least as to produce and manufacture within these States respectively all the coarse woollens they consume.

Though it was our wish totally to avoid even glancing at details, it would seem to be due in courtesy to Mr. Clements, coming from another State, to recognise not only his direct and very large contributions to the exhibition in cattle, sheep, and poultry, but it is due to his judgment to state, that the splendid Durham bull, so much admired, (bred by that spirited and hearty son of Erin, Mr. Kelly,) as well as many more of the most admired animals on the ground, were purchased through Mr. Clements' personal, and we may add, professional, taste and agency. We understand, incidentally, that Mr. James Goldsboro, of Talbot, had the good luck to secure of Mr. Clements a lot of superior Southdown ewes, and one of Mr. Reybold's very best Oxfordshire rams. Time will show what the cross will bring forth. What we have further to say is, that when young farmers take hold after this manner, it is time for the Lloyds, and the Stevens, and the Martins, to look out, or the *Turners* in search of best mutton, may begin to turn their heads towards other flocks.

Colonel Capron carried a wide and leading swarth as usual; and as for Mr. Calvert, the president, it cannot be said of him that he pointed the way but did not go it himself. The official account of particulars, which will doubtless appear in the *American Farmer*, will show that these gentlemen appeared upon the ground with an eminence that we should characterize as dangerous, if—*they should ever withdraw their contributions.*

Of the exhibition of fruits, of household manufactures, and of the products of the dairy, we would fain say nothing, since the least said is soonest mended. For ourselves, we have been accustomed to consider whatever most evidences attention to these departments, as most auspicious of all that makes domestic life comfortable and happy—for excellence there generally is the fruit, more or less, of *housewifely* thrift, and care; and who ever yet saw a good pie in which the good woman had not had a finger? The prize prints of butter, from the Springfield Dairy, exhaling a sweet, rich, grassy flavor not altogether new to us, might rival the celebrated products of Pennsylvania dairies; but when we considered how highly and deservedly the reputation of Baltimore butter has risen within our recollection above all other competitors, except that of Philadelphia, we must confess our great disappointment at the meagerness of the exhibition as to number of competitors, in that interesting branch of rural industry. The fruit from the orchards of Druid Hill were just enough to show what might be effected in that department here, under circumstances eminently favorable to the success of all well-conducted horticultural enterprises. We must not altogether forget, in this very hasty notice, the honest *mule*—so sure upon the foot, and so true to the draft —animals in whose favor and of whose value and virtues we have written, and caused so much to be written by others, that if they had inherited the

faculty of one of their great ancestors, they would *speak* in our praise. This premium went, notwithstanding the very superior display of their kind, where many have gone before, to old Talbot County, in honor of the spirit of an officer of the navy—one among so many who have rendered like services to agriculture, and who brought their sire, *Peter Simple*, from the shores of the Mediterranean, to prove what a genuine fine animal of the long-eared race *is*, and what he *can do* for his adopted country. For ourselves, we promise never to join any party to proscribe such immigrants as the premium Ass on this occasion, or any of his progeny. To save the last mail, prior to our leaving for the Easton Cattle Show, and being thus cut off from further communication with the Printer, we must close this hasty and very imperfect sketch without time even to look it over.

Postscript.—No portion of the show seemed to attract more lively demonstration of a desire to go into the merit, not to say the *marrow*, of the subject, than the *hams* exhibited for premium. The judges, strange to say, were slow in their attendance, and in the mean time not a few threw themselves, it might be accidentally, in the way of being summoned as talesmen. As if not satisfied with the verdict of the jury, they were brought up for a second trial, and when we saw the prisoners at the bar, they had been so sharply set upon, and so badgered, that they were reduced almost literally to skin and bone. In our poor judgment, a hungry man would say, either was good enough if there was enough of it. In view of the near approach of the season for putting them in practice, we give the recipes by which three of them were cured:—

Mrs. Horsey's [the prize] Ham was cured by the following Recipe—For twelve hams of common size, take 8 lbs. brown sugar, half a pound crystalized saltpetre, and 5 lbs. fine Liverpool salt; rub well with the mixture, and let them be a week in a cask with the skins down, then make a brine strong enough to bear an egg, and add 2 or 3 quarts of lye from hickory ashes, refined by boiling and skimming, cover the hams with the brine and keep them down with a weight, and let them remain in it 3 or 4 weeks; then hang up in a smoke-house, and after 24 hours, smoke with hickory wood until cured, say 6 weeks. This ham was wrapped thickly with timothy hay before being boiled.

Thomas Duckett's Mode of curing the Hams offered at the Show, which took the Second Premium.—To 1000 weight of hams apply the following *mixture*, well rubbed on. Five-eighths of a bushel of fine salt, four pounds of saltpetre, two tea-cupsful of red pepper, half a gallon of molasses, 1 gallon hickory ashes. Let the hams be packed away for 5 weeks with the rinds down. Then smoke for 3 or 4 weeks with green hickory wood and tobacco stalks, (in which there is a certain quantity of saltpetre.) and as soon as sufficiently smoked, cover them with pepper and ashes, (well mixed,) and sew them up in bags to protect them from the flies.

Thomas P. Stabler's Manner of curing the Bacon Ham exhibited for Premium.—After the hog is put up to fatten, he is fed from 4 to 6 weeks on corn alone. When killed, suffered to become entirely cold previous to being cut up. Each ham then well rubbed all over with a heaped tea-spoonful of saltpetre; permit this to be absorbed by the meat, and then rub well with the best Liverpool blown salt, filling the skin at the hock end. Place it in the tub, skin downward, and cover the flesh side (now uppermost) with salt of the same kind, a full quarter of an inch thick. Then let it remain from twenty to twenty-five days, according to the size of the meat. When taken out, carefully remove any salt that may remain on the outside by washing in water, using a hair brush. Hang it up in the meat-house, permitting no two pieces to touch each other—and smoke it *constantly* for ten or fifteen days. Early in the spring rub it well all over with unslacked hickory ashes, and rehang it as may best secure it from rats and mice.

After all, much depends on the *age* of the hog, his *rearing and education!* For this, the genuine democratic school of the "largest liberty" is admitted to be the best, roaming where he listeth, and not put under inconvenient restraint, until he arrives at years of sufficient discretion and experience to hear a falling apple, or smell a chestnut or an acorn, a quarter of a mile off.

He should weigh from 140 to 160. The ham that took the *second premium* (and there need be none better this side of Westphalia, unless it be the pea-fed ham of North Carolina) weighed, we should guess, about 13 pounds; and the hog, therefore, probably, about 200. The hams of a hog, when cut up for the tub, weigh about one-fifth of the whole, and they lose about one-third in curing. Thus a hog weighing 200 will give two hams of 20 pounds each, which will cure down to about 13 pounds.

All friends of improved husbandry, and all judges of what is indispensable to its accomplishment, must have been particularly gratified at the *collection of agricultural implements and machinery.* In that respect this exhibition was very remarkable, proving clearly, how much, as we have often said, the agricultural community is indebted to that class of manufacturers. As an obstacle to perfect tillage, and, of course, to abundant and profitable harvests of every thing; nothing is more prominent than the *deficiency in the number and character of the tools and machinery with which the farmer works, which may be noted on almost every estate;* nor can associated men, mind, and means, for agricultural improvement, be anywhere, or any how, better employed, than in stimulating and rewarding such improvements and inventions as will enable the husbandman to perform his work with less labor, and at the same time more thoroughly. Some Philosopher has declared that among the greatest benefactors of mankind, is he who invents a new *want.* While the *bon-vivant* says, of all things a new dish is to be esteemed as the greatest blessing—all must agree, that he deserves well, who invents the *means of most easily supplying* the wants we have—and among such benefactors, he deserves to rank most conspicuously, who invents and manufactures a *new and more perfect agricultural implement.*

After all, might it not have been worth while to appoint a committee to report what proportion of the implements and machinery exhibited there, and used in Maryland, is made *within the counties where they are used*—out of Maryland timber and Maryland iron—by men on the spot, who consume Maryland beef, and bacon, and mutton, and potatoes? We think we saw well known and popular Yankee stamps on much of what was exhibited. It was in view of that, that at a late dinner in the town of Lynn, the great shoemaking town in Massachusetts, where about six hundred lively independent citizens sat down to the agricultural dinner, being complimented and toasted far beyond our humble deserts. we were prompted to close some hasty remarks with—"the *spread* southward, of that sagacity and ingenuity, which enable you to draw the wool of other states to your looms, the iron of other states to your anvils, and the leather of other states to the lapstones of Lynn." True, it may be said, that we ship our corn and our flour to these eastern manufacturers of our ploughs, rakes, pitchforks, and shoes; but would it not be better to feed these on the farm, or find a market for them near to it—that the refuse might improve the farm, and the expense attendant on distant markets be saved?

Of Mr. Carey's address, with which this great exhibition closed, his enlightened views of the economy and practice of agriculture, as already known by his writings, assure us that in it we shall have a valuable addition to the stock of agricultural philosophy and information.

We shall have something further to say about Mr. Ware's sheep, and some other things; this being but a hasty sketch, *currente calamo*—on the eve of a long-intended, flying visit to the good old Eastern Shore of Maryland—the land of good hominy, good oysters, good ducks, good mutton, good men, and what is more—*gentlemen!*

SERPENTS.

'The snake, renew'd in all his speckled pride
Of pompous youth, has cast his slough aside;
And in his summer livery rolls along
Erect, and brandishing his forked tongue.'—
DRYDEN.

WHEN I was lately at Brighton, I met with a man who employed himself in summer in catching adders, the fat of which he preserved and sold as a sovereign remedy for hurts and swellings; and some other parts of the animal went to the apothecaries to be used in their materia medica. In catching them, this man used a forked stick and a shorter one. With the first, he pinned the adder to the ground, and killed it with the other. He was accompanied by a dog, who hunted for these animals; and who, when he had found one, contrived generally to seize it by the middle, and shake it with so much rapidity against the sides of his head, that not one adder in a hundred had time to bite him before he killed it. His owner, however, informed me that when this happened, his head instantly swelled, but the swelling was almost as quickly removed by rubbing it with some of the fat of adders, which he always carried about with him for the purpose. Twenty-five adders yielded about half a pound weight of fat. They feed on worms, mice, frogs, and young birds; and it would appear that before the winter sets in, they quit the open downs, where they are found in summer, for the neighbouring woods, as a laboring man told me he had found nearly sixty of them clustered together in a torpid state, while grubbing up an old tree in one of Lord Chichester's woods. They will, however, hybernize (if I may use the word) with the common snake and the slow or blind worm,* each of these having been found in close company with some vipers in a torpid state, on digging a drain in the grounds of Burwood Park, at Walton-on-Thames, a short time ago. The viper-catcher whom I met with near Brighton, assured me that he had frequently seen the young vipers take refuge in the inside of their mother by running into her mouth, which she opens for that purpose, when danger is apprehended. He also asserted that they are produced alive, the ova being hatched in the inside of the mother, from which they probably creep, as they must do at a more advanced state, after they have made it their place of refuge.† He said that, by letting vipers bite a piece of rag, and then suddenly snatching it from their mouth, he easily extracted the fangs, and that he then frequently put the animals between his shirt and skin, and brought them away alive.

Snakes are easily tamed, an instance of which is mentioned in Mr. White's Naturalists' Calendar: and there is a stuffed specimen of a snake now in the Zoological Museum, which, when alive, was perfectly tame, and had been eleven years in the possession of the gentleman who presented it to that society, and to whom it showed a strong attachment. Eton boys have always been great tamers of snakes, and many school anecdotes are current of the attachment of these reptiles to their owners.

Snakes, unlike the viper, are oviparous, and their eggs are linked together in a sort of chain, and are each about as big as a large marble. They feed on frogs, mice, certain insects, and also on young birds. It is supposed by some people that they destroy the eggs of partridges and pheasants; and for this reason many gamekeepers make a point of killing them. Snakes have sometimes been found on the branches of trees, which they have contrived to ascend in search of young birds. A person lately informed me that he had found one in that situation. A snake has been seen to swallow a newly-hatched chicken; and I once observed one in the act of attempting to swallow a full-grown frog. I was attracted to the spot by the cries of the latter, which were very loud and piteous. The snake made great efforts to get the frog down his throat, which he at last succeeded in doing. If trampled upon, a snake which has just swallowed a frog will at once eject it.

The fact of snakes annually casting their skin, or slough, is very curious. I have found the slough of one twisted among some young quicksets, in a hedge-row, and appearing perfectly fresh. The circumstance of the cast-off skin being twisted in the way I have found it among some twigs, seems to prove that the snake had not been able to rid himself of it without having recourse to something not very pliable which would assist her in the operation, although Mr. White says, that he had found the slough in

* It is a spring amusement for American farmers to go in search of snakes while hyberuizing, when they find them in caves and clefts of rocks, knotted together by hundreds. The stench is stated to be sometimes intolerable. Bartram has some curious particulars respecting snakes.

† The mode of parturition stated by the viper-catcher is generally supposed to be a vulgar error. He seemed, however, very confident that he was right. May not the viper, like the lizard, be ovo-viviparous? Some naturalists are of this same opinion.

a field near a hedge. His account is as follows:—"About the middle of September, we found in a field, near a hedge, the slough of a large snake, which seemed to have been newly cast. From circumstances it appeared to have been drawn off backward, like a stocking or woman's glove. Not only the whole skin, but the scales from the very eyes, were peeled off, and appeared in the head of the slough like a pair of spectacles. The reptile, at the time of changing his coat, had entangled himself intricately in the grass and weeds; so that the friction of the stalks and blades might promote this curious shifting of his exuviæ.

'——Lubrica serpens
Exuit in spinis, vestem.'—LUCRET.

'The slippery snake
Casts off its vesture in the thorny brake.'

"It would be a most entertaining sight could a person be an eye-witness to such a feat, and see the snake in the act of changing his garment. As the convexity of the eyes in the slough is now inward, that circumstance alone is a proof that the skin has been turned; not to mention that now the present inside is much darker than the outer. If you look through the scales of the snake's eyes, from the concave side, viz. as the reptile used them, they lessen objects much. Thus it appears, from what has been said, that snakes crawl out of the mouth of their own sloughs, and quit the tail part last, just as eels are skinned by a cookmaid. While the scales of the eyes are growing loose, and a new skin is forming, the creature in appearance must be blind, and feel itself in a very awkward and uneasy situation."

BIRDS' NESTS.

"The nest of a bird is one of those daily miracles, that, from its familiarity, is passed over without regard."

His late majesty, William IV., when residing in Bushy Park, had a part of the mizen-mast of the Victory, against which Lord Nelson was standing when he received his fatal wound, deposited in a small temple in the grounds of Bushy House. A large shot had passed completely through this part of the mast; and in the hole a pair of robins had built their nest and reared a brood of young ones. It was impossible to look at this without reflecting on the scene of blood, which had occurred to produce so snug and peaceable a retreat for a nest of harmless robins.*

There is something extremely curious in the situations which birds sometimes select for their nests. Mr. White mentions two remarkable facts of swallows having built their nests in odd situations, one on the handles of a pair of garden-shears, which were stuck up against the boards of an outhouse: and the other on the wings and body of an owl which hung dead and dry from the rafter of a barn. Calling some years ago on the Rev. Egerton Bagot, of Pipe Hayes, in Warwickshire, I was surprised at seeing a swallow's nest built on the knocker of his hall door, and the parent bird in the act of incubation. When the door was opened, which it frequently was in the course of the day, the bird left her nest for an instant, but returned to it as soon as it was shut. I afterwards learned that the swallow hatched, and that her young arrived at maturity. Some birds indeed show great boldness in the situation in which they build their nests, as if they depended on the kindness and protection of those under whose care they seem to place themselves. Thus a whitethroat had its nest for three years on a vine close to my parlour window, where it was quite open to observation; and a robin built on the shelf of my greenhouse, which was constantly visited, and the bird looked at while sitting; but she never left her nest at those times, and seemed perfectly secure and contented. There is something very agreeable to me in this confidence of protection, which I like to think that I have produced by constantly feeding them in winter, and never allowing their nests to be taken.

A robin, when its young are in danger, has a peculiarly plaintive note, which I am well acquainted with, and which I never hear without going to its assistance, when I generally find that a cat is prowling near the nest containing the young birds.

I may here mention a curious fact which was communicated to me by a gentleman who had it from Mr. Knight of Downton. A fly-catcher built in his stove, for several successive years. He observed that the bird quitted its eggs whenever the thermometer was above 71° or 72°, and resumed her place upon the nest when the thermometer sunk to a lower point. This fact leads us to account for another, respecting ostriches, which are observed by travellers to be ab-

* This piece of the mast, with a bust of Lord Nelson upon it, was subsequently placed at the upper end of the dining-room at Bushy. Both are now in the armory at Windsor Castle.

sent from their eggs in the day-time, but sit upon them during the night.

Robins, more than any other birds, I have noticed, vary the form of their nests and the materials of which they build them, according to the situation in which they are placed. Thus the robin which had its nest on the shelf of the greenhouse, surrounded it with a great quantity of oak-leaves; while another, which for two years built among the straw which covered some sea-cail in my kitchen garden, formed it of a small quantity of moss only lined with hair. Another, which built in a trained gooseberry-bush against the wall, used also moss and hair, with some few oak-leaves; and in some instances, where these birds have used a large hole in a bank to build their nest in, the sides of the hole have been completely filled in with a great quantity of oak-leaves. I am inclined to think that some birds, and the robin among the number, vary the materials with which their nests are built, not so much from the difficulty of procuring them, as for the purpose of assimilating them more nearly to the appearance of the objects which surround them. I have observed this in a wren's nest, built in the thatch of a shed, and in another in a hay-rick, both of which resembled in appearance and colour the surrounding objects. I have also observed that, when a chaffinch has built its nest against the branch of a tree, the moss or lichens which compose the exterior part of the nest are similar to those which are found on the tree itself; so that it is sometimes very difficult to perceive the nest. This fact is curious, as it shows a powerful instinctive foresight.

A long-tailed titmouse built its nest on the branch of an elm in Bushy Park. The branch is about the thickness of a man's leg, and the nest is so artfully placed upon it, and made so nearly to resemble the knot of a tree, that it is extremely difficult to perceive that it is a nest. In order to render the deception more perfect, the nest is by no means too large an excrescence from the branch, as it would be if it was as large as those built by the same species of birds in more concealed situations. On the contrary, it is small and compact, and covered with lichens so nearly resembling the bark of the elm, that, although the branch of the tree overhangs a foot-path, along which at least thirty workmen passed and repassed four times a day, and the nest was not more than two feet above their heads, it was a long time before any one of them perceived it.

This nest has a feather fixed so as to overhang the entrance, forming a sort of valve, and which was pushed in or out as the birds left the nest or came into it. It must have been placed there to add to the warmth of the nest, during the very cold weather which prevailed at the time the birds were laying their eggs.

The nest of the wood-pigeon, although composed of the rudest materials, (only a few dead sticks,) will be found admirably calculated for the purpose of concealment. How often have I observed the strong rapid flight of a wood-pigeon from a tree, and heard the noise produced by his wings, and yet have been unable to discover its nest! This has been owing to the deposits of dead leaves and small branches which have been accumulated in various parts of the tree, and which have exactly the same appearance as the nest itself.

The excrement of the young of many birds who build their nests without any pretensions to concealment, such as the swallow, crow, &c., may at all times be observed about or under the nest, while that of some of those birds whose nests are more industriously concealed is conveyed away in the mouths of the parent birds, who generally drop it at a distance of twenty or thirty yards from the nest. Were it not for this precaution, the excrement itself, from its accumulation, and commonly from its very colour, would point out the place where the young were concealed: when the young birds are ready to fly, or nearly so, the old birds do not consider it any longer necessary to remove the excrement.

Science of Cooking.—Liebig's *Chemistry of Food* contains a method for cooking meat, founded on scientific principles. It is recommended to introduce the joint into water in a state of quick ebullition, allow it to remain in this state for a few minutes, and then so much cold water is to be added as to reduce the temperature down to about 160°, in which state it is to be kept for some hours. By the application of boiling water at the first, the albumen is coagulated, so as to prevent the water from penetrating into the interior of the joint and extracting the soluble juices.—*English paper.*

Give us the meat—whether it be a North Carolina pea-fed, or a Maryland corn-fed ham, or a Philadelphia calf's head, and "Aunt Fanny" to cook it, and we would go against the great chemist for a premium any day!

THE ATMOSPHERE, VEGETATION, &c.

The atmosphere supplies the vegetable creation with the principal part of its food; plants extract inorganic substances from the ground, which are indispensable to bring them to maturity. The black and brown mould which is so abundant is the produce of decayed vegetables. When the autumnal leaves—the spoil of the summer—fall to the ground, and their vitality is gone, they enter into combination with the oxygen of the atmosphere, and convert it into an equal volume of carbonic acid gas, which consequently exists abundantly in every good soil, and is the most important part of the food of vegetables. This process is slow, and stops as soon as the air in the soil is exhausted; but the plough, by loosening the earth, and permitting the atmosphere to enter more freely, and penetrate deeper into the ground, accelerates the decomposition of the vegetable matter, and consequently the formation of carbonic acid. In loosening and refining the mould, the common earth-worm is the fellow-labourer of man. It eats earth, and after extracting the nutritious part, ejects the refuse, which is the finest soil, and may be seen lying in heaps at the mouth of its burrow. So instrumental is this reptile in preparing the grounds, that it is said there is not a particle of the finer vegetable mould that has not passed through the intestines of the worm; thus, the most feeble of living creatures is employed by Providence to accomplish the most important ends. The food of the vegetable creation consists of carbon, hydrogen, nitrogen, and oxygen, all of which plants obtain entirely from the atmosphere, in the form of carbonic acid gas, water and ammonia. They imbibe these three substances, and after having decomposed them, they give back the oxygen to the air, and consolidate the carbon, water, and nitrogen into wood, leaves, flowers, fruit. When a seed is thrown into the ground, the vital principle is developed by heat and moisture, and part of the substance of the seed is formed into roots, which suck up water, mixed with carbonic acid from the soil, decompose it, and consolidate the carbon. In this stage of their growth, plants derive their whole sustenance from the ground. As soon, however, as the sugar and mucilage of the seed appear above the ground, in the form of leaves or shoots, they absorb and decompose the carbonic acid of the atmosphere, retain the carbon for their food, and give out the oxygen in the day, and pure carbonic acid in the night. In proportion as plants grow, they derive more of their food from the air and less from the soil, till their fruit is ripened, and then their whole nourishment is derived from the atmosphere. Trees are fed from the air, after their fruit is ripe, till their leaves fall; annuals, till they die. Air-plants derive all their food from the atmosphere. In northern and mean latitudes, winter is a time of complete rest to the vegetable world, and in tropical climates, the vigor of vegetation is suspended during the dry, hot season, to be resumed at the return of the periodical rains. Almost all plants sleep during the night; some show it in their leaves, others in their blossom. The mimosa tribe not only close their leaves at night, but their foot-stalks droop; in a clover field, not a leaf opens till after sunrise. The common daisy is a familiar instance of a sleeping flower; it shuts up its blossom in the evening, and opens its white and crimson-tipped star, the "day's eye," to meet the early beams of the morning sun; and then also "winking Mary-buds begin to ope their golden eyes." The crocus, tulip, convolvulus, and many others, close their blossoms at different hours towards evening, some to open them again, others never. The condrille of the walls opens at eight in the morning, and closes for ever at four in the afternoon. Some plants seem to be wide awake all night, and to give out their perfume then only, or at night-fall. Many of the jessamines are most fragrant during the twilight; the olea fragrans, the daphne adorata, and the night stock, reserve their sweetness for the midnight hour, and the night-flowering sirius turns night into day. It begins to expand its magnificent sweet-scented blossom in the twilight, it is full-blown at midnight, and closes, never to open again, with the dawn of day; these are "the bats and owls of the vegetable kingdom."—*Mrs. Somerville.*

Three Faults in Nurses.—To lisp in a baby style, when the same words in an endearing tone would please as well. The reverse should be the practice; the voice clearly emphatic, and each syllable clearly articulated for imitation.—To tell of witches, ghosts, or goblins.—To direct a child to act like a man, whereas it is not becoming for a boy to ape the man, but only to conform his demeanour to his age: for every age has its own peculiar decorousness.

THE WHOLE DUTY OF WOMAN.

APPLAUSE.

Applaud not on slight acquaintance; be not over hasty in thy commendations.

For the deed that speaketh for thy sister may not be owing to a deserving motive; nor the words of her mouth proceed from the sincerity of her heart.

By giving applause rashly, thou mayest be reduced to recall thy opinion; and thy praises hereafter will not avail thy deserving friend.

Commend not thyself with thy lips; but let thine actions speak in thy behalf.

Yet the merit of thy deeds may be lost in ostentation, and she that seeketh praise will be disappointed therein.

Also, if thou disclaimest the encomiums to which thou art fully entitled, they shall be justly taken from thee again.

For she who affecteth to despise commendation, shall not enjoy the privilege thereof.

Be not exalted, though all men commend thee; for thou knowest not but the breath of a whisper may convert their eulogies into revilings.

Give not applause to another, because she bestoweth it on thee; lest the world detect thy motive, and thy words be held in derision.

Dost thou commend another for virtues more conspicuous in thyself, take heed lest thou art accounted the trumpeter of thine own deservings.

Be not too cold in the general applause, yet utter not thy praise without due deliberation.

Praise not a woman to the skies, for her most consummate perfection is inferior to the angels.

Thy friends will not thank thee for the extravagance of thy praise, for undeserved commendation is the severest satire.

Rather at all times reprove than applaud; for the child and the undistinguishing fool clappeth his hand in ecstasy; but the judgment of the understanding examineth and approveth.

CENSURE.

Be not fond of reproving, for she who assumeth the place of a censor will be esteemed arrogant, and she who reproveth others must look well to her own conduct.

For the ill example of the reprover is a scandal to her office, as the mal-conduct of the preceptor bringeth his precepts into contempt.

Beware how thou censurest, lest in like manner thou art censured.

Trust not to the appearance of a crime, nor to the breath of report.

For as the specious show of virtue may be hypocrisy, so the appearance of ill may be sometimes deceit.

The news of the day may awaken suspicion, but justice condemneth not without strict examination.

The report that prevaileth may be the workings of envy; and envy is uncharitable and delighteth in false accusations.

Prejudice is unjust; for the look is not the true index of the mind; neither doth a day or a week discover the behaviour of a stranger.

Be tender of the good name of others, so mayest thou find the same tenderness toward thine own indiscretions.

If thou art forced to condemn, condemn with gentleness and compassion; so shall thy praises last longer than thy beauty, and thy reputation, from the ornament of thy youth, become the comfort of thy age.

INSINUATION.

Let not thy praises savor of irony; nor thy compassion be mixed with evil reflections.

Insinuation is sly: the breath of her mouth is subtle, and penetrateth unobserved into the heart of her that heareth.

It is sharp as the east wind; it blasteth wherever it blows.

It is poisonous as the breath of the slow-worm; it is venomous as the lick of the young adder.

She affecteth to pity the backslidings of her friend; yet she taketh an opportunity to spread the knowledge of them abroad.

She speaketh in all gentleness of her neighbour, and concludeth wishing things were otherwise with her.

She crieth, it is hard to judge; but sayeth, can everybody be deceived?

The glance of her eye conveyeth evil thoughts, and the motion of her head giveth room for the apprehension of ill.

If she pointeth with her finger, yet sayeth nothing, her looks are more significant than the strongest phrase of speech.

Her silence is more destructive than the clamors of the loudest calumny.

Insinuation is barbarous and full of guile; she putteth on the face of friendship to abuse.

She smileth while she stabbeth to the

heart; she woundeth where she pretendeth love!

Be open in thy censure or censure not; for he who deserveth not reproof should be free from the breath of suspicion.

AFFECTATION.

Who is she that cometh tripping with nice, mincing steps, whose tongue lispeth sweetness, and whose form is not her own.

She hath put off herself, and decked her with the borrowed plumes of others, by whom she is despised.

She affecteth melody of voice, and harmony of speech, and wisdom, and importance, and dignity of deportment.

Her dress is antic and singular, her attire is gaudy or rich to excess.

She hath forgotten how to tread; she neither danceth nor walketh along.

She distorteth her features to appear lovely; she laugheth at nothing, to show the beauty of her teeth.

She washeth her cheeks till the native bloom departeth away; then painteth with the artificial rose.

She placeth herself in the midst of an assembly; she delighteth to dance alone; she sitteth in the foremost seat of the theatre.

She is pleased to hear herself speak; she listeneth not to the voice of another.

She breaketh in upon the discourse of her sister, and finisheth the sentence her neighbour hath begun.

She taketh on her to instruct the wiser than herself, and to teach what she understandeth not.

Dost thou laugh at her folly, she will pity thy ignorance, and go on in her own way.

She is incorrigible till she seeth herself in the form of another; yet even that may not make her sensible of her error.

Beware, O daughter of beauty, lest thou art misled by affectation; for thou wilt be neglected by others, till, by reflection, thou discoverest the cause, and art led to despise thyself.

MODESTY.

Behold the daughter of innocence! how beautiful is the mildness of her countenance! how lovely is the diffidence of her looks!

Her cheek is dyed with the deep crimson of the rose; her eye is placid and serene, and the gentleness of her speech is as the melting softness of the flute.

Her smiles are as the enlivening rays of the sun; the beauty of her presence as the silver light of the moon.

Her attire is simple; her feet tread with caution, and she feareth to give offence.

The young and the old are enamoured with her sweetness; she carrieth her own commendation.

She speaketh not the first in the conversation of women, neither is her tongue heard above her companions.

She turneth not her head to gaze after the steps of men; she inquireth not of them whether they are going.

She giveth not her opinion unasked, nor stoppeth her ears to that of another.

She frequenteth not the public haunts of men, she inquireth not after the knowledge improper for her condition.

So becoming is the behavior of modesty, so lovely among the daughters of women!

Is there who hath forgotten to blush, who playeth with the wanton glances of her eyes, who replenisheth the cup when the toast goes round, and despiseth the weakness of her sister.

Shame shall overtake her in the prime of her days, and the years of her widowhood shall be infamous as they are many.

INTREPIDITY OF A LADY.

A remarkable instance of intrepidity and coolness was exhibited at the Blue Lick Springs, a few days ago, by Miss L., a belle of Bourbon county in this State. Miss L. and Mr. F., a gentleman from the South, on their return from an excursion on horseback, were riding down the long hill, about a quarter of a mile from the hotel, at full speed, the lady being a little ahead. At a sudden turn of the road, the gentleman's saddle turned, and he fell from his horse, but his foot remained in the stirrup, and the horse, although his pace was somewhat slackened, kept on his way, dragging the fallen man upon the ground. The young lady seeing this, reined in her own horse by sudden effort, leaped from him while he was still in rapid motion, ran back, seized the other horse by the bridle, and released her gallant from his very perilous situation.

This feat was witnessed by hundreds at the Springs, who could find no words strong enough to express their admiration of the daring courage of the beautiful young heroine.—*Louisville Journal.*

ROSE INSECTS.

I HAVE made a discovery during the last week, which must be useful, I think, to all who grow roses extensively. I have long kept my rose trees quite clear of green fly and other spring vermin, by using a mixture, the receipt for which was communicated to my employer by Mr. Paul, the well-known nurseryman and rose-grower, of Cheshunt. The recipe is this:—To 12 gallons of cold water add 1 bushel of soot and about half a peck of unslacked lime; stir and mix. Let the mixture stand for 24 hours. The soot will have come to the surface; skim it off. It may be afterwards used several times. Syringe the roses from a hand-syringe or a garden-engine. But although this mixture is perfectly efficient during the spring, yet about this time of the year an enemy appears on whom it has no effect. This is a small white grub with a scaly brown head, the scales of which are of a surprising hardness and strength. It destroys the fleshy part of the leaves, leaving them skeletons of fibres, not unlike fine lace. Though curious, these destroyed leaves are in a mass unsightly. I need hardly add that this premature destruction of the leaves seriously injures the health and strength of the plants. I have, till very lately, been quite unable to get rid of this pest by any other method than the laborious one of picking them off by hand, which, in large collections, is all but impracticable. The lime and soot mixture, tobacco-water, snuff, sulphur, I have all tried in vain. I find, however, that by adding 1 lb. of soft soap to the 12 gallons of lime and soot water, this grub is effectually and quickly destroyed. The soft soap should be dissolved in warm water before it is added to the other ingredients.—*William Corvell, Haileybury, Hertford.*

The reason for giving place to things like the above, from English papers, ought to be obvious to all. They often afford hints that may be turned to practical account for other purposes than the one for which they were originally used. In this case, for instance, does it not occur that this mixture of soot water, and lime and soap, might be used for destroying the fly in the tobacco-beds and on various other occasions, such as insects on beds and vegetables, and shrubbery in gardens, &c.

AN ACUTE LADY.

LADY BROWNE and I were going to the Duchess of Montrose's. The evening was very dark. In the close lane under her park pales, and within twenty yards of the gate, a black figure, on horseback, pushed by, between the chaise and the hedge, on my side. I suspected it was a highwayman; and so I found did Lady Browne, for she was speaking, and stopped. To divert her fears, I was just going to say, "Is not that the apothecary going to the duchess?" when I heard a voice cry "Stop!" and the figure came back to the chaise. I had the presence of mind, before I let down the glass, to take out my watch, and stuff it within my waistcoat under my arm. He said, "Your purses and watches." I replied, "I have no watch." "Then your purse." I gave it to him; it had nine guineas. It was so dark that I could not see his hand, but felt him take it. He then asked for Lady Browne's purse, and said, "Don't be frightened, I will not hurt you." I said, "No, you won't frighten the lady?" He replied, "No, I give you my word I will do you no hurt." Lady Browne gave him her purse, and was going to add her watch, but he said, "I am much obliged to you; I wish you good night;" pulled off his hat and rode away. "Well," said I, "Lady Browne, you will not be afraid of being robbed another time, for you see there's nothing in it." "Oh! but I am," said she, "and now I am in terrors lest he should return, for I have given him a purse with only bad money, that I carry on purpose."

Evils of Taciturnity.—Persons advanced in years are prone to taciturnity; and it is to this circumstance that the diseases of the lungs, which so often carry them off, are in a great measure to be ascribed. The lungs need exercise as well as the muscles; and by reading aloud, by singing, and conversation, they may be preserved in a state of health. The advanced age of schoolmasters and other public speakers may perhaps be attributed to the exercise given to their lungs. Hence the importance to the aged of preserving an erect posture, to give their lungs full play.

EFFECT OF EARLY IMPRESSIONS.

As an evidence of the apparent trifles that make lasting impressions, and are sometimes followed by the most important results; and to show, too, how carefully parents should watch all the influences that may serve to give a set to the character, and to jeopard the happiness of their children, a case occurs within our remembrance, to which we may now allude, as no reader can guess at the parties; the fond, the devoted, the congenial, and the gallant brother, to whom alone the secret was confided, having long since followed the subject of it to "that undiscovered country from whose bourn no traveller returns."

The case was that of a young lady of surpassing personal beauty, and the highest order of intellect and feeling. Just then passing from childhood to womanhood, she was on a visit to Washington, and passing, in a picture gallery, from one object to another, a young gentleman, worthy of her whose purity he wished to guard from offence, contrived adroitly, and as he thought at the time without its being perceived, to put aside one which might do for the inspection of artists and professional eyes, but not, as he thought, proper for hers. Unfortunately, as it may have been, for her, she saw enough to discern the nice honor and delicacy of the action and the motive; and, whether, unconsciously, she was already prepossessed, from that moment he became the idol of her heart and dreams. After promise of reaching the highest points in the "steep ascent," *he* fell into an early grave, and *she*—she "fled also as a shadow and continued not!"

THE GRAVE OF THE BROKEN-HEARTED ONE.

May the softest drops from the fount of tears,
That holiest thoughts impart,
Fall, pure at the grief of childhood's years,
On the grave of the broken heart.
When the early springs their violets bring,
May the purple blossoms part;
And the maiden fragrance ever cling
Round the grave of the broken heart.

May the hues of the rainbow linger here,
With the shades of even blending;
While the murmurs of nature fill the ear,
Like the chants of saints descending.
Should the summer's sun look with ray so strong
On its young and tender flower,
Let the leafy trees spread their shades along
To temper his scorching power.

But as evening comes, and he sinks in the wave,
While the hours of the day are dying,
Let his last soft beams kiss the peaceful grave
Where beauty and youth are lying;
And when winter's snows in their whiteness shower,
Oh, pure may they rest on her clay!
And pure may they fade in the sunbeam's power,
As she faded from earth away!

THE BEAUTIFUL.

How beautiful, and bright, and fair
The impress that "God's" mercies bear!
His pencil paints the blooming flowers
That laugh beneath the summer hours:
It is his fragrance that the rose
Upon the wind so freely throws;
Alike beneath his powerful hand,
The hills and mountains at command,
Arose in majesty and height,
Mementos of his power and might.
The young moon shining upon high,
The snow-capp'd pillars of the sky,
The hopes that rise when troubles darkle,
The glow-worm lights that gleam and sparkle;
The Borealis, lovely light,
That crimsons o'er the northern night;
The ignis fatuus of the fen
That dances o'er the lonely glen—
All tell the power of that high hand
That holds us in its great command.
To love all beauty, is a joy
That savors least of earth's alloy.
It seems a remnant of that state,
Ere sin, and wo, and strife had date;
A lingering memory of the light
That shone around man's first birthright.
Oh! it with joy can gild the span
Of e'en the loneliest, lowliest man!

EMILY.

The Plough, the Loom, and the Anvil.

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THE SLAVE QUESTION.

[We invite the attention of our readers to the following letter of Mr. Carey, of this city, to an eminent citizen of the North; the more especially as it makes apparent the grounds of the harmony it would earnestly inculcate between the North and the South, on the most exciting topic of the day.]

DEAR SIR:—The great question of the day is that of Slavery, its extension or its limitation, its perpetuation or its extinction. It seems likely to swallow up almost all others. Whigs abandon the party with which for years they have acted, and vote for "free soil" candidates to whom, as Democrats, they have always been opposed; while Democrats vote for Whig candidates, in the hope to find in them the men least likely to sanction interference with their rights of property; and yet, of all who talk so loudly and sometimes act so strangely, scarcely a single one seems disposed calmly to examine the subject with a view to ascertain what are the effects likely to be produced by the measures they advocate, upon the condition, physical, moral, intellectual, and political, of the objects of their solicitude.

How shall we free ourselves from the curse of slavery? Such is the question that now stands foremost for consideration throughout a majority of the States south of Mason and Dixon's line. Throughout the Union, all desire to see by what means the nation shall be freed therefrom, and the question has been repeated times without number in every State, without having ever as yet, to my knowledge, produced a satisfactory reply. The abolitionist answers by a refusal to eat the sugar of Louisiana, or to wear the cotton of Georgia, preferring to feed and clothe himself by aid of the labor of the Hindoo, who, nominally free, labors a whole month for two rupees—about one dollar—and dies of the pestilence that follows a famine resulting from the excessive poverty produced by taxation; and to that he is subjected for the support of armies that are kept on foot for the purpose of compelling him to give to the collector of *rents* half or two-thirds of all the miserable product of labor employed in the cultivation of high and poor lands, while surrounded by low and rich ones that have relapsed into *jungle*, because of his inability to continue the system of drainage established before India had become the prey of European conquerors. If, happily, he survives the famine and the pestilence, he sells himself for a term of years, to be transported to Demerara or Jamaica, there to perform the labor of a slave, and to endure treatment similar to that to which was due the disgraceful fact, that the slaves liberated at the period of emancipation were fewer in number than had been imported, whereas, from the superior treatment of American slaves, the three or four hundred thousand barbarians that were imported are now represented by three or four millions of comparatively civilized men.

The abolitionist refuses to consume slave-grown cotton, because he thinks that while his labor is so valuable the slave can never become free, and that by diminishing the market for the product of his labor, he himself will become less valuable to his owner, and that thereby will be produced in the latter a disposition to set his bondman free. In this opinion he does not stand alone. It may be found in every English journal. The people of Eng-

land would supersede the use of the sugar of Cuba and Brazil, and the cotton of America, substituting the product of the half-starved and wretched Hindoo for that of the well-fed laborer of Georgia and Alabama, with a view to diminish the value of the slave, and thus facilitate his emancipation. It is held to be impossible that men should become free while worth six or eight hundred dollars each, but that they will certainly become so, if their labor can be rendered so valueless that they themselves will become a burden to their owners. Such is the almost universal impression; and having found it recently in a letter addressed by you to the Rev. Mr. Danforth, I avail myself of the opportunity to examine how far it is correct, believing it can be shown that while it is one which tends greatly to maintain the existing alienation between the people of the Northern and Southern portions of the Union, and is, therefore, injurious, it is not less erroneous, and will not stand examination.

Your views on this subject are thus given: "It [slavery] may be abolished in all of them when slave labor ceases to be profitable: when labor in the cotton growing States is of no more value than it is in many parts of Europe. No one would accept a slave, white or black, in Ireland."

As nothing in this world can remain stationary, the value of labor must either increase or diminish—i. e., it must become either more productive of the commodities required for the convenience and comfort of man, or it must become less so. In one of these directions lies freedom. In the other, continued slavery. If the almost universal view, which you have thus expressed, is correct, every one who desires that all men may become free should unite in the effort to diminish the productiveness and consequent value of slave labor, thereby impoverishing the slave and his owner, and the necessary consequence of such an effort must be increasing hostility between the North and the South. If, on the contrary, it is incorrect, and if freedom be likely to follow naturally from an increase in the productiveness, and consequent value, of slave labor, then every man, North, South, East, and West, should be disposed to unite with his fellow-men in the effort to promote that increase of value, thereby enriching the master while improving the condition of his bondsmen; the necessary consequence of which must be increasing harmony between the various sections of the Union.

One of these views is true, and the other is false. The great mass of the community believe, with you, that truth is to be found in the first; but I believe that it will not be difficult to show that it must be sought for in the last, and it is with a view to show, as I think conclusively, that such is the case, that I address you this letter, well convinced that you would rejoice to be satisfied that the course towards freedom lies in the direction of measures tending to enhance the value of the negro, and that those who would follow in it must adopt a policy directly the opposite of that which has ruined Ireland, impoverished the land and its owner, and rendered the Irishman a burden from which his *owner*—for such he is—is glad to free himself by aid of wholesale clearances, by evictions from lands which the poor tenant has himself reclaimed, and by the destruction of tenements which the poor occupants themselves have built, careless whether their unfortunate late inhabitants perish in the immediate neighborhood, die of starvation in the wretched cellars of Liverpool, fall a prey to ship fever in the passage to Canada, or freeze to death on the inhospitable shores of the St. Lawrence.

Throughout the world, and in all ages, freedom has advanced with every increase in the ratio of wealth to population. When the people of England were poor, they were enslaved, but with growing wealth they have become more free. So has it been in Belgium and in France. So is it now in Russia and Germany, and so must it everywhere be. India is poor, and the

many are slaves to the few. So is it in Ireland. Freedom is there unknown. The poor Irishman, limited to the labors of agriculture, desires a bit of land, and he gives the chief part of the product of his year's labor for permission to starve upon the balance, happy to be permitted to remain on payment of this enormous rent. He is the slave of the land-owner, without even the slave's right to claim of him support in case of sickness, or if, escaping from famine, he should survive to an age that deprives him of the power of laboring for his support. England employs fleets, paid for out of taxes imposed on starving Irishmen, to prevent the people of Brazil from *buying* black men, and women, and children, on the coast of Africa, while holding herself ready to *give* white men, and women, and children, to any who will carry them from her shores, and even to add thereto a portion of the cost of their transportation; and this she does without requiring the transporter to produce even the slightest evidence that they have been delivered at their destined port in "good order and well-conditioned." When Ireland shall become rich, labor will become valuable, and man will become free. When Italy was filled with prosperous communities, labor was productive, and it was in demand; and then men who had it to sell fixed the price at which it should be sold. With growing poverty, labor ceased to be in demand, and the buyer fixed the price. The laborer then became a slave. If we follow the history of Tuscany, we can find men becoming enslaved as poverty succeeded wealth; and again may we trace them becoming more and more free, as wealth has grown with continued peace. So has it been in Egypt, and Sicily, and Spain. Everywhere poverty, or a deficiency of those aids to labor which constitute wealth, is, and has invariably been, the companion of slavery, and everywhere wealth, or an abundance of ploughs, and harrows, and horses, and cows, and oxen, and cultivated lands, and houses, and mills, is, and has as invariably been the companion, and the cause, of freedom.

Wealth tends to grow more rapidly than population, because better soils are brought into cultivation; and it does grow more rapidly whenever people abandon swords and muskets and take to spades and ploughs. Every increase in the ratio of wealth to population is attended with an increase in the power of the laborer as compared with that of landed or other capital. We all see that when ships are more abundant than passengers, the price of passage is low, and that, on the contrary, when passengers are more abundant than ships, the price is high. When ploughs and horses are more plenty than ploughmen, the latter fix the wages, but when ploughmen are more abundant than ploughs, the owners of the latter determine the distribution of the product of labor. When wealth increases rapidly, new soils are brought into cultivation, and more ploughmen are wanted. The demand for ploughs produces a demand for more men to mine coal and smelt iron ore, and the iron-master becomes a competitor for the employment of the laborer, who obtains a large proportion of the constantly increasing return to labor. He wants clothes in greater abundance, and the manufacturer becomes a competitor with the iron-master and the farmer for his services. His proportion is again increased, and he wants sugar, and tea, and coffee, and now the ship-master competes with the manufacturer, the iron-master and the farmer: and thus with the growth of population and wealth there is produced a constantly increasing demand for labor; and its increased productiveness, and the consequently increased facility of accumulating wealth, are followed necessarily and certainly by an increase of the laborer's proportion. His wages rise, and the *proportion* of the capitalist falls, yet now the latter accumulates fortune more rapidly than ever, and thus his interest

and that of the laborer are in perfect harmony with each other. If we desire evidence of this, it is shown in the constantly increasing amount of the rental of England, derived from the appropriation of a constantly decreasing proportion of the product of the land: and in the enormous amount of railroad tolls compared with those of the turnpike: yet the railroad transports the farmer's wheat to market, and brings back sugar and coffee, taking not one-fourth as large a *proportion* for doing the business as was claimed by the owner of the wagon and horses, and him of the turnpike. The laborer's product is increased, and the proportion that goes to the capitalist is decreased. The power of the first over the product of his labor has grown, while that of the latter has diminished.

Such having been, and such being now, the case in all countries of the world, it would certainly seem probable that it would be so with the negro, and that if we would desire that he should acquire that complete control over his actions, and over the fruits of his labor, which constitutes freedom, we should seek to pursue that course which must tend most to the augmentation of wealth, and consequently to the increase of the value of the slave to his master, because of the increased productiveness of his labor. In confirmation of this view, we may see that, throughout this country the amount of freedom is everywhere in the ratio of wealth to population, i. e., in the ratio which the machinery of production, seeking labor for its employment bears to the labor seeking to be employed. The man of Massachusetts—and still more, the woman—enjoys a greater amount of freedom than the man or woman of Pennsylvania, and the latter are far more free than their neighbors of Virginia, although all equally free in the eye of the law. The negro is more free in the rapidly growing Georgia and Tennessee, than in decaying Virginia and South Carolina. It cannot be otherwise. When wealth grows rapidly the demand for labor increases more rapidly than the number of laborers, and thus is produced a tendency to the adoption of labor-saving machinery, by which the exertion of man is rendered more productive. With each step in this progress the value of the laborer rises, and with each he acquires more control over the application of his labor and its proceeds, being better fed, better clothed, better lodged, and better taught; and thus every increase in the price of the slave is evidence that the day is approaching when laborers will determine for themselves to whom they will sell their labor, and what shall be its price.

If this view is correct, and it is in accordance with the experience of all ages and all nations, it would appear obvious that those who desire the emancipation of the slave, should desire to co-operate in the measures that would tend most rapidly to augment the wealth of the Southern States, and to oppose all measures tending in the opposite direction, and that such is the true anti-slavery policy I entertain no doubt. How is it to be done? To this question we may, I think, obtain an answer, by looking to those portions of the South in which wealth is now increasing most rapidly, to wit, Georgia and Tennessee, whose policy has tended most to the introduction of the machinery of manufacture, and contrasting their condition with Virginia and South Carolina, whose policy has tended most to the limitation of the efforts of the people to the single pursuit of agriculture. The former have obtained cotton and woollen machinery, and furnaces, and forges, by aid of which there has been created a demand for a vast amount of labor that would otherwise have been wasted, and the necessary effect of this has been an increase in the value of the property of the man who had labor power to sell, i. e., the owner of slaves, and he has grown rich while the condition of his people has steadily improved, whereas South Carolina has driven capital

abroad in search of employment,* and her people are now flying from their plantations, frequently abandoning them absolutely because of inability to obtain purchasers at any price whatsoever.

When men are limited to the single pursuit of agriculture they are necessarily poor, and they must become poorer every day, and with each step in this progress those who labor become more and more subject to the will of those who do not. In such a state of things, the men can earn little, because there is no demand for the labor that is not required in the field, and the women and children are idle from want of any demand whatsoever for their labor. The owner of the land cannot rely on aid in harvest time, and it is useless for him to plant more than he can calculate upon being able to gather, and thus he is obliged to support many hands that are of comparatively little use to him. Place the mill and the furnace in his neighborhood, and there is at once produced a demand for the surplus labor of one part of the year, while securing a sufficient supply for the other, and thus are the productiveness of labor and the value of the laborer both augmented.

The direct effect of the location of machinery for the production of cloth and iron in any neighborhood is to produce an increased demand for labor and a rise in its price, and the owner of that machinery is thereby stimulated to exertion to meet the change. His capital is invested in spindles and looms, or in a furnace, and they must be made productive. At thirty yards per loom, per day, he might live, but at forty he would grow rich. The slave would give him the former quantity, but the freeman would give him the latter one. He desires to give to the bondman the stimulus that is felt by the freeman, and he fixes *his task* at 30 yards, paying for the surplus as over-work. At once the slave becomes, to a considerable extent, a seller of his own time, and a receiver of wages. Such is the course of things now at the South, and such must it continue to be, and thus the increase of wealth in the form of the cotton mill or the furnace, while tending to enrich the owner of slaves, tends equally to the enfranchisement of the man who is held as a slave.

The mill brings people to the neighborhood, and new demands for labor arise, and with each step there is an increase in the value of labor, and in the power of consuming its products. Houses are wanted, and stone quarries become valuable, while the demand for timber enables the land-owner to sell his trees instead of killing them. His land increases in value, because of the facility of exchanging food and cotton for cloth and iron; and he himself grows rich, because he is enabled readily to return to the land the refuse of its products, in the form of manure. thereby increasing his crops. A demand arises for numerous smaller articles of food, and gardens and little farms appear, the high price obtainable for such portions of land offering to the great land-owner a strong inducement to the division of his land. The slave who has earned wages in a mill may become an owner of land, or his fellow-slave may cultivate a few acres of cabbages, and peas, and beans, required to meet the demand that has arisen, paying to his master a fixed sum in lieu of his services, retaining the balance as wages. He thus becomes a payer of rent. Each step thus made, is but the preparation for a new and greater one, and those who may examine the subject will see such steps being made throughout the South, and always in the ratio of the growth of wealth.

* That State has always greatly restricted the application of capital to the formation of banks at which her own people could obtain the aid required to enable them to improve their lands, and the natural consequence has been, that it has sought employment abroad. She was always among the largest holders of stock in the United States Bank.

In Mississippi and Louisiana, slaves have their little pieces of land, the products of which they sell to the highest bidder, who is very frequently their master. To such an extent is this carried, that I have known a single planter from the latter State to be charged, on his visit to the North, with $2500 belonging to his people, to be applied to the execution of their orders for commodities of various kinds. Here is a step towards freedom, and all that is needed to bring about perfect freedom is the pursuance of that course which tends to increase the value of land and labor, by bringing together the consumer and the producer, thus diminishing the waste of labor and of manure on the road and in the work of transportation and exchange, by the vast extent of which both the land and its owner are now being exhausted.

Throughout the world the tendency to the division of land has existed in the ratio of the growth of wealth, although counteracted sometimes by laws like those now existing in England, the effect of which is to repel capital from land and to drive it into manufactures and commerce. In Russia, and Hungary, and Mexico, poor nations, land is held in large quantities. In Belgium and Tuscany, the richest portions of continental Europe, it is held in small ones. In India, under British rule, the village proprietor has disappeared, to be replaced by the great Zemindar. In New England, land is divided, but as we pass South and West, with diminishing wealth, we find land becoming less valuable and held in larger quantities.

That the growth of wealth and the tendency to the division of land, and freedom of man, in the Southern States, have been slow, has resulted from the fact that their policy has tended to the exhaustion of the land and impoverishment of its owner, who has thus been compelled to fly to new lands to be again exhausted. In Virginia and South Carolina, but particularly in the latter, there is a tendency towards actual depopulation, the necessary consequence of which is the accumulation of large bodies of land in the hands of individuals, who become poorer as their possessions increase in size, because of the constantly diminishing power of combination for any purpose of improvement. In Georgia, on the contrary, there is a rapid increase of population with a corresponding increase in the productiveness of labor and in the value of land, accompanied by a tendency to its subdivision, and to the consequent freedom of man.

It is a common impression, that the people of South Carolina have exhausted their rich lands, and that they are moving away from poor ones, yet nothing can be more erroneous. They commenced upon poor soils, as has been done in every country of the world, and they are now flying from meadow lands capable of yielding the finest artificial grasses, of which they have millions of acres untouched—from river bottoms uncleared—from swamps undrained—and from marl, and lime, and iron ore, all of which exist in almost unlimited quantity. Nature has done for that State every thing that could be done, but man has, as yet, done nothing but exhaust the poor soils upon which the work of cultivation was first commenced, and therefore it is that their agricultural reports, and their newspapers repeat, year after, the question, "What shall the cotton planters do?"

"This," says the editor of the South Carolinian, in one of his papers now but a few weeks old, "is a question, daily asked by our planting friends. There seems," he continues, "at present great solicitude as to the policy which is to be pursued by them in pitching their next crop. We hear the cry of less cotton and more grain ringing from one end of the State to the other. We are not surprised that many planters who plant heavily should say their present crop will bring them in debt if the ruinous prices continue much longer. No planter can make both ends meet who receives only four

or five cents for his cotton, and has to pay the present exorbitant prices for bagging, bale rope, pork, mules, sugar, coffee, salt and iron. Mules are high, pork is high, bagging and rope are up to the prices of the twelve and fifteen cent times of cotton, and sugar, coffee, iron, and salt steadily stand at the old rates. If to expenditures for these necessary articles, the planter has to add his negro clothes, shoes, hats, and blankets, he will have nothing left to remunerate him for his labor. These are really matters which they should ponder over, and a system of planting which does not repay for the labor and investment of capital engaged in it, we reasonably think would soon be abandoned. But it will not be. Our planters are taught no other systems; they do not know how they will supply the vacuum which would be made by an immediate abandonment of the cotton crop. It would take several years before they could perfect, with the strictest economy, those arrangements which would render them entirely independent of it as a marketable crop. Therefore the step taken should be wisely considered before adopted, and the utmost caution should be observed in making, what we sincerely believe would be, if once begun, a radical change in our system of agriculture. We therefore advise for the coming year, a reduction simply of one-third of the cotton crop throughout the State; devoting at the same time, the land thus thrown out of the cultivation of this crop, to the production of grain; and the increase of labor which would thus be given, to the proper manuring and improved tillage of the cotton planted, and the general improvement of the plantation. By this process the cotton lands would be increased in fertility, and the increase of grain which would follow, would greatly facilitate the rearing of mules, hogs, cattle, and sheep; and in a short time the whole State could render itself independent of the exactions of our Kentucky neighbors, who kindly supply us with all such things, simply at the expense of the prosperity of our agricultural population; for, in practice, they annually sweep the country of all the surplus cash which is afloat, in payment for their bacon and mules. We would, if this system were adopted, soon be able to produce as much cotton on fifty acres as we do now on one hundred; and the investment of the agricultural profits of the State at home, although they might be small, would have a wonderful influence on general prosperity, and build facilities throughout our now desolate and almost unapproachable State, which would not only enchain our own sons to her borders, but induce capitalists to come into our midst, to make their dollars tell, by learning us a lesson of practical enterprise. We say to the planters, raise less cotton, more grain, more mules, more hogs; make your own negro clothes; raise sheep—make your own blankets; erect tanyards, encourage shoemakers and hatters—in fact, artisans of all kinds to settle permanently amongst you; labor at making your soil rich, and do not devote all your energies to wearing it out; and soon all things will go well with you. You will not make so many bales of cotton; in fact may not cut such a swell on your factors' books; but take our word for it, you will have happier slaves, richer lands, more thrift and fewer debts, and sleepless thoughts, to harass your hours of rest."

It is impossible to read this without being struck with the fact, that, while, from the exhaustion of her original poor soils, and her inability to clear and drain rich ones, that State is unable to produce cotton in competition with her neighbors, she is a large importer of other agricultural produce. Her chief city is supplied with hay from the North, notwithstanding her abundance of rich meadow land. She consumes the pork of Ohio, and she uses the mules of Kentucky; and thus, while selling her products at the low price that is necessarily consequent upon her distance from the place at which her food and cotton are to be converted into cloth, she buys of others

food, mules, &c., at the highest price, because of her distance from the place of production. She wastes labor and manure upon the road, and is then surprised at the exhaustion that results necessarily from such a course of policy.

The remedy for all this may, it is supposed, be found, first, in diminishing the quantity of cotton; but that is already diminishing so rapidly that the great cause of apprehension throughout the State seems to be that its cultivation must soon cease, because of inability to produce it. She desires to diminish the supply of cotton, while her people are flying from her to seek the west, there *to produce more cotton*. Second, the lands are to be manured, but we are not told from whence the manure is to come. The State has scarcely any consumers of agricultural produce except those who are engaged in its production, and their consumption yields but little manure. Her horses are always on the road, wasting the manure yielded by her hay and her corn, and her rice and cotton are consumed abroad, the consequence of which is, that of what is yielded by the land nothing goes back, and the land and its owner become impoverished together. Her population diminishes. Everybody is seeking to find elsewhere a better place for employing his capital and his labor. Under such circumstances it is useless to talk about artificial manures, and her swamps and river bottoms, in which manure has for ages accumulated, will not pay the cost of clearing for the raising of three or four hundred pounds of cotton to the acre. Give her a consuming population that will make a market on the ground for the tons of potatoes, and turnips, and hay, and the milk, and the veal, that will be yielded by rich soils, and the State will become one of the richest of the Union. It is population that makes food come from the rich soils, as we see to be the case in Belgium, and England, and New England; and it is depopulation that drives men back to the poorer ones, as is shown in Ireland, India, South Carolina, and Virginia. The people of Ireland are flying from each other as if from pestilence, and yet that unfortunate island, in which men are restricted almost entirely to the cultivation of the land, offers us now the chief European market for our surplus food, while South Carolina, destitute of consumers, is one of the principal markets of populous Ohio for her surplus products. Whenever the former shall begin to consume on the land the products of the land, she will have manure to keep in cultivation her poor soils, and she will acquire ability to clear and drain the rich ones, and then she may export hay instead of importing it. Ireland, like South Carolina, abounds in rich soils untouched. She has millions of acres of bog that could be drained with far less labor, and at far less cost, than have been required for similar lands in England, and it is estimated that three millions of these acres would afford food for six millions of people; but, also, like South Carolina, she is compelled to waste on the road the labor and manure yielded by the poorer soils now in cultivation, and is thereby rendered too poor to clear and drain the rich ones, which never have paid, and never can pay, the cost of preparation, without the presence of a consuming population requiring the potatoes, and the turnips, and the hay, of which the earth yields by tons, and not by pounds or bushels.

The third and last remedy is, that of "encouraging" shoemakers, and hatters, and artisans of all kinds to settle in the State; but it is difficult to see what encouragement can be given in accordance with the doctrines of South Carolina. All that she can say to such men is—"You may come among us, bringing with you your machinery, and applying your means to the erection of houses and mills, and so long as it suits our purpose we will give you labor, and food, and cotton, for cloth, but if prices abroad should fall, we will cease to exchange with you, and you may then abandon your

buildings and remove elsewhere. Our duty to ourselves requires that we should sell in the dearest market and buy in the cheapest one, and we can offer you no encouragement other than that we have stated." To this the maker of hats, or shoes, and cloths, or iron, objects. He says, "I can *compel* you to come to me in the large markets of Lowell or Manchester, with your cotton, and your food, for which I will give you hats, or cloths, or shoes, and if from failure of crops or other circumstances you fail to come, I have still the market of the world before me; but if I go to you, and you then fail to exchange with me, I can have no other market, and I shall be ruined. Make me secure that you will take my cloth, and give me for it the potatoes, and the turnips, and the milk, and the veal, required for my people, and the cotton required for my works, allowing me something for the use of my capital, and for my skill, and I will come among you; but until you shall do so, I will stay where I am." To do any thing of this kind would not be in accordance with the doctrine of buying in the cheapest and selling in the dearest market.

The "encouragement" that has, thus far, been afforded to those who have desired to make a market in the land of its products, may be seen from the fact that scarcely a mill, or a furnace, or a factory south of Mason and Dixon's line has failed to ruin its owner. The commencement of such works has always been hailed as likely to give value to both labor and land, but with the first revulsion in English trade, the market for its products has disappeared, because the first duty of the planter has been held to be that of buying in the cheapest and selling in the dearest market. It is unnecessary however, to go south of Pennsylvania to see the same operation. To bring into activity the coal mines of that State has required an investment of fifty millions of dollars, and the result has been that, while the consumers have been benefited by a reduction of one-half in the cost of fuel, and the farmers have been given a market for their food greater than that afforded by all Europe, the unfortunate people who paid for the labor by which the works were made, have been ruined, because, at brief intervals, the "encouragement" by means of which they had been led to engage in the work, has been withdrawn, leaving them and their customers, the employers of steam, to breast the changes produced in foreign markets by variations of policy that could not have been anticipated, and against which they could not have guarded. If "encouragement" means any thing, it means *protection against these revulsions*, and until South Carolina shall resolve to protect the artisans that she desires to have to come and make a market for her products, they will assuredly remain where they are.

That State is the poorest of the Union, for its size. It is the only one whose population diminishes. Virginia stands next. Both are, emphatically, the land of free trade, which consists in being *compelled* to go abroad to make exchanges that they would gladly make at home. Such freedom is only *apparent*. In a natural state of things the awl and the last go to the hides and the food, and where they do not do so, it is because of some obstacle, the invention of man. Of all the States of the Union, South Carolina is the one in which the planter exercises the least volition as to the place at which he will make his exchanges—the one, therefore, in which he himself is least free—and the only one in which it is proclaimed that slavery is the natural condition of a large portion of mankind.* The *apparent* freedom of trade and the *real* freedom of man, do not, therefore, harmonize with

* After the suppression of the Peasant war in the fifteenth century, it was decided in the Hungarian diet that the slavery of the people should be "universal and eternal." This is the nearest approach to the South Carolina doctrine that I know.

each other. Passing from that State into Georgia, Tennessee, Louisiana, or Kentucky, and thence into the Northern States, we find with each step an increasing tendency towards protecting the laborer against the unceasing fluctuations consequent upon the existence of the artificial system of England, which has thus far been maintained only by aid of colonies whose inhabitants could be *compelled* to send the raw materials yielded by the great machine of production, to a distance of thousands of miles, by land and water carriage, in quest of the little and easily transported machines of conversion, the spinning-jenny and the loom, the awl and the last, with infinite loss of labor, and with certain exhaustion of the land: and with each step we find a corresponding tendency towards perfect freedom of thought and action in all classes, from the highest to the lowest.

If these views are correct, the true way to bring about the gradual abolition of slavery must be to endeavor to increase the value of Southern land and Southern labor, to the advantage of both master and servant; a measure that can be accomplished only by an increase in the ratio of spades and ploughs, and mills, and furnaces, and other of the machinery which constitutes wealth, to population. If the Southern man desires to do this, he *must* "encourage" the owners of such wealth to come, or to stay, among them, and the only manner in which this can be done, is to render them secure that they are not to be left high and dry at the first instant of change abroad. In no country has the plough prospered at a distance from the loom and the anvil. In none *can* it prosper, because where the machinery of conversion is distant, the loss of labor is *far greater* than would be the quantity required for the production of all the cloth and all the iron required for the consumption of those who produce the raw materials: food and cotton.

There is not a single county in Virginia or South Carolina in which there is not absolutely wasted, for want of regular demand for it, more labor than would make all the cloth and all the iron consumed in it: not one that does not waste on the road, and in the procuring of wagons, and carts, and horses, and mules, more than would be required to make all their cloth, and all their iron: not one in which the loss from the want of the manure that is wasted on the road and in distant markets, is not greater than the value, raw material included, of all the cloth and iron they consume: not one in which the loss from cultivating lands yielding 8 or 10 bushels of wheat, or 200 to 300 pounds of cotton, in sight of rich lands that would yield tons of potatoes, is not *double* the value of all the cloth and iron they can afford to buy. Therefore it is that the land-owner is poor, and the land is poor, and labor is of little value, and the laborer himself is cheap enough to be sold for exportation to other States in which the loom and the anvil are taking their place by the side of the plough and the harrow.

The way to the abolition of slavery is simple. It needs nothing but that we arrest the progress of depopulation by enabling men to live together, combining their exertions, and thus rendering them more productive of the commodities and things which are required for the maintenance and gradual improvement of their condition. By such a process the farmer and planter obtain the advantage resulting from the presence of prosperous consumers of food, and they are thereby enabled to clear and cultivate rich lands, enriching the poor ones with the refuse of the products of all, and thus increasing the productiveness of labor, and the value of labor and of land. In the effort to accomplish this, the farmer and planter need protection against the endless fluctuations of foreign policy, and the day is not, as I think, far distant, when it will be universally admitted that protection is emphatically a planter and farmer's measure. When that time shall arrive each day will

see an increasing tendency towards the perfect freedom of all classes, black and white, and towards the most perfect harmony and good-will among the various sections of the Union.

Properly examined, there is no difference in their interests, and there is no good reason why such harmony should not prevail. Every man that is kept in the factories of Massachusetts or New York, or in the coal-mines and furnaces of Pennsylvania, becomes a consumer of food—a customer to the farmer and planter. Every man that is compelled, as now, to quit those factories, mines, or furnaces, flies to the West, to become a producer of food or cotton, and therefore a rival to the farmer and planter. The more customers, the higher is the price of food and cotton, of labor and land. The more rivals, the lower are the prices of all. The great machine is the earth, and the great interest is that of the cultivation of the earth. The little machines are those which convert the food and the cotton into cloth. The great machine tends to attract the small ones, and in the natural course of things, the latter will always go to the former, with constant increase in the productiveness of labor and land. The system of England tends to compel the product of the great machine to come to the small ones, with vast loss of labor and manure, producing diminution in the value of labor and land, as may be seen in all her colonies. That disturbing cause tended greatly to produce our Revolution. It has alienated Ireland. It palsies Canada. It has ruined India, and the West Indies. It compels the people of the Union to fly from each other, and to raise cotton and corn in Texas and Iowa, when their labour might be twice as productive if employed in converting the cotton and corn of South Carolina and Virginia into cloth. It diminishes *by at least one-half* the return to, and the wages of, labor throughout the Union. The protective system, now almost universal, is but a measure of resistance on the part of those who cultivate the earth, against a great wrong, and when it shall come to be fully understood that such is the case, it will be seen that throughout the whole length and breadth of the land, among freemen and slaves, there is a perfect harmony of interests, and all hostility between the men of the North and those of the South will pass away.

The natural addition to our population is now almost 600,000, enough, if applied to the work of converting food and wool into cloth, and food and ore into iron, to make, *in a single year*, a market for all our surplus food. The immigration in a year has, however, already reached 250,000, and were it once distinctly understood that the producers of food and cotton were determined to obtain their cloth and iron from those who consumed their food while converting, on the spot, their cotton into cloth, and their ore into iron, it would soon reach half a million, embracing artisans of every description, and thus would be made a market on the land for all the products of the land. The Carolinian would then make his own coarse cloth instead of buying it, and he would export his food and his cotton in the shape of yarn, and the people of the Eastern States would then make fine cloths instead of coarse ones, and with each step in this process, the labor of man, black and white, would become more valuable, and all would become more happy and more free. Ten years of efficient protection *to the farmer and planter* in their efforts to seduce the loom and the anvil to take their places by the side of the plough and the harrow, would do more towards solving this great question, now esteemed so difficult, than "free-soil" votes and Wilmot "provisoes" could accomplish in a century.

I remain, dear sir, with great regard, yours very truly,

HENRY C. CAREY.

Burlington, Dec. 7, 1848.

NATHAN APPLETON, Esq.

A LARGE FARM FOR NEW ENGLAND—ITS USES AND PRODUCTS.

In the Vermont State Agriculturist, is an interesting sketch of Mr. H. S. Morse's Farm, from which we extract the following, to gratify the curiosity of the southern reader.

There are perhaps few farms in our section of the country that, for beauty of location, natural advantages, and successful management, can be compared with that of Mr. Henry S. Morse, of Shelburne. It comprises about 1100 acres, lying in a body—the soil embraces every variety, without running to extremes in either direction. The rock which forms its base is the red sandstone, found commonly in the western part of Chittenden County. The strata of this rock, as well as of the soil, dip towards the east. Most of the land is rolling; the difference of level between the highest and lowest points being about 175 feet. The lowest land is the lightest, the heaviest clays being found at the greatest elevation—an arrangement very favorable to drainage, as *clay bottoms* are of all things most tenacious of water. Much of the land is quite stony, which affords another advantage, in furnishing abundant material for walls and covered drains, besides the mechanical and chemical improvement secured to the soil by the processes of degradation and decomposition. There is no waste land on the farm; the whole of it being available for pasture, if not for cultivation, excepting about 300 acres of heavy timber. The whole is valued at about $40 per acre.

Mr. Morse's main object is the growth of wool, and consequently he raises only so much of other produce as is required for the support of the farm. He mows 250 acres, tills about 50, and pastures the remainder. His stock consists of 1700 sheep, and neat cattle and horses sufficient to supply the farm with dairy produce and perform the necessary labor. His produce last year was as follows: wheat 150 bushels, oats 300, corn 200, rye 90, potatoes 1500, carrots 200, hay 350 tons, sugar 1000 lbs., wool 5600 lbs., pork 3000 lbs., and 5 acres of peas used for feeding sheep, without threshing. He recommends the *Long John* potatoes as less liable to the rot than any other variety he has raised, and the experience of many others in this vicinity tends to confirm his opinion. This is not the very best kind for table use, being often wet; but this defect may be in a measure prevented by planting only on warm, light soil.

Mr. Morse has taken great pains with his meadow lands; his method being to spare no trouble and expense in preparing the ground in the first place, and then keeping it up by top dressing, in preference to breaking up anew. Much of his land was originally too wet. To remedy this evil, he has constructed *four and one quarter miles* of covered drain at different periods, at an expense of upwards of one dollar per rod, and finds it a profitable investment. He has likewise imported from abroad 36,000 cedar rails for fencing, and his boundaries may be known at once by the neatness and permanent appearance of his fences and gates. All his rail fences are eight rails high, with stakes like posts, connected by oak caps, and evidently proof against all assailants. He finds a fence made of half-wall, with three rails on the top, to be the most economical. *Whole* wall is soon thrown down by the frost.

Mr. Morse's sheep are a mixture of Merino, native and Saxony. Beginning with a flock of native sheep, he used Saxony bucks for a few years previous to 1837, when finding his fleeces rather light, he crossed with the Merino, and has continued to use Merino bucks ever since. His average clip is now a trifle over 3 lbs. He is a great advocate for feeding peas in the straw to sheep, and has fatted in this manner some of the finest wethers

ever exhibited at Brighton market. The expense of this mode is very trifling, much less than that of corn feed, as the difference in *preparation* overbalances the excess in *the yield* of the corn.

Some of the finest meadows on the farm have been formed from wet and broken lands, at great expense. In some cases he has constructed a drain at the bottom of a ravine, and then scraped down the banks so as to smooth the whole surface. His average yield of hay is a ton and a half to the acre.

On the whole, the farm of Mr. Morse may be considered a fair specimen of successful management, according to the system of our heavy wool-growers. We have, however, little doubt, that if this noble track of land were divided into several smaller farms, the product, under a man as skilful as the present, would be proportionally increased. Many of our farms, like Mr. Morse's, are too large. It is physically impossible for one man to tax to its utmost the capacity of so extensive a district. The entire product of this farm, for the past season, at present prices, would equal about $5.00 per acre. Take from this the expenses, and we fancy the profit would hardly reach 6 per cent. on the capital invested. If it does, Mr. Morse must carry on his operations by a cheaper method than we wot of. If it does not, then are the prevailing notions of the unprofitableness of farming not without foundation. Here then is room for improvement. Surely our agriculturists will not continue to be satisfied with 2 or 3 per cent. when by a proper application of science and skill, a proportional profit might be obtained. But of this more hereafter.

SPRINGFIELD FARM.

RESIDENCE OF GEORGE PATTERSON, ESQ.

Our worthy contemporary says in the preceding, "it is physically impossible for one man to tax to its utmost the capacity of so extensive a district."

If we could have had the pleasure of his company lately, we won't say on what day, under an "October sun," in a ride over a farm of 1600 acres, he would have seen that "one man," and one mind, is capable of laying down, and carrying out, with great precision of plan, and great exactness in the realization of results, the progressive improvement to very high capacity, from a state of extreme barrenness, a farm of 1600 acres of land. Where we remember to have seen large fields, barren in all except broom sedge, incapable of yielding twofold from the seed, are now magnificent fields of corn yielding more than 60 bushels, wheat more than twenty; and perfectly clean, well drained, splendid fields of grass. The fences all of locust posts and chestnut rail, or worm-fence of chestnut, eleven rails in height—which have cost probably not less than $20,000.

You do not see here a single acre bursting with plethora, produced by the offer of a silver cup, and running away with all the manure that all hands could rake and scrape; but large fields of from 50 to 100 acres, taking each its turn, in a well-digested invariable system of rotation, but regularly improving from year to year, until at last it may be left to sustain itself on the solid foundation of its own renovated and re-established vigor and resources.

True, it has been done at great expense, but must not means always be adapted to ends? The chief instruments of melioration have been thorough draining, thorough tillage, and lime. The land has not been *scratched*, but *ploughed*. The drains have been made with stones from fields picked over

eleven times; and lime may have been applied at the rate of thirty or forty or even fifty dollars an acre; but at what price would you calculate the value of land that will give 60 bushels of corn, twenty of wheat, and two tons of hay to the acre? And besides, is there not some intrinsic value in the pleasing reflection, when you stand in your portico and overlook your broad acres, that I am not only "monarch of all I survey," but that, with its heavy crops, its improved flocks, and unequalled herds of cattle that wax fat and kick, *I made it all what it is?*

Any fool, if his purse is long enough, may turn his back for ever on the graves of his ancestors, and go to Kentucky or elsewhere, and buy a farm already rich and improved to his hands—but what money can buy the pleasing consciousness of having yourself restored to more than its pristine fertility and beauty, the beloved spot of your nativity, where, in joyous and innocent boyhood, you trapped the partridge, tamed the young squirrel, and tracked and shot the poor timid rabbit as he sat sleeping in his form on the sunny hill-side! But with some, there is no pleasure nor value in any thing but in *counting the almighty dollar!* And so does that become the very apple of their eye, that you shall see men ambitious of political distinction, eager for office, and ostentatious in some vulgar display of wealth, acquired without merit, and used in ways equally devoid of liberality and taste; who are yet too penurious to subscribe to journals founded expressly for the enlightenment of their own pursuit! What record should we have of improvements and discoveries in the art of cultivation,—what progress, in fact, could we hope for, if it depended on such men?

CULTURE OF CRANBERRIES.

This wholesome and palatable fruit might, we think, be made to give at once variety and profit to the labor of Southern agriculturists in many situations where it is totally neglected—even where nature seems to point it out as a matter worthy of particular attention.

Cranberries are growing wild near Annapolis and other parts of Maryland, but we are not aware that any farmer has taken the hint to improve them by culture. For those on his table he probably sends to the grocer, and the grocer to the New England farmer.

For the benefit of those who keep their eyes open, looking out for new things that may be turned to account in place of wheat, corn, and tobacco—tobacco, wheat, and corn—we give the following from the Vermont State Agriculturist, the editors of which will begin to think we are drawing rather freely on their newly opened fountain: but, since we would go to the worst sources for valuable knowledge, we do not see why we should refuse to draw it from the best.

The cranberry (*oxycoccus macrocarpus*) is a native of Vermont. It is found in many swamps and wet places, among the rushes and other plants generally occupying such grounds. It naturally prefers the soil and moisture of marshy districts, and is usually raised upon such; but instances are on record where it has been successfully grown on dry upland, and with a great improvement in the quality of the fruit. It is surprising that so little attention has been paid in our State to this very profitable crop. Cranberries, when once well set, require no care or culture; while they occupy most advantageously lands unfit for any other useful plant; yield from 125 to 400 bushels per acre; and command a ready market at an average of $2 per bushel, with only the expense of gathering. This latter operation is now performed by rakes, so that, at a low estimate, an acre of cranberries may be made to produce more in solid cash than 6 acres of good corn.

We have received a communication from Mr. Abiezer Alger, of Bridgewater, Mass., in answer to some inquiries in regard to the cranberry; the substance of which, together with such information as we can glean from

other sources, we lay before our readers. Mr. Alger has taken several premiums for his crops of cranberries, from Massachusetts societies, and lives in a district where their cultivation is successfully carried on. He says: "The fall of the year is the best time to set out the vines. The soil (bog meadow) needs no preparation beyond a covering of sand about two inches deep. Take them up with the soil in which they grow, and set them out, two or three feet apart. After one or two years they will spread themselves over the whole ground, and will require no hoeing. I never knew an instance of their running out after they are once well set. It is beneficial to keep the water on them from December till about the first of April, and after that time to keep it level with the surface of the ground, so as to keep the roots moist during the first part of the season. If there should be a frost when the cranberries are in blossom, or before they begin to ripen in the fall, it will destroy the crop. You will probably have a few cranberries the second or perhaps not until the third year after planting."

A writer in the Massachusetts Plowman relates an experiment in planting cranberries from the swamps, on good corn ground, in hills far enough apart to admit the cultivator and clean hoeing. The transplanting was done early in spring; they bloomed about midsummer, and bore fruit the *same year*. The fruit was large and handsome, and many of the hills bore a pint of berries.

An article in the Cultivator for 1846, states that Sullivan Bates, of Bellingham, Mass., raises cranberries in great abundance by transplanting them from low grounds to high. He plants them in drills twenty inches apart, (does he plant *roots* or *seeds?*) and seven inches in the drill. His success was complete. He gathered from one acre about *four hundred bushels* of cranberries in one season. The soil must be such as will not bake. The superiority of upland cultivation has also been attested to by others.

The editor of the American Agriculturist says that Mr. William Hall, of Norway, Me., sowed the berries in the spring, on the snow, in a boggy piece of land about 3 rods square. The seed took well, rooted out the weeds, and produced accordingly.

The extract following is from the Farmer's Dictionary:

"The *oxycoccus macrocarpus* is readily cultivated by transplanting in spring the cranberry sods, or selecting plants and transferring them to a light soil, rather moist. The runners can be *layered*, or seed sown in the spring. They grow rapidly, covering nearly every thing, and are but little subject to the attacks of insects. . The plants are set about 18 inches apart, in rows, and kept clean at first. The yield increases for several years, and becomes as great as 400 bushels per acre in five years, although 200 are a good average. The fruit is gathered by rakes, which seem to prune the plant at the same time. When the berries are intended for keeping, they should be rolled over a gently inclined plane of wood, to remove such as are soft and rotten. They keep well for a year in tight casks filled with water, and headed close. The fresh fruit commands $1 50 per bushel in New York."

From these accounts it seems to be certain, that although the natural soil of the cranberry is the swamp, and great crops have been grown on such lands; yet it has been successfully cultivated on uplands, and with an evident improvement in the quality of the fruit. As the product is large, with but little outlay, it is well worth the attention of our agriculturists, especially when they may have a tract of land which cannot, without great expense, be made fit for any other crop. Doubtless there are many others of our native berries, such as the whortleberry, the blackberry, and the raspberry, which would repay cultivation; and if some one else does not anticipate us, we shall probably try them at a future day. We hope at all events, that our farmers will try the cranberry; it offers great inducements to the cultivator

THE PROTECTIVE POLICY.

To the Editors of the Plough, the Loom, and the Anvil:

SIRS:—There is an honest but radical difference of opinion entertained by leading agriculturists on the best mode of promoting industrial pursuits, and more especially that of farming. In the earnest endeavor to foster a home-market by associating the manufacturing and landed interests in the same category of protection, one of the parties appears to underrate the incidental advantages of a commercial marine, and the no less paramount importance of foreign intercourse for the exchange of surplus commodities. The other party, as devotedly attached to what it considers a principle in political economy, contends that no system of policy can be just or profitable which does not affect alike every honest occupation, and which does not open the widest possible avenues to trade.

The comparison usually made between the actual condition of England and the United States is not altogether a fair one. The British empire may be said to rival this country in the extent of her landed possessions; and it makes no difference whether the colonies to which I allude be near or far distant from the centre of government. We find, then, that the same policy virtually actuates both the cabinet of London and Washington; and that is, to allow industry, as a general rule, to take the most natural direction. If Lowell in Massachusetts, is eminently adapted to manufacturing purposes, so is Manchester in Lancashire. If South Carolina, Tennessee, or Illinois are essentially agricultural states, so are the East and West Indies. It would be as impolitic to force manufactures in the latter as it would be to force agriculture in the former.*

In this aspect the prosperity of all nations in the main depends upon a happy adjustment or balance of trade; their object is to produce at the least possible cost the greatest amount of commodities which conduce to the comforts, or satisfy the wants of themselves and each other. Thus it happens that the duty and interests of nations, as of individuals, are identical and go together. Were the worst enemy of England in these United States to devise the most effectual means of prostrating her people and government, it would be by keeping out her manufactures through a prohibitory tariff. Her home-market (by which I mean not merely that of the British isles but of her colonies) would not suffice to consume the fruits of her industry; and many of her factories would necessarily stop, at a ruinous sacrifice of capital

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*NOTE.—The subjects of Great Britain have as much right to establish the manufacture of cotton or woollen goods in the colonies, as citizens of the United States in Indiana or Missouri; but they find it more profitable, under existing circumstances, to invest their capital otherwise, and to labor for a better purpose. The only difference between them is that the citizens are free to make their purchases or exchanges wherever they choose, whereas the over-taxed subjects *are restricted to the home-market*. The protection, then, to certain manufactures in the British empire, which require a large capital, does no more good to Ireland or Canada than would a similar protection to Maine or Florida. A few favored spots would be monopolized by capitalists for manufacturing purposes, and the country immediately around would measurably flourish—at the expense of the whole country, however, which would have to pay a higher price for the articles thus protected. The invitation to English operatives to cross the Atlantic and to transfer their comparatively light machinery to where the more bulky agricultural implements and produce are located, would do very well, if they could accomplish that Herculean task and bring their masters' capital also with them: the foreign market would then be rendered unavailable on account of the higher prices ranging there than here at home. It may look like a paradox, but it is not the less true, that getting high prices for our labor or produce is not always a proof of doing a good business. Protection, like the Indian's gun, may cost more than it comes to, according to the old saying.

and labor. So would it be with the most important interests of this country, if England should prohibit the introduction of our agricultural produce.

Under the impulses of mutual convenience, villages and towns are thickly settled in almost every flourishing agricultural community throughout the land: the farmer, the shoemaker, the tailor, the blacksmith, the schoolmaster, the doctor and lawyer are thus brought into immediate proximity without any extraordinary or unconstitutional effort on the part of this government to produce such a desirable object. These settlements are forming in a manner unexampled, in countries where protection to particular branches of industry has been pursued as a political hobby for several generations. In this happy land manufactures everywhere abound, and meet with the reward due to a spontaneous growth of native industry. When in the natural order of things, factories spring up in the South, we are heartily pleased with the prospect of benefit to all parties concerned: a demand exists, or facilities are afforded by water-power, surplus population, &c., and we hail with delight the capitalist who supplies the demand. But how different is the case when, to accommodate or enrich a few thousand manufacturers of certain articles, several millions of fellow-citizens are directly taxed to the extent of the protective duty imposed. It is in vain to oppose the common sense of mankind by citing the acknowledged advantages resulting from proximity of markets and equivalent returns of manure from the consumers to the producers, because no artificial system or partial policy can adequately compensate, in a national point of view, for the loss occasioned by a restraint on the natural instincts of industry—a loss consisting of labor and capital misapplied or not turned to the best account. We admit that as far as Old England is concerned, or even New England, the concentration of labor and capital has produced the outward appearances of prosperity, but certainly not the reality of happiness in the mother, if it has in the daughter. However, until the first rules of arithmetic are proved to be fallacious, purely agricultural districts, if left to their own discretion, will continue to buy in the cheapest and sell in the dearest markets they can find, without respect to patriotic considerations: and they are right on principle. The planter who sells his tobacco at the highest price the world can afford to give, can also afford to pay the highest price for manure to renovate his land, come from where it will. The cotton-grower is the last to complain of things as they are, because in his case the most valuable portion of his produce is retained on his farm in the shape of manure. Those even in the West who dispose of their pork, corn, wheat, cheese, apples, lard, &c., in distant markets, have no reason to find fault as long as they are thriving, and find their land able to bear the draught made upon it. The cause of exhaustion in the old-settled Atlantic States, was an error which any of us might have made under the circumstances of bygone days, when land was cheap and abundant, when prices almost justified an abandonment of general rules in husbandry. The present occupiers of the soil have to retrieve past errors by strict economy, untiring energy, and the aids which science freely offers her votaries. The Marylander and Virginian require no extraordinary protection; or if they did, they are too proud to ask for privileges which they would deny their fellow-citizens engaged in other pursuits than those of agriculture.

"It is an ill wind which brings no one any good," and if it should happen, in the course of events, that the unsettled affairs in foreign countries occasionally throws goods into this market at a great sacrifice, the consumers are benefited, although our large manufacturers meet with a temporary reverse in their business. But who can expect uninterrupted good fortune? Is government to be held responsible for the ups and downs of life, for acci-

dents by fire or flood, and all the ills which flesh is heir to? It has been regarded an injury to native authors to publish foreign productions of the press at half their original cost; it should be remembered, however, that where one American writer feels the effects of such competition, thousands of readers derive profit from the perusal. Let the manufacturers of novels and printed calicoes on this side the Atlantic earn public approval and success through their own merits, and not by protective enactments. Every branch of industry is indirectly protected by just laws, without the necessity of resorting to the narrow Chinese policy of holding as little communion as possible with our neighbors. When the colossal manufacturing establishments in England become a wreck, and the operatives reduced to a state of anarchy by the force of continental example, there will arise a necessity for availing ourselves of such resources as are now unprofitable. Our present attitude towards all the world is eminently liberal and friendly; our dealings with foreign countries are mutually beneficial: let us accept the gifts which God offers us and be thankful. If we are wise in our generation we shall hold fast to our present policy—the future will provide for itself.

R. S. W.

Washington County, D. C.

Notes on the foregoing, by the Editors of the Plough, the Loom, and the Anvil.

Does Manchester possess any natural advantage for converting cotton and food into cloth that is not possessed by Tennessee? Does not, on the contrary, Tennessee, having the cotton on the ground, together with the food, possess greater natural advantages than Manchester? Does not every county in Tennessee waste annually more labor of men and women, and boys, and girls, and horses, and wagons, *absolutely unemployed*, than would convert into cloth all the cotton produced within its limits? Would that labor be wasted if Tennessee possessed the spindles and the looms required for the work of converting it into cloth? Does not every county in Tennessee pay twice as much annually for the transportation of its products to and from Lowell and Manchester as would pay for the spindles and the looms required for giving employment to her surplus, and consequently waste, labor, in the work of converting the cotton into cloth? Is not that payment now made annually, and would it not, if *once* applied to the work of procuring spindles and looms, constitute a permanent addition to capital that would supersede in a great degree the necessity of further waste of labor? Were such an investment once made, would not every county in Tennessee obtain its cloth—and its iron too—in exchange for labor that is now wasted for want of employment? Would it not then buy its cloth cheaper than it does under the existing system? Would it not then have a greater demand for food, accompanied by a diminished necessity for applying labor to the production of cotton? Would it not then obtain in the market of the world a higher price for its surplus cotton than at present? Would it not *then* buy in the cheapest market and sell in the dearest one, and does it not *now* buy in the dearest and sell in the cheapest one?

Does not the planter now sell his products cheap and give his manure into the bargain? Does not this exhaust the land? Does not the land diminish in value? Is it not less valuable in Virginia and Maryland than it was forty years since? Do not men run away from it? Is not population stationary?

Does the planter "who sells his tobacco at the highest price the world can give," grow richer? Does he not, on the contrary, grow poorer? Is he not, even at this moment, meditating contrivances to shut out his Ohio competitor, lest he should himself be ruined? Is he not in danger of being driven from the cultivation of tobacco as the South Carolinian has been driven from that of cotton? If so, what then will be his resource? Will he not be compelled to abandon the land and fly to the West, as his neighbors have done? Will he not then be flying from the neighborhood of marl and lime untouched, and from the vicinity of coal and of water powers that would, if properly improved, enable him to produce all the cloth and iron that he could use while finding a market for all the food he could raise? Has not the system of Maryland and Virginia been one of universal exhaustion, because they have made no market on the land for the products of the land?

Has any revulsion taken place within the last twenty years, that has not had its origin in England? Have not revulsions been frequent? Have they not ruined three-fourths of those whose factories or furnaces have given such heartfelt pleasure at "the prospect of benefit to all the parties concerned?" Has not the effect been to ruin the small manufacturers throughout the country, and to *drive* the business of converting food and cotton

and wool into cloth into the hands of great capitalists who can afford to incur large risks, in the certainty of repaying themselves by large profits?

Does not every man who is shut out, or driven out, from a factory, a furnace, or a coal or iron mine, seek to raise food? Is not every diminution in the number of persons employed in converting food and wool into cloth, attended with an increase in the number of producers of food and wool? Is not every increase in the number of producers attended with an increase in the amount of surplus products, an increase in the difficulty of finding markets, an increase in the amount of transportation, and a diminution in the quantity of cloth and iron that can be obtained in return for a given quantity of labor? Does not every increase in the number of his customers tend to enrich the farmer and his land, and does not every increase in the number of his rivals tend to impoverish both? Is it not, then, a mistake to look at these revulsions as questions merely affecting "great manufacturers," when their immediate effect is, *as now*, to deprive hundreds of thousands of persons of the power of obtaining wages, and to compel them to choose between remaining at home in idleness, perhaps to starve, or to fly to the West, there to become rivals to the farmers and planters, to whom they have thus far been customers?

Finally—Does the power to consume cloth and iron, domestic and foreign, increase with the diminution of protection, or does it decrease? Was it greater in 1841 and '42, under low duties, than in 1834, '5, and '6, under high ones? Is it as great in 1848, under low duties, as it was in 1846, under high ones? Will it be as great in 1849? Did not the power to consume iron double itself in the period from 1843 to '47? Will it be *as great* in 1849 as it was in 1847? Had the tariff of 1842 remained untouched, would it not have increased almost fifty per cent.? Is not the case similar in the cotton and the wool trades? If so, are not the comforts of the people diminished instead of being increased by the reduction of those duties which were supposed to press so heavily upon the people?

We have put all these questions, not with a desire to press our correspondent to answer them publicly, but with a wish that he and many others, who entertain like opinions, should reflect upon, and provide answers to them, that will be satisfactory to themselves; and to enable them so to do with advantage both to themselves and their neighbors, we would recommend to their perusal the work to which we ourselves owe our instruction on the subject, entitled, "THE PAST, THE PRESENT, AND THE FUTURE," and that he may not apprehend that his judgment may be perverted by the perusal of it, we may add that the Editor of the London Economist, a powerful teacher in the school of free trade, speaks of it in the highest terms, awarding it the high praise of having overthrown the favorite and popular theory of Ricardo. We confess that it came over our own minds as the rising sun above the mists of the morning, clearing up subjects theretofore overhung with doubts and shadows, and revealing truths the more acceptable and agreeable because you are made to *feel* that here at last you *have the truth*, standing on the immutable basis of the natural *law* that belongs to the case! It is by the author of the same work of which M. Coquelin, among the cleverest of French writers on political economy, speaks so favorably, as reported by Mr. Walsh in one of his late letters, copied from the Living Age into the National Intelligencer.

Mr. Carey is, like our correspondent, a full believer in the advantages of *perfect* freedom of trade, and during many years he as fully believed that the course towards free trade lay in the direction indicated in the letter we have now given. Further examination satisfied him that the introduction of the system of protection into this country had resulted from the existence elsewhere of great disturbing causes, that must be removed before freedom of trade would become possible, and that those who most desired to see arrive the period when commerce should be perfectly unrestricted, were those who should most desire to see established an efficient system of protection by aid of which the farmer and planter might be enabled to attract the loom and the anvil to take their *natural* place by the side of the plough, with economy of time and manure, and with profit to the land and its owner. We pray our correspondent to study his work, and when he shall have done so, and reflected upon its contents, to favor us with replies to some of the questions we have addressed to him.

Gas for the Farmer.—A steam-engine was lately erected on the farm of Barsalloch, for the purpose of threshing, and it was considered a wonder in its day; but what will be thought of a complete gas-work erected, and gas burning every night on the farm of Mr. Walker, Corsmalzie, Wigtown? It has been always thought that the residenters in a town can only enjoy the luxury of gas, but this is a proof of the contrary; and it is more than probable that Mr. Walker's example will be followed by many more farmers here, especially if they acquaint themselves with the small outlay and trouble it costs, besides also the less risk of danger arising from carelessness of servants in setting fire to barns and stables, &c.—*Wigtownshire Free Press.*

AGRICULTURAL ADDRESSES, NUMEROUS AND VALUABLE.

Extracts from the Address of the Hon. Ebenezer Jackson, *delivered before the Agricultural Society of Middlesex County, at Middletown, Connecticut.*

One might, with a pair of scissors and some discrimination, make up a monthly journal of extracts from agricultural addresses alone, delivered from year to year in the United States. A journal which would be more valuable, ten times over, to the farmer and planter, than certain slang-whanging party hebdomadals that constitute all the intellectual meat and drink (we might say garbage) of many in the country, who deny to themselves and their sons works designed and calculated to enlighten them in the very line of their chief and often their only profession. But, alas, the quadrennial distribution of patronage has made almost every farmer a seeker and expectant of office, of high or low degree—leading him to neglect his legitimate and reliable pursuit: just as the horse that gets an occasional and premature bite of sweet, succulent, and unsubstantial green food, afterwards pines away before a full rack of nutritious dry provender.

Far more useful would it be to the nation, if Congress would publish the extracted spirit of these annual contributions to agricultural knowledge, by such men as Marsh of Vermont, and Gray of Massachusetts, and Emerson of Pennsylvania, and Carey of Maryland, and many others whom we could name, than to spend hundreds of thousands of dollars, for which the farmer is taxed, to publish conjectural statistics of agriculture, and reconnoisances and reports connected with the bloody and barbarous art of war.

Our own difficulty, with sixty-four pages at command every month, is not in *finding*, but in so *selecting* as to do justice, and satisfy ourselves and the public, from the mass of useful matter that offers; and then, in respect of addresses, they are usually published and circulated by the societies for whom they are prepared, and therefore less needing a place in our columns. We have been rarely more agreeably entertained and instructed than in the perusal of the one from which we have cut the following passages, descriptive, at the time, of two drawbacks on the progress of agricultural improvement in the good old state of Connecticut, whose firm, moral "platform" was established in those days when, as we are told, the man who should dare, sacrilegiously, to "spit in the church," was made, under a certain code of laws, to stand with his *tongue in a split stick!*

The residence of the author of this extract, a gentleman of uncommon polish of mind and manners, is one of the most improved and delightful, in all that superbly beautiful region around Middletown, in praise of which too much cannot be said, when seen as we saw it, in the "sere and yellow leaf" and the soft mellow haze of an "October sun." As you approach the town over hill and dale by an excellent road—such as are only to be met with in the dense populations that *various* industry only can support—the landscape changes with every point of view, embracing, on every side, neat-looking homesteads in the midst of small, well-cultivated farms, divided into woods and meadows and small fields, all enlivened by flocks and herds and pigeons and poultry enough to awaken, as they did in the minds of those long shut up in large towns but who have been reared in the country, a lively remembrance of that period

> "When nature pleased, for life itself was new,
> And the heart promised what the fancy drew."

The breath of early frosts had touched the foliage with just chill enough in

it to bring out the lively and varied tints which lend to our forests such unrivalled beauty at that early period of the waning year, and as occasionally an autumnal leaf went twirling away before the wind to share the common lot of all perishable things, it might easily be imagined, as it has been made to say to the inquiry, "Where goest now?"

"The rude winds bear me onward
As suiteth them, not me,
O'er dale, o'er hill,
Through good, through ill,
As destiny bears thee.

"What though for me one summer,
And three-score for thy breath,
I live my span—
Thou thine, poor man,
And then adown to death!

"And thus we go together,
For, lofty as thy lot
And lowly mine,
My fate is thine,
To die and be forgot."

Yes, let us repeat that, for the cool, quiet, and healthful temperature of rural and moral life, commend us to a summer sojourn in Middletown or its vicinity, where he who listeth may combine the pleasures of occasional solitude, or relieve the ennui of continued retirement, with the conveniences and excitement of city residence. For this he may have recourse to the village coffee-house, the school, the church, the daily market, and the daily mail—

"Messenger of grief
Perhaps to thousands, and of joy to some."

Almost every residence, even in town, is surrounded with trees and shrubbery and vines and cultivated grounds, so favourable to repose and to healthful and refined recreation of body and mind; and if, moreover, you would see a lingering specimen of matronly dignity—a true type of those good old times that impressed on our domestic and public character the genuine stamp of virtue and patriotism, not yet quite obliterated in the "progress" of a larger liberty—seek, in that case, the privilege of paying your respects to the venerable relict of the patriot Dana, in the magnificent villa provided expressly by a wealthy son for the residue of her declining years. How refreshing to see opulence thus yet sometimes consecrated by filial piety, and fortunes well earned, yet better employed!

Middletown has, it is believed, attracted to its vicinity a portion of the wealth of Boston, to be there invested in summer retreats. One of the most prominent and admirable of these is the mansion and ornamented grounds of Mr. Lloyd of that city, in view from Mr. Jackson's door, and from whose address we have been led away by the enthusiasm inspired by the charms of the country where he dwells:—

"The agriculture of New England has heretofore been affected by two prominent causes, both of which have operated as extensively and prejudicially in this as in any other section of it. One of these causes has been the prevalence of a speculative spirit, which has tempted great numbers to prefer the delusive paths of commerce, or the crowded ranks of the learned professions, to the more sure, though moderate, prospects of agriculture. The fatal experience of the last few years has dissipated the dreams of thousands, who have gladly exchanged the harassing and uncertain toils of the counting-house, or the long-deferred hopes of professional reward, for the healthy, independent, and unfailing pursuit of husbandry. The same faithful monitor has awakened all classes of the community to the necessity of economy, and of establishing the founda-

tions of public and private prosperity, not upon the deceptive basis of commercial or financial speculation, but upon honest industry, solid credit, and moderate expectations. The evils which we have suffered, and still suffer, are undoubtedly grievous; but. if they have the effect to bring back the public mind to a healthy tone, and to establish a less fluctuating standard of value in the business concerns of life, posterity will have cause to bless the chastening hand which arrested us in the road to extravagance and ruin.

"Another form in which this impatient ambition has operated to retard our agricultural advancement, has been the emigration of the young and enterprising to the fertile regions of the west. At an early period of her history, the products of New England not only sufficed for the support of her population, but a considerable surplus was annually exported. The vast solitudes of the Ohio and the Mississippi had not then been invaded, and none had returned to inflame, by glowing pictures of their exuberant richness, that discontent to which human nature is so prone. But when the veil was rent; when the interposing forests had bowed before the swelling tide of population, disclosing boundless prairies of seemingly exhaustless fertility, what more natural than that the inhabitants of a stubborn soil should become dissatisfied with their lot, and rush to seize the tempting prize which nature so bounteously offered? But, like all extravagant hopes, how often have those of the western emigrant been doomed to disappointment! The difficulties and privations which attend settlements even in the richest territories of the west, and the diseases generated by the very fertility of the soil, have caused many to return to their early homes, and have convinced the rising generation that the inducements for removal are frequently outweighed by its disadvantages, and by those numerous comforts and privileges which the emigrant abandons when he quits the paternal homestead. Of what avail are cattle upon a thousand hills, if the loss of health be the price of their acquisition, or what is the advantage of granaries filled with corn, when plenty reduces its value to one-fourth of its price in New England? Such, too, has become the disorder and depreciation in the circulating medium of those States most favored by soil and climate, that this inconvenience adds no small item to the catalogue of the emigrant's disappointments. He looks back with longing eyes to his native land; he remembers its pure and wholesome air—its lovely scenery—its neat and comfortable dwellings—its peaceful villages—the abodes of law and order—and wonders by what fatuity he could have consented to deprive himself and his children of those manifold blessings. The present sound financial condition of the eastern section of our country, contrasted with that of any other portion of the confederacy, is a signal proof that the prosperity of communities does not so much depend upon local advantages as upon industry, economy, and education. People dwelling in high northern latitudes have always possessed more energy, and become more permanently wealthy and powerful than those of milder climate, and even among ourselves we may sometimes remark in the occupants of a rocky and difficult soil, more of thrift than in districts where the earth yields plenteously with little labor."

MR. CAREY'S ADDRESS.

As we anticipated, we have had the pleasure to find in the American Farmer, Mr. Carey's Address at the late first meeting of the Maryland State Agricultural Society, and, moreover, to find in its contents the full realization of what we expected in the way of pleasure and instruction. We might say of pleasure, *because* of its instructing and usefully suggestive character. The general interest of the occasion, it being the first meeting of a *state society*, as well as the vigor of thought and language that marks this performance—many of its suggestions being equally applicable to the whole country over which this journal spreads—as well as respect for the wishes of numerous and increasing patrons in Maryland, all combine to make it proper that this address be preserved in the pages of "The Plough, the Loom, and the Anvil."

If, in the mean time, we may indicate passages which struck us with most force, and yielded particular gratification, they were those in which the orator dwelt on the importance of *fulness and exactness in farm accounts*, and that in which he asks emphatically, and as it were in a tone of just resentment, "How long, sir, shall we continue to think that our agriculturists need no particular and especial training to fit them for their calling? That

mere physical ability, the capacity to labor, and that remarkable shrewdness which is almost the birth right of our race, are all that is requisite to lead them to distinction in their profession !"

Heartily do we rejoice to see from such a quarter a new impetus given to the motion of *that* ball. If agricultural societies will everywhere join in this inquiry, we shall soon have the right sort of answer from the representatives of farmers and planters, who are bestowing millions every year for diffusing information and instruction on subjects less civilized and national, and much less comporting with the public welfare; and right ready are we to hail the accession of Mr. Roberts' powerful pen to the same cause. May we not hope that his remarks, concise and to the point, in support of the power of Congress to appropriate public money for schooling in the use of the plough, as well as in the guidance of the rudder and the sword, may, through the president of the society, or some other heed-worthy channel, reach the members of Congress, along with copies of the resolutions unanimously adopted at a full meeting of the society, at the instance of Mr. Earl—in conformity, as it now appears, with the suggestion of Mr. Carey.

We will venture to say, on behalf of the author of those resolutions, that their phraseology was shaped not by any doubts of his own, but probably with reference to the different opinions which might possibly be entertained by some members of the society. The great point has been to *get the wedge entered*, and now, where, as in this case, an important result depends on a concert of movement, general and determined, we all know how much the success of such movements depends on *agitation*, especially by the public press. And, truly, what will not agitation effect in countries where public opinion challenges through the press the attention of public men? See what agitation did in England in a few years, even against the will of the agriculturists, in favor of "free trade"—a free trade under which our tobacco alone pays more duty than *ought* to be expended in the entire maintenance of this republican government.

We hope to see early signs of the force of public opinion in the sensibilities, however slowly awakened, of the representatives of the planter and farmer in Congress, where the agricultural committee of the Senate slept out the last session without *once coming together to confer on subjects expressly referred to them!* Even the terrapin, when torpid, or shamming to be so, can be put in motion when fire is laid upon his back; and we hope their agricultural constituents will adopt some such expedient to put their representatives in motion, driving them, when appropriations are asked for naval and military instruction, to refuse one dollar, until a like sum at least is given for instruction in sciences equally conducive to proficiency and to more *substantial honor* in the use of the plough.

With no leisure to study the question, we have always been of opinion that the best shape that could be given to appropriations for disseminating "a knowledge of the sciences for cultivating the earth," would be a *pro rata* appropriation among the States, to be, under their councils, used for that purpose, and that in each State should be established a school for *rearing teachers* on the plan of the West Point Academy, whose eleves, according to General Jessup, are competent to convert the whole militia of the United States into well-disciplined soldiers in ninety days: and what, pray, would not men equally versed in geology, mineralogy, chemistry, mechanics, and civil architecture and engineering do towards disciplining the labor and economizing the materials and capital employed in agriculture? Why, then, should, we repeat, not the cultivators of the soil, who have the ball in their own hands, determine that *it shall be done?* Let us hope that a change is coming "o'er the spirit of their dreams." Let no dispute be raised in the

first instance about details; but get a simple appropriation for a *pro rata* appropriation out of the proceeds of the public lands or the common treasure for each State, restricting the State only to its application to *agricultural education*, and leaving all else to the people of the States, to determine in what manner to apply it. This need not interfere with the establishment of a home or an agricultural *department* at Washington; and why should not this interest, greater than all others united—the one by and on which all others live and move and have their being—have a department to represent and defend it, and to give a voice in the public councils, as well as the army and navy? There ought to be both a department of agriculture and a department of manufactures, for the collection and arrangement of the statistics of both. With more light, their interests would be seen to harmonize instead of conflicting, and those at the plough and the harrow would see that, as between them and those at the loom and the anvil, a wise policy of the country would tend to fuse and amalgamate, instead of separating them from each other, and a degree of high and permanent prosperity never yet dreamed of, would be the common destiny of all.

OUR TOBACCO TRADE WITH ENGLAND.

FOR THE CONSIDERATION OF THE PLANTER.

While we are allowing European governments, and especially that of England, to play at "see-saw" with our great industrial pursuits, so that, like children on a plank, with a pivot in the centre, our manufacturers are constantly singing, "Here we go—up—up—up"—and, "Here we go—down—down—down,"—these dear lovers of what they call "*free trade*," are treating the cultivators of one of our great staples, as described in the following extract from Mr. Dodge, the indefatigable agent of that interest, to Mr. Webster, when the great expounder was in the State Department:

"Whilst in London I prepared and sent to my highly esteemed friend, the Hon. Mr. Jenifer, chairman of the select committee on the tobacco trade, an address to the tobacco planters of the United States, in which I presented the question of our tobacco relations with Europe in several new points of view, and by which it will be seen that Europe obtains over $35,000,000 revenue on an amount of our tobacco, costing in the United States less than $7,000,000; whilst we have admitted, free of duty from Europe, an amount of its produce more than equal to one-half of all the exports of our domestic produce to the same countries of Europe; and, as the annual average amount imported into the United States from the various countries of Europe, from 1st October, 1835, to 30th September, 1838, was $97,251,334, of which $54,597,477 was subject to duty, and as the total average amount of revenue obtained by the American government for the two years ending 31st December, 1838, by the importations from *all parts of the world*, was $16,866,017, it may safely be estimated that, as a large proportion of the articles coming from Europe were admitted free of duty, that the revenue which the United States has derived from the importations from Europe has not exceeded $10,000,000 annually; so that, if this revenue should be equalized on the total average importations from Europe, say $97,251,334, it would only amount to a duty of about ten per cent., whilst Europe is obtaining a revenue of at least $35,000,000 from our tobacco alone. There is certainly no reciprocity in such a state of things."

The consumption of $10,000 of segars daily in New York, proves how much more freely iron and coal, and cloth and leather, and hats, and every thing else that represents and is made up in fact of the *products of the plough*, are consumed when *they are made in our own country*, near to the plough. Yes, the estimate is $10,000 worth daily. If the farmer has the iron manufactory close to his farm, he puts iron to a thousand uses that he would not if it had to come from England, even though there he might get it cheaper apparently, but not really, because he cannot in that case pay for it half so easily as if the people were close by him, who would consume his produce while they made his iron. For want of the iron-making consumers close at hand, he uses wooden keys to his ox-yokes, and wooden hinges to his doors and gates, and wooden axletrees to carts, and rope instead of chain traces. But the tillers of the soil, thank God, are *beginning* to learn a thing or two! We can see that even by the way that the Plough, the Loom, and the Anvil, is spreading over the whole country, and especially in the South and West.

REARING OF YOUNG RACING STOCK.

Under all circumstances, there is too much resemblance between the speculations of the Turf and a lottery; but, as the prizes it exhibits are valuable, the most effectual means of obtaining them should be adopted. It signifies little what care and circumspection have been exercised in the selection of stallions and mares, with a view of breeding racers; the prospect of success is very limited indeed at the present day, unless the produce be reared according to the improved system acted upon in our first-rate racing establishments. Such was the pertinacity of opinion, combined with long-established prejudices, and in direct opposition to the daily acknowledged fact of dry and warm countries having been the first to produce the horse in perfection, that it is only within a very few years that young thorough-bred stock has been reared in the manner in which it should be reared. A thorough-bred colt may now be said to be in training from the day on which he is dropped, so great is the care taken to force him into shape and substance.* Not only is he drawing from the teats of his dam the milk of a highly fed animal, and consequently, in itself highly nutritious, but, before he is twelve months old, he eats nearly two bushels of oats per week. The time for expansion of frame is youth, and, when we see a two-year-old at the post, with eight stone four pounds on his back, which is to be seen in every meeting at Newmarket, and looking like a horse able to carry a light man after hounds, we most cordially assent to the answer given by the most experienced Newmarket trainer of the present age to the question, What is the best method of rearing a racing colt? "First observe," said he, "that the blood, or cross, is good; secondly, breed him as you would a sheep, from a roomy dam; and thirdly, give him as little green meat as possible, and as much corn as he will eat." The trainer we allude to has now retired, but he had all the young stock of the Duke of Grafton, and many of the first and most successful sportsmen in England, through his hands, and the annual disbursements of his establishment exceeded ten thousand pounds. That dry, and "hard food," as it is called, is the natural food of the parent stock from which our race-horses are descended, is beyond all doubt; and that the firmness of their acting parts is attributable to that, and to the warmth and dryness of the climate, is also admitted. Is it, then, to be wondered at, that breeders of horses, and not only of race-horses, have at length found out that dry food and warmth have the same effect in the Temperate as they have had, and now have in the Torrid Zone? that they have discovered that, when colts are bred on rich succulent food, and subject to a humid atmosphere, the bulk of the body increases out of proportion to the strength of the bones; and to these predisposing causes are also to be attributed most of the false points which we find in horses, such as fleshy shoulders, deficiency of muscle, weak pasterns, and flat feet? Virgil discovered this nearly two thousand years ago, and, when speaking in praise of Epirus, as suitable to the breeding of horses, emphatically observes:—

> "Continuo has leges æternaque fœdera *certis*,
> *Imposuit natura locis.*" *Georg.* 1, l. 60.

So careful, however, now are some of our principal and most successful breeders of race-horses to avoid these evils, that not only has a thorough-bred

* An American gentleman, who visited several of the studs in the neighborhood of Doncaster, thus expresses himself: "I was much astonished to find that the little foals of a few months old had shoes on, and gave evidence of having been carefully groomed from the time they were able to bear this attention. I think I saw foals of eight months old as large as our yearlings—yearlings as large as our two-year-olds, and two-year-old colts as large as our three-year-olds."—*New York Spirit of the Times, November* 28, 1840.

colt eating grass *ad libitum* become a rare sight, but he is not suffered to be exposed to rain, even in the midst of summer, no, not even to a temporary shower. The effect of rain upon horses' backs is found to produce the worst of diseases—glanders, for instance, as is well known to all cavalry officers who have been on service with their regiments; and it cannot be innocuous to the highly-bred foal, or colt. That he should be sheltered from the cold of winter, need scarcely be insisted upon here, although we are rather inclined to think, that, in the generality of breeding establishments, he is more exposed to weather in the winter than he ought to be. There is no objection to a *moderate* allowance of carrots, and a little green food; but, according to the old Greek proverb, Αλλος βιος, αλλα διαιτα, *another life, another diet*, we must hear no more of the "natural food" of an animal insisted upon by many, who is so far called upon to outstrip the laws of nature as to begin to work at fourteen months old, and to appear at the starting-post at two years old, displaying the form, character, and strength of one nearly arrived at maturity. Neither is the land on which a racing-stud is situated oftentimes sufficiently considered; but a want of such consideration has been the source of great loss. It is in vain to expect success unless upon that which is dry, and consequently of sound subsoil; and what is termed "upland ground" is most favorable. Walls, independently of security, are preferable to hedges, for enclosures to breeding paddocks, as the latter harbor flies, which are very injurious to young stock, and also to their dams, in hot weather; but the present small dimensions of breeding paddocks, not exceeding a quarter of an acre, and many still less, preclude the use of hedges.

Racing colts are physicked when foals, and periodically afterwards; their hoofs, also, are pared with a drawing knife, that, by shortening the toe, the heel may have liberty to expand. Physic, in this case, may be termed the safety valve, and such it is in reality, for this system of forcing nature cannot be free from danger. It is found, however, materially to promote growth, as indeed does the work that our racing-colts perform at such a very early age. Muscular action produces muscular strength, and growth will be the result. We have seen a colt that measured upwards of fifteen hands in height on the day twelvemonth which he had been weaned from his dam.

Racing-colts can scarcely be handled too soon:—

"Dum faciles animi juvenum, dum mobilis ætas,"

as Virgil says of the bulls; and Horace illustrates the necessity of early erudition of the human species by the excellence of horses which have been well broken in when young. The first breaking in of colts is also alluded to by Ovid, who, like Horace, is in favor of very *careful* treatment of them, and reminds us of the necessity of it in the following beautiful line:—

"Frænaque vix patitur de grege captus equus."

The system of breaking colts, however, is not only thoroughly well understood in our racing establishments, but is accomplished with much less severity than it formerly was, and consequently with less danger to the animal.*

* This would seem to be a proper place to insert an extract which we remember to have published some eighteen years since, in the Turf Register and Sporting Magazine, from a letter received from that eminently sagacious and successful turfman Colonel William R. Johnson—cut out by nature to be a great man in any walk of life which accident or choice might have led him to adopt. And pray, courteous reader, why should we not stop a moment to pay our humble tribute to one, of whom Jack Randolph said—if he had not chanced to eat lobster for supper the night before, Henry would not have been beaten, nor the South *eclipsed*, in the memorable race for $20,000, on the, among turfmen, ever to be remembered 27th May, 1823—only think—twenty-five years ago! alas how time slips away! Well then of the Colonel, with his white hat, if he were dead

The time of foaling is one of great interest to owners of valuable brood mares, and particularly so when the produce is engaged, perhaps heavily, or when they are of what is termed a running family. The attention of the stud-groom is directed by sundry forewarnings, the most palpable of which is what is called "waxing of the udder," and appearance of milk, which generally precede parturition two or three days, but in some instances more. As the mare brings forth on her legs, there is little fear of the foal being overlaid by the mother; but the less she is disturbed the better, lest she should trample on its legs. Her treatment afterwards is now so well understood, that nothing requires to be said about it; but a bran mash, with from

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who would not agree with us in saying he was a man of very remarkable powers of intellect! And what if his great skill and judgment of man and horse have been displayed chiefly on the race-track; who doubts that with his intuitive quickness of perception, and command of his temper, he would have been equally distinguished at the Council-board or the battle-field? Where has the man been known to excel him, wherever he has been tried, for quickness of apprehension and soundness of judgment in matters of business—in convivial powers and in true-hearted hospitality! Who ever got within his bailiwick, that did not find a seat at his mahogany, and there forget, for the nonce, this uncharitable world and its stratagems and cares. Of all the men we have known, none have excelled him in lightning-like velocity, if we may so say, in the action of his mind—and for judgment how to bet, on a view of the horses after the first heat, who could you name to match him? Be the question or the problem what it may, his turn and habits of mind are such as to bring him on the instant to a conclusion as correct as if he were to ponder it, as some would, for an hour. It is related of him, that he was once standing on the Capitol grounds at Richmond, conversing with his friend D. B., when an old associate of theirs, who had seen better days, came along, somewhat out at the elbows, and first approaching B., asked him to lend him $5 until next day. Really, said B., I have not as much about me, or I would with the greatest pleasure. As quick as thought, Colonel J., knowing what would come next, said—"Here B., I'll *lend* you $5." Perhaps this is no place for such anecdotes, but yet we *do* like, be it confessed, to go even a little out of our way, and at the risk of being charged with flattery, to show kind remembrance of old friends, who, in days of brighter sunshine, it may be for us both, we were always glad to take by the hand with a true grip—to seize such opportunities, when they do occur, to speak well and justly, of those whom we esteem, is in fact one of the few enjoyable privileges of the chair Editorial, and it may be when the old Colonel is finally "let *down*" or trains off, we may have gone before him, and therefore choose we not to wait for, we would fain hope, a distant day—so "here's a health to you, Tom Brown,"—ah! for one more reunion, as in "auld lang syne," under the spreading branches of the venerable elm at the ———, the "boys," those who are still on the track and see this, will know where—Minge, "Oh! don't you remember?" Shade of Tyrone Powers, do the shadows of friends ever meet to repartake, as in their halcyon days, "the feast of reason and the flow of soul?" But "away with melancholy," and so, returning to our extract on rearing colts. The Colonel wrote us many years since on the management of young stock for the turf; and instead of a long yarn, in his own brief and sententious way, said—

"I keep my colts tolerably fat, though not overloaded with flesh—turn them out in good weather, and keep them up in bad—taking care not to let the horse-colts smell or see other horses more than can well be avoided."

While we are on this subject, we will add some judicious observations, sent us by a friend, in a Report of the Committee on Mares and Colts, at the late exhibition of the Onondago County (New York) Agricultural Society. The observations apply to the rearing of the best coach-horses, a matter justly esteemed of great importance in that county, and hence the heavy tribute paid to it annually by all the Southern States for harness-horses.

"As to the management of mares while breeding, it is the opinion of your committee that if the owner of the mare will drive her himself—and drive her prudently—not at heavy draught—not at breaking up green sward for instance, but at cross ploughing, harrowing, and ordinary farm wagon-work—careful always to drive her slow on the road—the mare better be worked even up to the week of her foaling, than to lie still; but she should in all cases be allowed to rest at least one month thereafter. As to her feed while breeding, we think she should be kept on simple, cooling food during the period of gestation, up to the fifth month certainly; after that when the fœtus is fully formed and com mences to grow rapidly, she should have more nutritious food—a moderate allowance, say six or eight quarts of oats or oatmeal per day should be given her. This, you may rely upon it, will insure a larger, better developed and more thrifty foal than the ordinary

four to six ounces of nitre dissolved in it, given as soon as she has brought forth, keeps off fever. The great preventive of accidents to foals, is the simple contrivance of rollers on the sides of the door-frames, which secure them from being injured as they rush out of the hovel or shed by the side of their dams, especially in cases of alarm.

Some persons prefer purchasing to breeding young racing stock, and it is difficult to determine between the advantages and disadvantages of the systems. It is true that, in the first case, the purchaser has a certainty of some return for his money, inasmuch as he gets his colt or filly, which the breeder may never get, after incurring a great expense on the mare. The price of a promising yearling, from three to five hundred guineas, is a large sum to begin with; and we cannot, in this instance, say with Varro, "that a good horse is known from the first." If purchased after he has appeared in public, at two years old, of fashionable blood, and having run in front, he is not to be purchased much under a thousand guineas, which is a large sum to realize, when added to concomitant expenses. Nothing but the immense amount of stakes for young racing-stock can justify such a speculation. For example, in 1824, a filly of the Duke of Grafton's won four thousand four hundred and fifty guineas, public money, by only starting twice.

One of the principal drawbacks from the prospects of success in a racing establishment, is a complaint called the Distemper, a sort of catarrhal fever, the cause of which is generally attributed to atmospheric influence, and also to any other which may produce what is termed a cold. Unlike common catarrhs, however, the distemper will run through a whole stud of horses; and if it do not, as it frequently does, end in an affection of the lungs, it leaves a lassitude behind it, which requires some time to remove. As a hot sun, with cold winds in spring, and the humid air of the autumn, are the chief predisposing causes of this complaint, an even temperature in the stable, and warm clothing when out of it, together with avoiding exposure to extremes of heat and cold, are the best safeguards against its attacks. It may be compared to a frost over the blossoms, which in one night blasts all former hopes of a crop.

A most interesting event to a breeder of thorough-bred stock is the trial of their racing powers, which at once decides the question of their being worth the expense of training to run or not. There is a great deal of judgment necessary in the act of trying even old horses, but still more so is required to form a just estimate of a young one, from the difficulty of knowing when he is quite up to the mark, as well as of keeping him there till it may

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straw-stack system of keeping breeding mares. It has been discovered by the great chemist Liebig, that of all the food of animals, there is none that contains more of the constituents of muscle than oats, hence their importance to the growing fœtus.

"As to the management of colts, we would notice another, perhaps more prevalent and more mischievous error than the preceding; we allude to the idea that a colt as soon as it is weaned must be toughened, by being fed sticks and straw, and left with no shelter warmer than a stack or board fence.

"This abominable heresy we desire to annihilate. There is no fact connected with rural economy to which we challenge the experience of the most stingy farmer even with more confidence, than that all animals require a generous supply of wholesome food, and a warm, dry bed in winter, particularly during the first year of their lives.

"Let any one who doubts try it this winter. Let him give his colt during the very cold weather at least a quart of oats or oatmeal per day, and he will find it repaid more than four-fold in the superior size and symmetry of his horse. An animal that is but half-fed and exposed to all kinds of weather, (particularly while young,) becomes rheumatic—is drawn out of shape, and grows up ill-favored and comparatively valueless. The secrets of the great success in breeding horses for which the Arab has always been distinguished, are in the fewest words these: 1st, he never sells a mare; 2d, he never starves a colt."—*Edits. P. L. & J.*

be convenient to try him;—and it is not always so, owing to bad weather, the trial of young things being generally very early in the year. This subject, however, coming more properly under the head of Training the Race-horse, will be treated of at a future time.

But we have not yet spoken of the form of the race-horse, which we will now describe; and as nothing can be considered characteristic of a species but what is perfect of its sort, we will so far endeavor to make the pen perform the task of the pencil, as to portray his cardinal points, as nearly perfect as such means will admit of. Nature herself, perhaps, rarely exhibits perfect models in the animal world, leaving the completion of her skill to human sagacity; neither is undeviating symmetry absolutely necessary in a race-horse. In every composite, however, beauty consists in the apt connection of its parts with each other; and just proportions in the limbs and moving levers, coupled with that elegance of form *in which there is no unnecessary weight to oppress the muscles*, so peculiar to the highly bred race-horse, is all that need be insisted upon in a racer. It is nevertheless hard to say what horse will make a racer, and also what will not, until put to the test; for how many horses have appeared which the eye of the sportsman would not wish to study, and yet have proved themselves very capital runners? This excellence, however, in those "cross made horses," as they are termed, not misshapen ones, arises, as has been before observed, from their possessing parts conducive to speed and action, not, perhaps, very strikingly displayed, but by means of greater length and depth, and a peculiar manner of setting on of the acting parts, enabling them to excel others, much handsomer to the eye, but wanting in either proper declivity, length, or, what is still more probable, in circular extent of those parts. Thus, as the wise man, according to the Stoics, alone is beautiful, so is a race-horse to be admired solely for those points which make him a good race-horse.

Although symmetry and proportion form a perfect figure, and they become deformities when any of the component parts exceed or fall short of their due proportions, yet it is not always necessary to measure by the standard of perfection. Suffice it, then, to state the generally approved points of the English race-horse.

We commence with the head, not merely because it has always been considered as the most honorable member in the human frame, but as it is one of the leading characteristics of the thorough-bred horse. His broad angular forehead gives him that beautiful expression of countenance which no other breed possesses; and the tapering of the face from the forehead to the muzzle forms a striking contrast with the large face of the cart-horse, and the forehead scarcely wider than the face.

Head of a Racer.

Head of a Cart-horse.

The race-horse should have a black, lively, and rather prominent eye which denotes a sound constitution; and as horses do not breathe through

the mouth, but only through the nose, the nostrils should be rather expanded and flexible, that they may accommodate themselves to quickened respiration, as the speed of the animal increases. But they should not be over large. "Naribus *non angustis*," says Varro, and he is right. Beauty in the head of the race-horse, however, is only a secondary consideration to the manner in which it should form a junction with the neck, as on that, in a great measure, depends the goodness of his wind in a race. His jaws should not only be thin, and not approach too near together at the throat, but they should not extend too high towards the onset, or they will impede his freedom of breathing. The neck of all horses should be muscular; but what is called a loose neck, in a race-horse, is not so objectionable as in a hunter, and is considered as indicative of speed. But as the head of a horse may be called the helm which guides his course, changes and directs his motions, it is not only desirable that, as he cannot move his head but with the muscles of his neck, those muscles should be pliant, but that he should also have what is termed a good mouth. It is asserted, that the weight of the head and neck, the effect increasing with their distance from the trunk, adds to the speed of the horse by throwing his weight forward; but this is no argument for *additional* weight or length in those parts, which ought to be duly proportioned to the trunk. The neck of the race-horse should be in no extreme, but rather long than otherwise, and not too much arched.

As horses are said to go with their shoulders, these may be considered as highly important points. They vary in form more than any other part of the horse's frame. Those of Flying Childers rose very high and fine towards the withers; whereas a firkin of butter is said to have rested, unsupported, on the withers of Eclipse, when in covering condition. Upright shoulders, however, being an impediment to speed, obliquity of the scapula is absolutely necessary, but we do not insist upon their running fine at the withers. We consider the shoulders of Eclipse to have resembled those of the greyhound, wide at the upper part, and nearly on a line with the back. Large, or even what are called coarse shoulders, contribute greatly to strength, and are no impediment to speed, if there is proper declivity of the scapula or shoulder-bone. The withers, when high or thin, should enlarge gradually downwards, and there should be four or five inches between the fore-thighs, but less between the fetlocks or ankles and the feet.

The true position of the limbs is a most material point in the race-horse, as it causes him to stand over more ground than one which is otherwise formed, although possessing a more extended frame. One of these essential points is, the setting on of, and length in, the fore-arm, or part from shoulder to knee in the fore-leg; and another is the declension of the haunch to the hock in the hind-leg, which is termed "well let down in the thigh." It is from having those points in excess that enables *the hare* to describe a far greater circle, and cover more ground at one stroke than any other animal nearly double her size. In fact, the arm should be set on at the extreme point of the shoulder, which ensures this act of extension, and also adds to the declivity of the shoulder. The knee should be broad and flat, and if appearing somewhat prominent, the better. All the Herod legs had prominent knees, and no legs stood work better than they did. Concussion in galloping is diminished in legs so formed. The cannon or shank, from knee to fetlock, should be of moderate length in the race-horse, (longer than in the hunter,) and, above all, the leg should appear flat, not round, with sinews and bones distinct, and the former appearing to be very firmly braced. The pastern of the race-horse should be long, lax, and rather small than otherwise; length and laxness serving as springs, and smallness contributing to agility, and consequently to perseverance or bottom. Some comparison will

hold good between this point in a horse, and the "small of the leg," as it is called, of a man, in contradistinction to the calf. Under the pressure of fatigue, no man complains of the "*small* of his leg" giving him uneasiness, but his calves often give him notice that he has done too much. The hoof of the race-horse should be of moderate size, in proportion with the leg above.

We have already alluded to the bone of the thorough-bred horse, which much exceeds that of any other variety of this animal in its compactness and solidity; which qualities, as the span in the gallop must give a shock in proportion to its length, are admirably adapted to the race-horse. We cannot say of him, what Job said of the behemoth, that "his bones are like bars of iron;" yet, as in proportion to the muscular power of the animal, is the dense quality of the bone, that of the race-horse need not, nor should not, be large. Experience teaches us, that bones very rarely break; fractures, when they do occur in racing, being almost invariably in the joints; and rather small bone in the leg of a race-horse, supported by broad and well-braced sinews and tendons, placed distinct from the bone, and forming what is called a flat and wiry leg, is most desirable, and found to be indicative, not only of speed and endurance, but likewise of soundness in severe work. It is only those who are ignorant of the anatomical structure of animals that fix the basis of strength in the bony substances alone, not considering the muscular appendages, which constitute the mainspring of strength and action.

As the strongest bodies owe their vigor to the milk they receive in their infancy, our recommendation to keep brood mares well will not be considered as unsuitable; but the connection between milk and bone is also deserving of a remark. When animal bones are divested of their oil and jelly, the earth which remains is chiefly lime, united with phosphoric acid. It is worthy of notice, that phosphate of lime is found in abundance in milk. This seems to indicate, that Nature thought fit to place, in the first nourishment of animals, a quantity of osseous matter, with a view to the necessary celerity of the formation and growth of the bones in the earliest stage of their lives. This is one of the numerous instances of the beneficence of the Creator, exemplified by the science of chemistry, and shows the advantages to be expected from a good flow of milk in a mare that is well fed; and it is a remarkable fact, that the nearer the female approaches to the period of parturition, the more is the milk charged with this calcareous phosphate. Nor is it until the digestive organs of the foal are sufficiently strengthened, to answer the purposes and work of animalization, that this earthy salt disappears.

But to proceed with the form of a race-horse. The race-horse should have length, but the length should be in his shoulders and in the *quarters;* that is, the part posterior to the hips, and not in his back. To give him that elegance of form for which he is so conspicuous, there should be no acute angle nor any straight line. His shoulders should go into his neck at the points, *unperceived*, and his back should sink *a little* behind the withers, which gives his rider a good seat, and does not in the least diminish his strength. On the contrary, horses with very straight backs are generally deficient in their fore-quarters, as well as in their action; and we have known some very good racers even what is termed hollow-backed.* There should be a little rise in the loins, just behind the saddle; but the race-horse should not be too closely ribbed up. The ribs should stand out from the spine, producing what is

* Monsieur Tonson, for an instance.—*Edits. P. L. & A.*

called a round barrel, together with depth of carcass, a formation which not only gives strength of body and constitution, but, by admitting the intestines to be comfortably lodged within the ribs, imparts freedom of breathing, activity and beauty to the whole frame of the horse, other parts being proportional. These useful points, however, must not be carried to an extreme, or the horse may be what is termed "too heavy for his legs;" and we know that light-bodied horses save their legs much in their gallops, which accounts for mares and geldings standing the severity of training to a later period of life than stallions, by reason of the former requiring less work, from not generally carrying so much flesh as the latter.

There is no part, excepting the head,* so truly characteristic of high breeding in the horse, as his haunch. If a little of the elegance of the parts, however, is diminished by the width of the hips, it will be recompensed by increased strength in the animal, as is the case with broad-shouldered men; and when accompanied with good loins, these protuberances of the ilium can scarcely be too great for the purposes of power and action. We next come to the thigh, the form and substance of which is most material to the race-horse; for although horses are said to go with their shoulders, the power to give the impetus in progressive motion comes from behind. In all animals endowed with, and requiring extreme rapidity of motion, the thigh is furnished with extraordinary powers and length; the hare, for example, whose thighs are let down to a great extent for their size, and the lower part of the hinder leg placed under them, as that of the racer should be, from a proper curve of the hock. The speed of the ostrich arises from the power of the muscles from the pelvis to the foot; and the thigh of the fighting cock is a point much considered by breeders of those birds. It is not necessary that a race-horse's thigh should be very large, but it should exhibit well-developed muscle. Descending lower in the limb, we arrive at the hock, a very complicated joint, but the form of which is most important in the race-horse. It should be large and lean, and the point of it projecting behind the body, which greatly increases the power of the lever in action, as will presently be most satisfactorily shown.

The medium height, about fifteen hands two inches, four inches to a hand, is the best for a race-horse. As the long beam breaks by its own weight, so large animals have rarely strength in proportion to their size. In fact, if there were any land animals larger than those we know, they would hardly be able to move at all. On the English Turf, however, the very large horses that have appeared at various periods of its existence, have, with a very few exceptions, not been found so good under high weights, as those of a medium height; and several instances are on record (Meteora, Whalebone, Barker, Phantom, Lapdog, and others, for example) of the best horse of his year being very nearly the lowest.

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* We lately heard it remarked, by a connoisseur as well as amateur of the horse, Colonel Nicholas Goldsborough of Maryland, that wherever the forehead came up sharp and pointed between the ears, experience had taught him to expect a true game spirit. The Morgan horse, coming from the Norman, through the Canadian, but getting his power of endurance from the blood-horse, is remarkable, as are the brave little Canadians, for breadth *between the eyes*. It indicates sense, courage and fidelity. As for the indispensableness of *blood* to all great achievements—who was surprised to find the first horse that ever trotted twenty miles within the hour, (Trustee lately at New York,) springing at once from the loins of a bred horse? (Trustee sire of Fashion.) In the Old Turf Register, vol. 2, page 163—165, will be found a list of sixty distinguished race-horses, only two of which measured above fifteen hands. In a general way, it may be laid down that the form is best which is composed most nearly of the essential properties of the rabbit, greyhound, and ostrich.—*Edits. P. L. & A.*

MESSAGE OF THE GOVERNOR OF SOUTH CAROLINA.

EXTRACT FROM AND NOTE ON.

"All who are familiar with the upper portions of the State know that few, if any of its productions, will bear the expense of transportation, by the ordinary means, to a market and leave any profits to the producer, except the article of cotton, which is not grown at all in the region bordering the mountains; and even that, at the present low prices, leaves but a small net income when the charges of transportation are deducted. All descriptions of grain may be transported to our markets from any of the Northern cities at a less expense than from the mountain region, where it is grown in abundance; and, with facilities of transportation, might and would be increased to almost any extent. Lime, which is found in abundance in York and Spartanburg Districts, of superior quality, is shut out even from the market in this place, on account of the difference in the expenses of transportation, by the Thomaston lime. For the same reason our great marts are closed against the iron produced in the interior, and they are supplied from Europe and the Northern States. The same remarks will apply to almost every article of production, the transportation of which is expensive on account of its weight or bulk; and I venture to predict, that unless greater facilities of transportation are supplied, the healthiest and most favored portion of the State will become tenantless. Heretofore they have found a market for their agricultural productions amongst their cotton-growing neighbors, but at the present low prices they [the cotton growers] will find it their interest to raise their own supplies."

And does not all this prove the wisdom of such legislation as shall incline the machinery and the consumers to go to the food and the materials, instead of sending the food and materials to Lowell and Manchester? just as the farmer and planter find it their interest to have the grist-mill and the blacksmith shop, and the shoemaker's shop, near at hand, even on the land, if they could have them there—and when at hand, is not the produce of the mill and the anvil, and the lapstone, much more freely consumed? are not men and beasts better fed, and horses and men oftener and better shod? and is there not vastly more demand for food and materials? What is it in the power of steam and of railroads, that they should have so vastly increased the wealth and population of the world, but their faculty of *saving time*, and thus adding to the productive capacity of existing laborers? just as if laborers had in reality been added in number equal to what manual labor could effect in the time that is saved, and by the power that is thus added? "Time *is* money;" and all the time that is unnecessarily lost, between the maturity of the crop of cotton or wool, or corn or wheat, and the conversion of that cotton or wool into cloth, and the consumption of that corn or wheat, is just so much money thrown away, as the man would throw away money who locks his surplus cash up in an old chest, or hides it in some secret drawer of his secretary, instead of putting it out at interest, or into active employment. The uplands of South Carolina ought to be employed in *sheep husbandry*, for one thing—wherein much value is condensed in little weight, and therefore more cheaply transported.

But the world is waking up to a conviction of the violence which is done not only to every local interest, but to the very laws of nature, by "man's inventions," when they force the loom and the anvil, against all obvious propriety and convenience, to work away off at a distance from the plough and the harrow, that furnish their materials and the food of those who labor at them; and hence it is that we see, in spite of political dogmas to the contrary, manufactories of cotton are *forcing* their way into Carolina, Georgia, and Mississippi; and hence it is that we are every day meeting with signs like the following, from the Mississippi Independent:

"We learn from the Carrolton (Miss.) Flag of the 13th inst. that a cotton factory is being established in Choctaw county, 11 miles south of Greensboro. It will be in full operation by the first of January next.

"We also understand that efforts are being made to form a company for the purpose of establishing a similar factory in Covington county. We hail these enterprises as 'signs of the times.'"

But here is ANOTHER SIGN:

Georgetown Cotton Factory.—We understand that this factory will go into operation again on and after Monday next, (this day.) We regret that it did not prosper in the hands of our enterprising fellow-citizen, Mr. Bomford. We hope that it is now placed beyond the possibility of failing. The beneficial effects, on its renewing operations, will soon be felt by our industrial population and merchants.—*Georgetown Advocate.*

Such is the course of things, and such it must ever be until the policy of protection shall be the fixed public sentiment of the country, and a fixed fact in its legislation. Col. Bomford buys an immense water-power for a song—establishes a factory that promises all that could be wished, and it fails—and all are sorry for him. His property is sold at a great sacrifice; and then should his successor in the undertaking be ruined, all will be sorry for him. Our policy in regard to protection and free trade is ever fluctuating; and manufacturing becomes a system of lottery, in which many draw blanks, while just enough to keep up the excitement draw an occasional high prize. So will it ever be until we have a system of our own, established on a solid foundation, that shall attract investment by something like certainty in the results, however moderate these results may be. Our Southern friends desire to have factories located among their plantations, to give value to their land and their labor; but we fear they will hope therefor in vain, so long as every man who makes the effort shall continue to be added to the list of those who have been ruined by the perpetual fluctuations consequent upon a dependence upon the variations of English policy.

ROBERTS' RESOLUTIONS.

On the power of the General Government to create Schools for instruction in the art of Agriculture, as well as in the art of War, by EDWARD P. ROBERTS, *Editor of the American Farmer, and Chairman of "the Committee appointed to make a report on the various subjects connected with the Exhibition," held at Baltimore, in November, 1848, by the Maryland State Agricultural Society.*

THE resolutions to which the report refers, were submitted by Mr. Earle, unanimously passed, and published in the last number of "THE PLOUGH, THE LOOM, AND THE ANVIL." A memorial having this object in view was presented last winter, by the Hon. Reverdy Johnson, with eloquent and forcible remarks in support of it, to the Senate of the United States, and referred to the *Committee on Agriculture*, who—*never held a single meeting during the session!!!!*

"Your committee are highly pleased at the resolution of the society, invoking the aid of the general government in the establishment of INSTITUTIONS '*to disseminate a knowledge of the science of cultivating the earth,*' as also at its accompanying one, requiring the president to communicate the former to our representatives in Congress. Of the constitutionality of such appropriations, the writer of this report does not entertain the slightest doubt—their beneficial effects all will admit. The first grant in the constitution gives power to Congress to legislate for the '*general welfare*'—and certainly none will deny that *agriculture* lies at the very foundation of the welfare of the people of the Union; it is the source whence its wealth is created, its welfare promoted, and its prosperity insured: three-fourths of our population are engaged in agriculture; these by their productions sustain the other fourth, and produce the raw materials by which the industry of the country is carried on: and such being the case, it would be strange,

indeed, if they are not to come within the meaning of the term '*general welfare;*' for whose benefit the very first grant of power to Congress is given. The power here contended for, is an *expressly* granted one, and does not rest upon the more precarious basis of an implied or incidental one. If the agricultural interests have an identity with the '*general welfare*' of the country—and who will deny that they have—then do they come within the beneficent action of the grant of power, and as a just and inevitable deduction, Congress has the constitutional competency to appropriate money, or which is equivalent to it, to grant portions of the public lands, to establish and endow agricultural schools or colleges in the several states. Time after time Congress have made grants of the public domain to the *new* states for the establishment of institutions of learning, and the promotion of internal improvements. These things have been done *not* under *express*, but under the *implied* powers of the government. Congress has the right under the constitution to *regulate commerce* with foreign nations—so, also, to *establish a navy* and *raise armies;* but there is *not* a word in the way of *positive* grant about employing the navy to protect commerce; neither is there a word about establishing naval schools—and yet, our naval force is employed in every sea in the protection of commerce, and we have a naval school instituted to educate naval officers—and a military academy to educate our army officers. Whence comes the authority for the exercise of these powers? Not by any *express* constitutional grant; for in this light the constitution is silent—but from the power of implication. The presumption being, that the power to *create* carries with it, in the first case, that of protecting, and in the two latter, that of educating the officers who are to command the navy and army when created. Now, then, if an *inferential* power can be exerted so substantively in behalf of commerce, and for teaching men how best and most scientifically they may destroy their fellow-men, why, we would ask, is it, that the *express* grant of power in behalf of the '*general welfare*' should be considered a dead letter? We would further ask, if the people of the *new* states can have large appropriations made them for purposes connected with their '*welfare*,' how is it, that the '*old*' states are to be denied, when they ask for kindred appropriations?

"Your committee having had their attention called to this subject by the resolution alluded to, have felt it to be their duty to thus briefly give their views upon the constitutional branch of the question.

"Edward P. Roberts, Chairman of the Committee."

Applying Dung to Wheat.—The operations of life are on the surface of the earth, and the most plausible theory of the food of plants supposes that it is derived as much from the atmosphere as from the soil. We may also infer that new elements will be produced from the manure and the air, and which may be imbibed by plants. From these grounds, I have long been of opinion that the farm-yard dung, which is now laid on the bare fallows for wheat, might be more beneficially applied as a top-dressing in March on the growing plants. The dung being evenly and thinly spread over the land, it may lie for one or two months; and being then harrowed, it will form a top-dressing for the plants, of no common value, of the minute particles of dung and soil, and a bed for grass-seeds of a sort that they never receive. A matrix of different substances, in a finely reduced and comminuted state, resembles the "alluvium" of nature, in which plants so very much delight to grow. J. D.

WHO SAYS—"SPEED THE PLOUGH?"

As we violate no custom, we hope we do not violate propriety, in placing the following letters in the body of our journal. We might fill a Number with extracts favorable to the object of our enterprise, and hopeful of our success, from a view of the manner in which that object has been so far pursued.

If these testimonies of support come from one quarter more than another, it is from the West and the South. From the South, the common sentiment is—"Send us your journal; it's just the thing we wanted:" and the same indication comes from Pennsylvania and Ohio. All that is now needed to place us on a platform that will stand is, that the patrons we have will average one additional one. Some, in isolated places, may not find that easy; while others could, almost for the asking, send four more at least. When we say that support comes chiefly from the South and West, we mean that it is there more equally spread over the country. But this makes the more conspicuous the good will of friends to our enterprise in Boston, New York, and Philadelphia, who encouraged us to embark in it. What more could any man say in its behalf than that praise vouchsafed by such an one as Samuel Lawrence, of Lowell, who volunteered the declaration that the best cure for the evils of the times would be, that every man, woman, and child, should read "The Plough, the Loom, and the Anvil?" while Mr. W. S. King, of Woodland Farm, Rhode Island, whom we have not the honor to know personally, says it will be with him "a labor of love" to go about extending its circulation! Adverting to these cases, as they occur, must not make the many friends who have elsewhere made up clubs of four and even many more imagine that we are for a moment unmindful of their great kindness. We trust ingratitude is not in our nature, whatever other bad ingredients may be. We might, if we had space and time to go over our files, pick out extracts like the following, from South Carolina, Virginia, Georgia, Maryland, Delaware, Alabama, Tennessee, Kentucky, Ohio, and New York, Florida, Pennsylvania, North Carolina, and Louisiana.

My Dear Sir:—Accompanying this I send $20 on account of the following subscribers to your invaluable periodical. . . . . .

My engagements have prevented me from doing as much for the good cause hitherto as I could have wished, but I trust the leisure of the winter will afford me abundant opportunity of proving the interest I feel in your undertaking.

Mr. Patterson, of Cross Creek, promises to secure a good list in his neighborhood; and I expect the cordial co-operation of Mr. George Wilson, of West Alexander.

I shall take an early opportunity of calling public attention to the "Plough, Loom, and Anvil," in the three papers of our town, and cannot but hope that it will obtain a large circulation in a county *so essentially tariff* as ours.

With my best wishes for the success of your patriotic labors,

I am, dear Sir, very truly yours, Robert R. Reed.

P. S.—Monday morning. On coming to town this morning I added four more names to the list, which you will find below. All have paid except Mr. ———, who is absent from home just now. Yours, &c. R. R. R.

Dear Sir:—Your friend Mr. Lawrence was not mistaken in supposing that I would feel a deep interest in your undertaking. It is well calculated to promote the best interests of our country, and I trust you will receive that encouragement which your patriotic attempt deserves. The time, I trust, has arrived when the people begin to see their true interests. At the same time that we introduce improved processes of agriculture, we should endeavor to create a market for our increased products. I hope the time is past when the laboring men of the country will permit their interests to be the sport of trading politicians. My sympathies are with the laboring classes, and my interests are purely agricultural. It is natural, therefore, that I should think this the great concern of the country. "The profit of the earth is for all: the king himself is served by the field."

I had the pleasure sometime ago to send, through our postmaster, Mr.

Hadden, five names, including my own, as subscribers to "The Plough," &c. After the presidential election is over, and the smoke of the battle is cleared away, I may do myself the honor of sending you a few more names.

With much respect, yours, &c. N. Ewing.

Buena Vista, Del., December 2, 1848.

Dear Sir:—I have long been a reader of your productions, and have derived much valuable information from them.

Most cordially do I wish success to "The Plough, the Loom, and the Anvil." Set me down as a permanent subscriber; that is, during our joint lives. Send the work to Buena Vista, Del., till further orders. I wish my sons to study it. Very truly your friend,

Jno. M. Clayton.

THE SHEEP IN ITS VARIOUS FORMS.

Wise men regard with suspicious eye the assertions of those who profess to accomplish a variety of dissimilar effects by a single cause. It is customary to be jealous of the pretensions of "Universal Restorative," "Heal All," or any other panacea warranted to cure diseases of all symptoms or all origins. And the proposal *to adapt one breed of sheep to all circumstances* of food, climate, and situation, making it answer all the purposes for which sheep are usually employed, seems justly to meet with similar distrust and suspicion.

From the varied habits of sheep, the widely different circumstances in which they are placed, and the opposite results which the several kinds are intended to produce, we are at once led to doubt the practicability and value of the scheme. We are induced still further to view the proposition as contrary to the order of Nature, when we consider the fact that there is scarcely any animal which appears under so many forms as the sheep. In Persia and other parts of the east it is found with a tail of twenty pounds weight; at the Cape of Good Hope the tail is worth as much as all the rest of the carcass; there and in other parts of Africa the sheep have clusters of horns, to the number of five or six; in Madagascar the same horns and tails are to be seen, the ears hanging down like those of a hound; about Aurengabad, between Agra and Bengal, they are found without any horns at all, but so strong that, being bridled and saddled, they will carry children of 10 or 12 years of age; the so-called sheep of Chili somewhat resemble camels, being hair-mouthed and hunch-backed, and they are used for carriage and field labor; those of China are small, with short tails, which, however, are a lump of fat; Tercen, in his voyage to Surat, mentions sheep with bent snouts and pendent ears, with wool more coarse and stiff than goat's hair; in Africa, to the north of the Cape of Good Hope, they never eat grass, only succulent plants and shrubs; in Thibet the sheep have large broad tails; in Natolia these tails are laid in carts on wheels; in Anspach, in Germany, a small sort exist that are shorn twice a year, and also lamb every spring and autumn; in Juliers and Cleves, also, they are said to lamb twice a year, and bring two or three at each time—five sheep have brought twenty-five lambs in a year; on the slave coast of Africa, the sheep have no wool, "but," says the old Dutch traveller, Bosman, "the want is supplied with hair, so that here the world seems inverted, for the sheep are hairy and the men are woolly"—this hair forms a sort of mane, like that of the lion, on the neck, and the same on the rump, with a bunch at the end of the tail; the Javanese sheep have tails weighing occasionally forty or fifty pounds, having a coat of red and white hair; four-horned sheep are numerous in several parts of Tartary, and a few have six horns, with wattles under the throat.—*Agricultural Gazette.*

WHY THE EAST CANNOT COMPETE WITH THE WEST.

BY COL. T. J. CARMICHAEL, SING-SING.

Having spent my early life in the State of Ohio, where the farmer suffered so much for want of a market, before the days of steamboats, canals, and railroads, and witnessed the immense change which these inventions and improvements have made in the wealth and prosperity of the west, by affording a ready market for the lighter and most valuable products of the soil, I confess I was surprised on taking up my residence on the North River, to find the farmers here trying to compete with the great West in the same products, instead of turning their attention to the more bulky and perishable articles, for which they have a good market, and against which they may defy all western competition.

Now let us try my position mathematically. And for that purpose give a farmer on the Hudson River one hundred acres of the best arable land, at a cost of one hundred dollars per acre, and a western farmer, say in Wisconsin, the same quantity at five dollars per acre—which is a full price for arable lands in that country under improvement. Now let each farm be located within the same distance from navigation, and allow the expenses of seeding and gathering of crops to be the same, and let the whole premises East and West be put into wheat.

First, the eastern farmer must manure at an expense of at least $5 per acre, and if he is very fortunate he may raise 25 bushels per acre, or 2500 bushels in all. This is good for 500 barrels of flour. Take flour at $5 per barrel, and he has $2500. Now deduct 10 cents per barrel for transportation, $50. Now deduct the interest of cost of one hundred acres, $700, and manuring, $500, and you have $1300.

Now let us look at the operations of the western farmer, who, with the same labor, minus manuring, is sure of an average of thirty bushels per acre—say 3000—which is equal to 600 barrels of flour; deduct $1 per barrel for freight, and at the same price in market he has $2400; deduct interest on the cost of land, $35, and he has $2365; now deduct the proceeds of the eastern farm, $1300, from that of the west, $2365, and you have $1365 balance in favor of the western farmer, more than the entire proceeds of the eastern farm. Our eastern farmer asks then, What shall we do? Our fathers used to make fortunes in raising grain? It is answered that your fathers lived in another age of the world, and were governed by circumstances; you see the progress of the means of transportation—you see the enormous growth of the West—you feel the competition of that quarter in the lighter articles—you also see the high prices of bulky and perishable products in your market, without taking the advantage of such a state of things. By perishable products, I mean potatoes, turnips, beets, carrots, cabbage, fruit, and all other vegetables—together with fresh beef, mutton, pork, &c.

Now let us cultivate a farm on the North River, with some of these articles, all of which are about equally profitable. Suppose the same farmer should plant 50 acres in potatoes, and the same number in turnips, after manuring as for wheat. The potatoes should produce 200 bushels per acre, 10,000 bushels. These at three bushels to the barrel, are equal to 3333 barrels, worth at least as many dollars in market, clear of freight. Now your fifty acres of turnips should yield 400 bushels per acre, 20,000 bushels, or 6666 barrels, worth half a dollar per barrel clear of freight, $3333; to which add the crop of potatoes, $3333, and you have $6666. From this sum deduct manuring and interest, $1200, and the balance is $5466 from one hundred acres.

Now instead of marketing the turnips, (which are a bulky article,) let us adopt the European practice of purchasing stock in the interior of the country from the breeders, and fatten it for the market. It has been demonstrated that 60 bushels of turnips, and 600 weight of hay properly fed, will fatten ten sheep, or one cow, in the best manner for the shambles, in the space of two months. Sheep and cattle can be purchased in the interior of the country, in low condition, for half their market value when fattened. This process here, as well as abroad, will yield the farmer a liberal increase.

On my late visit to Europe, I found that they adapted their business and products to their location. In districts at a distance from market, they raise grain and breed stock, while those more convenient turn their attention to growing vegetables and fatting stock; and it is to this practice of making two professions, viz. fatting and breeding, that I attribute most of their success. In farming, like every other business, a man should never have "too many irons in the fire at once," some of them are liable to get burned. He who turns his attention either to one branch or the other, is the most likely to come out successful in the end. Who employs a physician to perform the duties of a surgeon, or a carpenter to build a brick or stone wall? And with deference I submit to intelligent farmers, whether there is not as much difference in the modes and rules of *breeding stock* and fatting it, as in that of *raising grain* and bulbous roots?

It seems almost incredible to an American, that in many parts of Great Britain and France the farmers pay $20 per acre rent per annum, by the hundred acres, and yet they drive a thriving business, by adapting their products to their location, and yet it seldom happens that similar articles are higher there than in the New York markets.

I am inclined to think there is a mistaken opinion very general among our farmers, that they should produce at least as much of certain crops as they consume; as well may it be held, that every farmer should doctor his family, plead his law, or preach his gospel,—when he can purchase cheaper than produce, or realize a greater income by selling one thing and buying another, why not do so?

> Men are the sport of circumstances, when
> Circumstances are the sport of men.

That farmer must play a losing game who will not adapt his business to circumstances and location.—*Am. Quart. Jour. of Ag. & Science.*

Every reader, on perusal of the above, can make for himself the necessary allowance for difference of "circumstances," and thus see how far the observations of the writer (which, for the soundness of his general principle, is not to be questioned) apply in his own locality. Of one thing nothing can be seen to be more clear than the fact, that those in the old worn-out parts of the Southern States, at any considerable distance from and cost of transportation to market, and who yet persist in making grain crops and tobacco crops, in competition with the western producer of these commodities, is in the way, if he would but see it, of a galloping consumption of all that is left him of his paternal estate. There is nothing left him but to change his course and objects of husbandry to things that won't bear being brought from the West, and, for consumption of them, he must draw the loom and the anvil *near to the plough and the harrow.* He *must* strive to compel the government to the enactment of laws that will force the manufacturer to place his establishments in our own country; but how can he do that? Where is he to get the operatives, when, by admitting foreign manufactures, you force him to work in competition with the starving operatives in English mills? If you won't give some assurance of something like permanent investment and reasonable returns to men who would embark their capital in manufactures, what is the obvious alternative? Why, clearly that the men who would be working in cotton mills and woollen mills, and coal mines and iron mines, consuming your bulky and perishable things that can't be brought from the West, will go themselves to the West, and rely for a living at least on the plough and the harrow; for, after all, men must have *bread* and *meat* for themselves, their

wives, and their children; and who would desire to see them reduced in our country to the pay of the laborer in the factories of Leeds and Manchester? What is that? Read and see.

RATE OF WAGES IN GREAT BRITAIN.

We copy the following article from the Lowell Courier. The writer, Mr. AIKEN, is agent of the Lawrence Mills in Lowell.

DURING the autumn of 1847 I visited Europe, and, while in Great Britain, spent several weeks in the manufacturing districts. I was admitted with entire freedom to the linen factories at Belfast, Ireland; to the machine shops and cotton factories at Greenock and Glasgow, in Scotland; to a large woollen factory at Leeds; to several of the machine shops and cotton mills at Manchester; to a lace factory at Derby; and to the shops at Sheffield and Birmingham. All the processes in the several manufactories were shown to me, and all my inquiries were answered without reserve and to my entire satisfaction. The rate of wages paid to the operatives and the cost of production were of course points which I could not overlook. I was uniformly attended by the proprietor or manager of the factory, and the information received was immediately noted on my memorandum book, from which I take the following particulars regarding wages:

The operative in all cases boards himself out of the wages paid.

In the linen mill at Belfast, wages from 11d. to 13d. per day; average 6s. a week; equal to $1 44.

In the cotton mills which I visited at Greenock and Glasgow, in Scotland, wages ranged from 4s. to 8s. 6d. sterling a week; average not over 7s. 6d.; equal to $1 80.

In the large woollen mill at Leeds, wages ranged from 6s. to 10s. sterling a week; average not over 9s.; equal to $2 16.

In the two best cotton factories I visited at Manchester, one of them spinning fine lace-thread from No. 200 to No. 400, and the other spinning No. 40 mule-twist, the average wages paid to men, women, and children, as given me by the proprietors, was 12s. a week; equal to $2 88. At the same time the proprietors informed me that their rate of wages was considerably above the general rate; and, in accordance with this statement, I found in these two mills much the best clothed and best looking sets of operatives I saw in any factories in Great Britain.

As another test of the cost of labor, I ascertained from the proprietors themselves, who, in some instances, submitted to my inspection their private weekly minutes of cost, that No. 40 mule-twist was produced and packed for market at a cost of 2d. per pound on labor. And this embraced mechanics and all other labor employed about the establishments.

Skilled labor is also much cheaper in Manchester than in Lowell. In one mill, much larger than the new mill of the Merrimac Company, I was informed that the head overlooker, having a general superintendence of the whole mill, received £3 a week, equal to 240 a day; and the overseers of particular rooms from 27s. to 30s. a week, equal to $1 08 and $1 20 per day.

My general conclusion was that labor in the cotton manufactories in Manchester was at least thirty-three per cent., and in the woollen at Leeds at least fifty per cent. cheaper than similar labor, at the same time, at Lowell.

Very respectfully, JOHN AIKEN.

BONE-DUST.

Nearly all recent experiments seem to corroborate former statements relative to the very great utility of bone-dust when properly applied, and many farmers are availing themselves of this valuable article to increase the fertility of their soils. But, if its properties and effects were more generally understood, none but judicious applications would be made, and it would, doubtless, be in much greater demand, and, as a consequence, all bones would be preserved in a fresh state, and mills would be erected purposely to prepare them, and an article decidedly superior to that at present employed would be obtainable.

Some interesting facts and inquiries, in regard to its use, have been presented to us of late, that we deem well worthy of publication. They were received from an intelligent gentleman residing in Bucks county, Pa., and are the results of his own experiments, which he is prepared to substantiate. He states that, in 1845, he applied ten bushels of bone-dust (cost $4) on three-quarters of an acre of clover sod, and obtained eight bushels of wheat, extra, worth $10. His land was ploughed the first of September; after which the dust was applied broad-cast, and then cross-ploughed quite shallow, sowing the wheat September 25th. The subsequent season he manured with barn-yard manure the rest of the field for corn; but says the corn and oats have been decidedly superior where the bone-dust was applied, and now produces a much larger quantity of clover. In 1846, he applied 110 bushels (cost $44) on seven and a-half acres of oat-stubble without other manure, and gathered 113½ bushels of wheat, and thinks, had the season been favorable, the yield would have been even 140 or 150 bushels. In 1847, he applied 100 bushels, with six loads of yard manure, on seven acres of clover sod, and obtained 206 bushels of wheat. He says, by leaving some pieces without bone-dust, he has satisfied himself that it is more efficacious than a covering of yard manure.

In the fall of 1847, he mixed two bushels of bone-dust with ten of fine soil, keeping it moist during the winter, and, in the following spring, placed one handful under each hill of corn, thus applying not over two bushels to the acre, and obtained ten bushels the acre more corn than on that portion to which ashes and plaster were applied. The soil was a loamy one, and he remarks that its effects are more visible on loam or clay than on sand, and that the dust used was obtained at the button manufactories.

He also observes that it is less perceptible on land that has been recently limed, and states that he applied bone-dust and *caustic* lime together on one portion of a field, and on another pure bone-dust, and the result was that double the quantity of wheat was produced on that portion to which the dust was applied alone. He further states that the experiments of his neighbors corroborate those of his own, and then, in conclusion, wishes our opinion in regard to the cause of the failure. A correct explanation of this phenomenon would be full of interest as well as value; but, owing to our limited knowledge of the action of the phosphates, it is exceedingly difficult to arrive at an accurate conclusion: nevertheless, we submit the following remarks as the result of our brief reflections. And, in order to be clearly understood, we shall be obliged to rehearse some matters of fact that may not be generally known. Bone-dust prepared from fresh bones that have not been exposed to the action of the atmosphere, or any other modifying agencies, contain about one-third of their weight of animal, the remaining two-thirds of earthy matter, five-sixths of which is phosphate of

lime, the rest principally carbonate of lime. This is the composition of the bone-dust employed in England with such beneficial results. Now, some of the most eminent chemists differ in their views in regard to the cause of the increased luxuriance in the growth of vegetation, produced by the application of this article—some attributing it exclusively to the phosphates, and others to both the phosphates and animal matter.

The latter opinion we consider decidedly preferable, though some experiments would lead to an adoption of the former. Embracing this view, then, we can easily conceive that there may be cases where the animal matter may be more efficacious than the phosphoric acid, and also the reverse. For instance, in those soils that are abundantly supplied with the phosphates, the increased fertility resulting from the use of bone-dust will undoubtedly be occasioned by the animal matter. In an example of this kind, the presence of lime in the soil will be of value, for it will hasten the decomposition of the organic portion and render it more immediately available. Hence the reason that some assert that bone-dust is of more utility on calcareous soils than on others.

But the dust obtained from the button manufactories undoubtedly contains a less per centage of animal matter, it being eliminated during the bleaching process; therefore the efficacy of the article used in Bucks county may principally be attributed to the action of the phosphates. Now, what changes does the phosphate of lime undergo after being incorporated with the soil before it is in an available form?

The answer to this we will preface with a few remarks. It is well known that the effects of bone-dust are often very lasting, being perceptible for several years after its application. This, we imagine, results from the strong affinity existing between the acid and the lime, and the insolubility of the compound in water, which would, of course, be inert unless dissolved. It is for this reason that a patent was granted to J. B. Lawes, Esq., in England, in 1842, for a method of preparing it. It was to decompose the ground bones by the addition of as much sulphuric acid as would liberate enough of the phosphoric to dissolve the phosphate of lime. The free phosphoric acid is thereby ready to combine with the various alkaline earths contained in the soil. In this state, when applied, its operation would be immediate and prompt, consequently not so lasting as when employed in its original condition. Of course, cases occur when this mode of applying it would be advisable. We conceive that a similar change takes place with the phosphate of lime in the soil to that described when saturated with sulphuric acid; that is, there must be some acid present to assist in dissolving and partially decomposing it, when it will be in a condition suitable for vegetable aliment.

That such acids exist in soils, there can be no doubt, and to them we would attribute the decomposition of bone-dust, that would proceed rapidly when they were in liberal quantities, and slowly when not. On those soils where it continues to operate for a long series of years, doubtless the quantity of acids is *very* small, so that the chemical changes that are necessary to render the phosphate of lime available proceed very slowly; and when its effects soon cease, the opposite of this exists. Admitting these views to be correct, we can easily account for the failure in question, where caustic lime was applied in connection with bone-dust; for caustic lime, which is a strong base, would at once unite with all the acids in the soil, thus leaving none to dissolve and decompose the phosphate of lime, which would consequently remain inactive for a long time. But, in addition to this, the caustic lime would also liberate the ammonia formed during the decomposition of the vegetable matter in the soil, and thus prove injurious in two ways. The

same result might be anticipated, though to a less extent, on lands that had been recently limed, for it requires a long period for caustic lime to absorb from the atmosphere its equivalent of carbonic acid.

This view of the subject would lead us to believe that phosphate of lime would be comparatively inactive on soils that contain potash and soda in large quantities, for these alkalies would also neutralize the acid. Now, it is known that soils derived from the disintegration of the metamorphic and plutonic rocks are highly charged with these alkalies, the felspar yielding potash, and the albite soda—both these minerals forming component parts of these two classes of rocks. The soils in Philadelphia county are mostly derived from these rocks; hence we can anticipate the effects of phosphate of lime when applied to them. Experiments have been made with it in this vicinity, and we were recently informed by a gentleman who has made applications of it, and has satisfied himself that it is of no utility on his land. Doubtless, if it were mixed with earth and saturated with diluted sulphuric acid, it would be equally as visible here as elsewhere. Bone-dust, however, may be useful on such lands if the alkalies have been greatly exhausted by long cultivation; and indeed it may be known to produce good effects when this change has not taken place; but, in such instances, we would attribute it principally to the animal matter, which would operate on such soils with as much facility as most others.

Then, to sum up our remarks, we are induced to believe that, when the good effects of the use of bone-dust are owing to the animal matter, it is most effectual on soils that contain lime; but when to the phosphate of lime, on those soils that have *not* been limed and are *not* abundant in alkalies. And, as the bone-dust obtained at the button manufactories contains less animal matter than that prepared from fresh bones, we think it can be used to the best advantage on soils of the latter class, unless it be acted upon by sulphuric acid, as before described, when it will act with nearly equal promptness on both. These remarks, as premature as they may be, are offered to the public with the hope that they may awaken a spirit of inquiry in refer ence to this article, which we believe, if judiciously applied, will be of vast utility. P.

Laboratory of Mount Airy Agricultural Institute, Nov. 14th, 1848.

THE LAW AS IT STANDS IN MARYLAND, ON THE SUBJECT OF FENCING.

The Editor of this journal, in attendance at the meeting of the Agricultural Convention in his native State of Maryland, in October last, honored with an express invitation to take a seat, and participate in the deliberations of that body, and seeing no one disposed to present to its consideration several subjects which seemed to him to demand investigation and exposition, thought he might feel so far at home as to venture upon submitting some of them for reference to committees. Several of them were referred accordingly, and among the rest, one on the subject of the *fence laws* of the State—one on the necessity of further legislation to promote the extension of sheep husbandry, especially by removing the great obstacle to the prosecution of that industry which exists in the ever-recurring *depredations by dogs;* and another suggestion was, that the inspection laws of the State, under which the planter's tobacco, and the farmer's flour, and the dairyman's butter, are made liable to the expense of inspection, and in some cases to forfeiture, not by any arrangement between the seller and the buyer, but by public authority, and at heavy expense to the producer.

We did not undertake to vouch for any state of facts, or to aver the necessity for, much less to prescribe any remedial legislation, but to *suggest inquiry!* Well, in the two first cases, relating to *fences* and to *sheep*, it is very gratifying to find reports, in the records of the proceedings, as published in the American Farmer, and we cheerfully leave it to the reader to say whether the subjects were entirely supererogatory and barren, or whether the results have not been useful and suggestive of measures needful for the security of the farmer, or at least satisfactory and valuable as matters of information.

We have indulged in these preliminary remarks, because there is an expression in the report of the committee that might bear the construction of implying that the law was already clear and well known, and the inquiry of course superfluous. "Of course it at once sets at rest the *idea*, that it is the duty of the land-owner 'to fence out' stock, and imposes upon the stock-owner the duty of fencing it in," says this report.

Truly we are well pleased, as we believe many of our readers will be, to learn that *such is the law*, for we will venture to say, that until it was here proclaimed by a gentleman himself well learned in the law, there was not one farmer in twenty aware of the fact, that, if he chooses not to go to the enormous expense of "fencing out" his neighbor's stock; if, on the contrary, he has a field of luxuriant wheat growing on land adjoining his neighbor's pasture, and he chooses, as every man naturally would, to avoid the expense of fencing it in, and his neighbor's cattle come from his pasture and destroy it, that he can recover the full value of his wheat. Yet such it seems *is* the law; but not without *some* qualification, for it appears, on examination of the law as it stands, that the "idea" holds good to the extent of no less than *six counties*, which have been made exceptions to the common law, to wit, *Allegany*, *Washington*, *Baltimore*, *Cecil*, *Kent* and *Caroline*. The good people of these counties, as here reported, choose to be compelled to "fence out their neighbor's stock."

If we can find room we shall follow these remarks, with a copy of this, as we must consider it, very opportune and useful report; for the suggestion of which we shall persist in claiming some little credit, just as may the humble footpad, or even the cawing crow, on whose notice of its whereabouts, huntsmen at a loss sometimes retrieve their game at a critical period of the chase. In the mean time be it remembered, that unless in the counties aforesaid, where the obligation to "fence out their neighbor's stock" has been self-willed and self-imposed by the inhabitants, any farmer or planter who chooses to restrict his own stock within limits, however narrow, is under no lawful necessity to provide any other fencing or enclosure. He may sow his wheat and plant his corn or tobacco, in any one of his own fields, though entirely unenclosed, and be as sure of indemnity for injury, and as much entitled to it in law and in morals, according to this report, as he would be against a neighbor who should rob his corn-house because it happened to have no lock on it. How is it in other States?

What a saving this is to a man who has occasion for but little stock; only his work-horses, cows enough for milk for his family, and oxen for his cart! How much more economical in some cases to keep them up and soil them, or to enclose a field expressly for them, than to be making *miles of worm-fencing*, which consume so much time and involve enormous expense in "righting up" and repairing, and (unless of chestnut rails) to be every ten years renewed. All this, now it seems, is not a necessity imposed by law, (except in the counties aforesaid,) but is one voluntarily assumed! Yet what would the farmer think if a law were made, that imposed on him, for the maintenance of churches or school-houses, a tax equal to that which he

thus voluntarily incurs, in "fencing out" his neighbor's stock? We happen to know that one gentleman in Maryland has been put to the expense of $15,000 for his post and rail fence, and that he had put up many miles of worm-fence besides, of eleven heavy chestnut rails to the panels, and we believe the common price of such rails is $50 to the thousand, delivered along the tributaries of the Chesapeake! Thus at that price a fence of 1000 panels would cost for the material, supposing 10 rails for each pannel, the snug little sum of $500, the interest of which is $30 a year for ever, to say nothing of the wear and tear and general loss of principal and interest! and all this, it would seem, is a self-imposed expense, uncalled for by the law, except in seven counties, and except to the extent that the farmer may judge it indispensable to "fence in his own stock," from his own crops. Let him calculate how much better it would be to lay out the labor and money now expended in out-line and in cross-fencing, in the purchase or making manure to enrich lots, to provide green food for soiling, or even to buy provender.

It may at least beguile a lonely hour some snowy day at his fireside, to follow the subject through its details as it affects his pocket; having flushed the game, we leave our readers to pursue it, joining cordially in the thanks we claim for the committee, for what we venture to call the *revelations* contained in their report, of things new to most of those who are, like ourselves, not learned in the law. But now that the laws will be tinkered but once in two years, instead of annually for three months, at the expense of the farmer and the planter, may we not hope that common people may have some chance to know what they are, before they are changed. Heretofore they have been as easily modified, complicated, and confused, as the contents of a kaleidoscope.

VERMONT AND MARYLAND HUSBANDRY COMPARED.*

In the preceding number we expressed the apprehension that we might not have time for this comparison; nor can we make it now, except in some strong points of view, which, we are aware, must leave it very incomplete. Enough, however, may be suggested to set the reader to *thinking;* and that, let us tell him, is half the battle gained in a contest between error and truth. In fact, the great difficulty, according to our observation, in the way of meliorating the condition and character of the American farmer, is *to get him to think!* If you could, would you see him, for example, go even three times, instead of three thousand times, through his own gate, that either strikes the ground and *drags* before it reaches half-way to the post, or else falls with such force against it that you may hear the dreadful concussion a mile off? Would you see him losing $50 worth of time in a year in pulling down and putting up bars, to say nothing of occasional destruction of his crop when they are *not put up?* Would you see him stooping to the pummel of his saddle for seven years to avoid the limb of a tree, in his daily ride, that one stroke of a hatchet would remove? No—*you cannot get them to think!!* But enough of that. The two States that we are going to compare, in some points of view differ somewhat in size, but not so much as in some other things—Maryland having 11,000 square miles, or 7,000,000 acres, while Vermont has but 8,000, according to Danby, or 5,120,000 acres. Now see the difference in their agricultural pursuits and economy, and

* Virginia and South Carolina might be embraced in the comparison, and the parallel would run on all-fours without much halting.

the results to which they have conducted these two old sisters of the republic.

In Vermont winter lasts, and cattle and sheep are fed, five months in the year—sheep at a cost per head per annum, as we have often been told, of what would actually fetch from $1 to $1 15, while in Maryland they are rarely if ever fed, except when the snow covers the ground, which does not average a week in the year—when they have, *scattered on the snow*, some corn-blades, or perhaps sheaf oats; and, with all these disadvantages, the Vermonter has the sagacity to go strong upon cattle, and sheep, and wool, and hay, and potatoes, and milk, and butter, and cheese, &c.; content to let the Marylander beat him in *horses*, (the most precarious and expensive investment that can be made in animal flesh or power,) and in wheat, and corn, rye, and tobacco, all of which the earth yields by bushels and pounds, instead of tons; and which, at last, are all sold away off the farm, yielding no return to the land that produced them. Let us follow the comparison more exactly on some points indicative of the sources that go to produce increase of population, and political power, and appreciation of land, and the contrary.

	Horses.	Cattle.	Sheep.	Wool. lbs.	Potatoes. bushels.	Hay. tons.	Value of products.	Fulling-mills.	Woollen factories.
Vermont. .	62,402	384,341	1,681,819	3,699,235	8,869,751	836,739	2,008,737	239	95
Maryland, .	92,220	225,714	257,922	488,201	1,036,433	106,687	457,466	39	29

Now, what is the lesson in the political economy of the plough, that this view of these States teaches? Does it not go to show that wise States, when not made subservient to the colonial policy of other countries by the subservient policy of their own, will keep the *loom and the anvil near to the plough?* where nature, if left alone, would place them, as naturally as she places the country mill near to the corn-house. And what, reader, is the *effect* of a course of husbandry that does keep them together, and enables the farmer to consume on the land the products of the land? Why, the effect is just this; that, as here we see, Vermont, wearing her garments of snow five months in the year, in 1790 begins on a basis population of only 85,416, and runs it up in 50 years to 291,948; while Maryland, the favored of Providence, starting at the same time with a population of 319,128, has gone in the same period up to only 470,000;—the former doubling her man capital more than three times over, the latter not *half doubling hers once!*

Now, will agricultural societies look into questions like these, and compel their legislators to do their duty, instead of flying humbugs to amuse, or setting clap-traps to catch ignorant voters? Will the people choose well-informed, intelligent, thrifty, and industrious farmers, of good, plain, sound sense, to make their laws; or will they be ever cajoled by conceited, shallow-pated, flippant doctors and attorneys, who covet the high office of legislator, and then desecrate it by making it a ladder to climb into Congress, as another stepping-stone to some office to be found in the executive chamber? Would it not be well that Maryland, and every other State, should have occasionally full surveys and returns made up of all her agricultural and other statistics, and shape their legislation accordingly? What is the use of the free government, of which we boast so much, if the faculties which God Almighty has given us are not exercised for the improvement of our natural resources, our industrial employments, and our political and social condition? In Maryland and Virginia it has been a sort of monomania to decry and denounce combinations of men and capital to establish manufactories. The senseless cry of monopoly has been raised against them, as if those

(who, not having individually the means, would combine to erect them) were mad dogs. It would be better, wiser policy, to go into the other extreme, and encourage such combinations by exempting the property from taxation. In Vermont their manufactories have given rise to ten towns within her 8,000 square miles, with populations ranging from 2 to 10,000. In Maryland there are but four such in the compass of 11,000 square miles. In Vermont the farmer sells potatoes and mutton, in Maryland wheat and tobacco! wheat averaging throughout the State not more than seven or eight bushels! Let us hope that we may grow wiser, as this is said to be the age of *progress!*

DYERS' MADDER IN THE UNITED STATES.

We take the following from one of our exchange papers:

"We notice with much interest that the cultivation of madder is engaging considerable attention in this country, and particularly in Ohio, where, for several years, the experiment has been attended with very satisfactory results.

"The last report of the Patent Office contains a statement of Mr. Joseph Swift, near Birmingham, Ohio, in relation to his success in the culture of the article, which would seem to settle the question of its practicability and profit. Mr. S. is probably the most extensive cultivator in the Union.

"The yield per acre, Mr. Swift believes, can be reasonably estimated at 3000 lbs., the clear profit on which would be about $300, a generous return certainly upon the capital and labor invested. As regards quality, this madder was pronounced superior to most of the madder imported, and no difficulty was found in selling it wherever it became known.

"The importations of madder within the last two and a half years amount to about 17,000,000 lbs., at a cost of $1,800,000, chiefly from France, Holland, Belgium, and England. As the culture of the article is found to be both easy and profitable on our own soil, there is no good reason why we should not save ourselves the expense of its importation, and in regard to this article be independent of foreign countries.

"Although a portion of our foreign supply of madder is from England, that country is itself a large importer from Turkey and France, not having succeeded well in growing it at home. She consumes annually about 60,000 to 70,000 cwt. of the foreign article. Our agriculturists, besides supplying the constantly increasing demand of our own dyers for this article, may find a good market in England also."

Such are the effects of bringing the loom to the neighborhood of the plough. An acre of land can be made to yield $300 worth of madder; whereas the same quantity of land applied to the production of wheat would yield scarcely $20. With every step in the process of bringing the loom and the anvil to the side of the plough, the farmer is benefited, because with each he finds new and more profitable modes of employing his labor and his land. Wherever the three are found united, the owners of ploughs and harrows grow rich, but wherever the plough alone is found, its owner is poor.

Might not the Committee on Agriculture, in the Senate of the United States, which held not one meeting during the session, have found, even in this subject, something worthy of investigation on which they might at least have founded a report? No one questions the fact, that with proper encouragement we might soon supply ourselves with all the madder now imported for the use of our manufacturers, and make it an article of profitable export. No States or counties are better adapted to its growth than Delaware, Pennsylvania, and Ohio, all of which were represented in the Committee on Agriculture, and the chairman of which is from Pennsylvania. Yet, as we have before said, so much were they thinking of other things and other countries, that they held not one meeting during their protracted incubation of nine months—and the probability is that they will hear not one word of reproach for such dereliction of duty, either from an Agricultural Society or from any paper in the Union, except this.

ON SHEEP-HUSBANDRY IN MARYLAND AND VIRGINIA.

At the late meeting of the Maryland State Agricultural Society, the following report was presented by an experienced and enlightened farmer of Talbot county.

From it, the reader may judge whether the subject is not worthy to beget the solicitude and united action of every landholder in the State. Will it do so—or will the matter be allowed to stop here?—*Nous verrons.* Unfortunately there are too many, even landholders, seekers after popularity; who fear to propose or advocate measures which may restrain the sovereigns in the enjoyment of the largest liberty: even that of keeping dogs, (which, like certain people's slaves, are starved if not trained,) not to catch the things which they ought to catch, but to catch the things which they ought not to catch—and particularly *other people's sheep!* In the neighborhood of the Long Old Fields, in Prince George's, you might as well hang a purse up on the highway, and expect to come back and find it, as to trust a valuable fat sheep beyond the range of musket-shot, and a sharp look-out at that. It is characteristic, perhaps yet more of the sheep-stealing dog than of the other rogue, that he has the sagacity to leave his master's flocks unmolested, while he travels off miles from home in pursuit of other people's. And what, far from mitigating, rather aggravates the grievance is, that with respect both to the thief and his dog, it's ten to one but they desecrate names indicative of all that is eminent and noble among men and beasts. When you do catch them, which rarely happens, it's ten to one but the owner answers to the name of Cæsar or Pompey, Antony or Brutus, while the dog implies the opposite of what he is: so true is it that

> "———————— a *cur* may bear
> The name of Tiger, Lion, or whate'er
> Denotes the noblest or the fairest beast."

Crowded as we are, our limits do not permit us to go into an examination of the question, how, and with what great profit, the number of sheep bred in Maryland and Virginia might easily be doubled; and how every county in the State should have its little woollen factory, to supply itself with all its clothing. The pursuit of the subject at the first glance of it, will lead to a comparison of the husbandry of now snow-clad Vermont, with that of Maryland—the farmer in the former going in for objects that either involve little labor, comparatively, in the work of production and transportation; or where much labor is applied, the product is consumed on the ground, and the refuse returned to the ground for the enrichment of the land and its owner; while we should be led to show how Maryland persists in a contrary course, and hence diminution of population, enlargement of farms, and lessening of all other capital proceed steadily together. This is the mere outline of the picture that sketches itself at the first glance at the statistics of the two States; Maryland being one-third the larger of the two. But it would take time that we have not at command to fill it up, and so we give that which will better repay the attention of the reader:

Col. *N. Goldsborough*, of Talbot, from the Committee on Sheep, also appointed at the first meeting of the Society, presented the following report, which was read and adopted:

REPORT ON SHEEP.

The committee appointed at the first meeting of the Maryland State Agricultural Society, by virtue of a resolution declaring that the "Farmers of Maryland suffer great loss by being debarred from the profits of sheep-husbandry—recommending that the subject be properly considered, and especially whether some and what legislative measures could be taken to encourage that branch of agricultural industry by some stringent provisions as to sheep-killing dogs, or otherwise,"—respectfully report:—that

they have bestowed much reflection on the subject, and are deeply aware of its great importance.

Various laws have already been passed, touching sheep-killing dogs; but the question recurs, whether that great interest may not be further protected? The impression strongly pervades the agricultural community, that the vast number of useless and worthless dogs which prowl about the country is the fruitful source of the great losses sustained, and of the injuries inflicted on their flocks. There seems to be an absolute passion existing in all ranks of life, to keep thrice as many dogs as are required for any useful purpose; and it is but right, that those who delight in being surrounded by such unnecessary appendages, should pay for the gratification—luxuries having been always held to be proper subjects for taxation. This, however, is an exceedingly delicate subject to approach, and the course proposed may be regarded by some as an infringement on the privileges of the citizen. Can it be possible that, in a country where equal rights are guarantied to all, that a large and highly respectable class of citizens shall be subjected to heavy losses merely for the gratification of a hitherto unrestrained propensity, not essential either to personal comfort or productive of any real benefit—which may be avoided, or at least mitigated and lessened, by the exercise of a spirit of liberal concession, and the joint action of all honest and thinking men.

It may be remarked, that the greatest sufferers are those who reside in the vicinity of towns and villages, whence the half-famished prowlers sally forth at night and commit irreparable injuries on our flocks. A farmer may give notice to his neighbor that he has seen very equivocal conduct in his dog, plainly indicating that if not already, he will shortly become a sheep-killer—the intimation is received with incredulity, and consequently without the slightest precaution in the premises. Shortly thereafter, the dog is caught, "flagrante delicto," and what remedy has the sufferer whose splendid flock of sheep has been mutilated or destroyed? Why, he informs his neighbor of the fact, and if he will not destroy his pet, the law at present provides that the injured man may go himself with an officer, and have the dog destroyed. This is his only remedy—this his sole redress. But who pays for his losses?—echo answers, who?

Your committee, therefore, present for the consideration of the society, the following suggestions, under the firm belief that they will prove to be remedial for the evils complained of, or at any rate greatly contribute to their mitigation.

Further legislation must be invoked on this subject, so momentous to the farming interest, and to effect which, petitions should be got up and numerously signed for future presentation to the General Assembly of the State. Now, that the prejudices and predilections of our citizens may not be too suddenly and violently assailed by causing a tax to be laid on *all dogs*—let a law be passed, securing to every free white male citizen, and none other, the privilege of keeping one dog, exempt from taxation. For a second, kept by the same person, or in *the same family*, a tax of $—; for every additional dog let the tax be doubled or trebled, so that if it does not amount to actual prohibition, a complete check will be given to the unreasonable multiplication of the number of dogs. It will be perceived that the tax thus laid will create a fund, which should be placed under the control and supervision of the Commissioners of the Tax or Levy Courts of the counties, as the case may be—which said fund shall be applied to remuneration of persons who have sustained injuries or losses by the depredation of dogs. Appraisers should be appointed in each election district, by the proper tribunals, to place the *true value* on the sheep destroyed or mutilated—and to give a certificate thereof. It should be the duty of appraisers not to place an equal valuation on good and bad sheep alike—but truly according to value—for it may so happen, that one farmer may lose a valuable buck for which he has paid a large figure, for the improvement of his flock; while his neighbor may have had one destroyed, which should have been subjected to the *knife* years before. This, however, is not the proper time to carry out the minute details which should be contained in a bill—suggestions as to what may be done, being the chief aim of the committee.

But there is another enemy of the ovine race whose case is to be considered and provided for, viz.: that stealthy depredator, the fox. No means are known to your committee either for preventing the increase, or causing the destruction of these wily animals, but by the employment of fox-hounds—they are too cunning to be *trapped*, and can be reduced only by successful pursuit. May not exception be made to the taxing of hounds—but in lieu thereof, the law should contain express provisions, that all fox-hounds should be kept in kennels, in order to effectually preclude their depredations—and it will be found that the owners of them will be thereby subjected to a sufficient tax, without any other imposition.

As a further argument for reducing the number of dogs, it may be safely affirmed that the frightful disease, canine madness, will be diminished in the same ratio—hydrophobia invariably originating with the dog. It may be asserted without fear of contradiction,

that many of the large number of dogs now permitted to roam at large, are neither half fed nor cared for; and what are the consequences? It has been proclaimed by that distinguished man, the late Judge Peters—that "not only *sheep-killing*, but *diseases* and *madness*, in dogs, are frequent effects, either immediate or consequent, of keen and long continued hunger; which stimulates to gorging voraciously on whatever esculent they find; and not seldom on putrid and unwholesome food. The rabid and feverish thirst for blood, is a species of mania; and it is sometimes the forerunner of complete canine madness. Sheep-killers can often be distinguished by a sharp and wild yell, very different from the tones of other dogs."

It seems scarcely necessary to pursue the subject further; every encroachment on privileges long enjoyed, on all habits and customs—is viewed with distrust by the many, even when a satisfactory reason cannot be assigned therefor. But it is firmly believed, that a law passed containing the provisions suggested in this report, will finally redound to the benefit of all classes of the community.

In conclusion, as some time must necessarily elapse before legislation can possibly be had on this subject, the Committee, with great deference, will suggest a method by which sheep are greatly protected from all midnight depredators. It has been established, beyond the possibility of doubt, that, in a neighborhood notorious both for the depredations of rogues and dogs, a flock of 80 to 100 sheep has been protected, for several years, by suspending half a dozen bells to the necks of so many sheep. The effect is, that those timid animals, when pursued by men or dogs, immediately betake themselves to flight, and the sound of the bells will be heard over a neighborhood, and cause some one to come to the rescue; indeed, the pursuit is often abandoned, without other extraneous aid. No species of stock requires so little attention to its well-being as sheep, in our climate; and it is well ascertained that the quantity of wool raised, in our whole country, is insufficient for the supply of our factories and our immediate domestic wants. Every consideration, therefore, impels us to come to the protection, preservation, and increase of this most useful and valuable race of domestic animals. Your committee may present it as a fit subject of gratulation to every cultivator of our soil, that vast improvement has been made in our flocks, of latter years; and that Maryland may now boast of as fine mutton sheep as can be found in any state in our broad Union.

All of which is respectfully submitted. N. Goldsborough, *Chairman.*

ON KEEPING FARM ACCOUNTS,

AND ON THE ECONOMY OF SMALL FARMS COMPARED TO LARGE ONES.

In an address by Mr. Carey, of Maryland, delivered at its late meeting at Baltimore, and by its request, to the State Agricultural Society, the orator adverted with originality and force of thought, and singular perspicuity of style, to various subjects, and among others, to the importance of keeping *more exact farm accounts.* And truly, it may be asked, how can any farmer feel satisfied or safe in his position, who does not know the amount of outlay and income, as well as the yield, from year to year, of each field, to the end that he may judge whether he is moving a-head, or, it may be imperceptibly, drifting astern? The books abound in forms of English accounts, but they are much more unsuitable to American farmers than English processes and implements. For what better object, it may be asked, could a society offer a liberal premium, than to the person who should present the simplest and most efficient and practicable form of keeping farm accounts, adapted to the husbandry, the institutions, and the economy of different States? We hope they will think of it.

Mr. Carey says of the size of farms:

"It is as clear as the demonstration of one of Euclid's or Legendre's propositions, that the smaller the surface from which a given amount of produce is obtained, the greater the profit to the producer, because the less the labor required to produce it. Figures will show this more clearly than words. I shall assume for this purpose a medium rate of production, say 40 bushels of corn to the acre, and for highly improved land, one, which though high, is clearly within our reach, say 80 bushels per acre: the cost of culti-

vation, the same in both cases, I shall put at $5 per acre; the proposition reduced to figures will then stand thus:

20 acres, at 80 bushels per acre, 1600 bushels, at 60 cents, . .	$960 00
Cost of cultivation, at $5 per acre, ...	100 00
Profit, ...	$860 00
40 acres, at 40 bushels per acre, 1600 bushels, at 60 cents, . .	960 00
Cost of cultivation, at $5 per acre, ...	200 00
Profit, ...	$760 00
Difference in favor of smaller surface, ...	$100 00

"The amount of seed grain required, and of labor in the harvest, will, also, be less upon the smaller surface. The result will be similar at any other rates of production, or cost of cultivation, and in any other crop. Add to this, that the smaller farm will require less fencing, less ditching. (cæteris paribus,) and less labor in the transportation of manures to the field, and crops to the depot of the farm; and the proposition may be held to be demonstrated. We have very little idea, in this country, of the extreme productive capacity of the soil. Accounts occasionally reach us of extraordinary crops, raised in our own State; and the remarkable fertility of the deep alluvial soils of our great Western Valley is known to all. But I refer those who desire to see something like an approximation to this extreme, to the accounts given by the Rev. H. Colman, in his 'European Agriculture,' of the results of the 'allotment system,' which is beginning to be practised on some of the large estates in England."

But, with deference, we think the size of the farm should be, in a great measure, regulated by the capital at command of the cultivator, and on his own *capacity for that pursuit;* and it is but too true, unfortunately, that in our country, capital generally bears a *very small proportion* to the land. This is a point which needs, as we have often thought, to be more carefully dwelt upon, with a view to a *remedy*, if any can be suggested. Col. Capron gives us a notable item of $3000 expended for manures in one year, and *with profit;* but even that, in reference to the size of the farm, is much below the expenditures in England, where it is contended that a man applying to rent 250 acres, should be prepared to show that he has a money capital of $12,500, or $50 an acre. Suppose a man to possess capacity and turn of mind well adapted to the business of agriculture, and to have the requisite capital; and we should say that 500 acres would not overtask his abilities, and that within that range every thing—his capital, his force, his own mind, might be made to *tell* profitably.

SOME SUGGESTIONS ON THE ACTION OF PLASTER OF PARIS.

BY PROFESSOR NORTON, OF YALE COLLEGE.

The following communication from Professor Norton, of the School of Chemistry applied to Agriculture, is the best explanation we have seen of the action of gypsum, and of the reason why it acts powerfully on some soils, and is inert on others. Still, it seems somewhat wonderful that so small *a dust of it*—half a bushel, in some cases, to an acre—scattered over growing clover, in the spring, should so soon descend and become incorporated with, and act upon, the soil; but so it seems it does.

New Haven, Dec. 11, 1848.

Hon. J. S. Skinner,—

Dear Sir:—I have read with interest the various articles in the December number of your valuable journal; and desire to remark briefly upon one paragraph relative to the effect of plaster of Paris, or gypsum. This paragraph is upon the 369th page, and the essential part of it is as follows: "Mr. Stabler states that land which had before been insensible to the action of

plaster of Paris, when raised by clover, or otherwise, to a certain degree of fertility, becomes alive to the influence of that cheapest of all fertilizers, where it will act at all; and this, like other facts and considerations that might be adduced, would seem to show that its action is *not due to its attraction of fertilizing powers from the atmosphere.*"

The idea that plaster of Paris acted wholly by the absorption of ammonia from the atmosphere, originated with the great German chemist, Liebig; and the sanction of his name has given it general credence. I believe that in this matter, as in several others relating to agricultural science, he has erred through a lack of practical knowledge, and perhaps through the strong temptation to promulgate beautiful theories.

I think that experience points most plainly to at least a decided modification of his opinions. The instance above cited is one which the ammonia theory fails to explain. I at this moment recall one of a yet more decided character. I know of several localities, where, in adjoining fields, plaster exerts on the one a very marked influence, and on the other is of no use whatever. These two kinds of land are uniformly treated in the same manner, and always have been; yet this difference remains. There is no doubt but ammoniacal manures would do good on both of these soils; and yet, on one of them, the use of plaster never repays the outlay. Clearly we must look for some new explanation. This is to be found in the chemical composition of plaster. It is composed of lime and sulphuric acid, and is known to chemists as sulphate of lime. Now sulphuric acid is well known to be a powerful manure on many soils, and it is unnecessary to praise lime. In the case of the two adjoining fields above mentioned, the soil of one was formed from a species of shale, which contained scarcely a trace of either of these substances; and that of the other from a rock which had a pretty good supply of both. The inference in such a case is irresistible. We find the soil known to be without the constituents of plaster benefited, while the other remains unchanged; now ammonia should produce the same effect on both, if to supply it were the use of plaster. We must, therefore, conclude that the mineral constituents of the manure were of primary importance here.

Mr. Stabler's case is rather different. Here the soil must first be brought up to a certain degree of fertility, and then plaster acts. This will not seem strange when we consider the composition of the soil; that ten or twelve mineral ingredients are requisite to fertility. Plaster only contains two of these; and if others besides be wanting, the addition of it will of course not supply them. But when they are added, by green cropping or otherwise, the gypsum tells at once.

In all land, then, where plaster produces no decided effect, we may expect to find the constituents of that manure already present.

These are but hints upon a subject which would require very many pages for its full discussion.

Plaster undoubtedly has a strong tendency to the absorption of ammonia, and probably is often of benefit in that way; so that I would not so much condemn Liebig's theory, as simply unite another with it; these two causes of benefit to the soil affording an explanation to almost every case of perplexity. Much is yet to be learned on this subject; but the above view will, I think, be found correct in its main features, as well as practical in its applications.

I enclose a copy of the last circular issued from our laboratory, as I cannot remember having sent you one before. We have a fine class now of ten students, and our numbers are increasing; but not so fast as the demand for instruction in agricultural science. We shall not be able to supply it for a long period, even if our numbers are more than doubled.

I am, Sir, yours respectfully, JOHN P. NORTON.

PUBLIC DAIRIES—PUBLIC THRESHING-MACHINES.

No reader of foreign agricultural and horticultural annals but must be sensible of the more rapid progress which would result to the march of both these industries, if societies and institutes, having ample funds from State and public patronage, would devote a little of their surplus energy (?) and means in this direction. Every day something recalls the mind to the usefulness of such an association, and such arrangements. How easy would it be to appoint a committee for the express purpose of importing specimens, models, drawings, books, &c.

Here we have, for instance, in a late agricultural gazette, an allusion to a recent work, explanatory of the "Management of Public Dairies in Switzerland," under which

"Each member of the association brings his evening and morning milking to the common dairy. It is measured, and an exact account kept of each delivery.

* * * Thus by means of the common dairy each member exchanges the amount of several days' milking for an equal quantity of milk, the produce of one day, which is converted into butter, cheese, &c., the same day, on premises arranged for the purpose, and by a person whose knowledge and skill insure the most advantageous results."

Now any one may imagine that in small towns and villages, and thickly settled neighborhoods, where every man keeps cows, many or few, what a convenience such an establishment must prove. Instead of getting often a little indifferent butter, that won't pay the expense of taking it to market, the man may wait one or two weeks, or even months, and then get it in a lump of the best quality, having previously engaged it. *Let us then see* the rules and management of such an establishment. But whose business is it to import it? Such things don't strike the bookseller. Well, in this case, the Editors of the Plough, the Loom, and the Anvil, have ordered that, as they will do *all books* of that sort.

Then, again, in the same paper, we see that in Switzerland, *threshing-machines*, and *steam threshing-machines*, are established on similar principles. The writer says he has seen a *steam threshing-machine* on wheels, which was "*very easily drawn from place to place.*" This was a private speculation, and was, with the necessary men, hired out at so much a day, or at a certain toll for the grain threshed, as the farmer pays at the country mill for grinding.

We have often thought, and still think, that if this government would offer Messrs. Norris & Brother, and other engine-makers, *half* as much for a machine to *ditch* or *plough* by steam, as it would give for a machine that would blow up a ship and *kill a thousand men* at one discharge, ten miles off, we should, years since, have had ditching, and draining, and ploughing, all done by steam, with as much saving of labor and time as steam now accomplishes for the *manufacturer and the merchant.*

All this will happen, when we have *really* attained that high degree of civilization which follows freedom, wealth, and population. At present we are not half-way on the march, for the producer is *yet in the rear ranks of society*, instead of being in the front. In a state of barbaric nature, the warrior stands at the top of the list; so he does yet, but not so much head and shoulders above all others as he did, even half a century ago. Among real barbarians, the exchanger stands next to the warrior, and the producer last, and so it is still, but the farmer is coming up. *We* have seen him sensibly gaining on the other classes that live on him, even in our own time. He begins to have sense enough now to see, and self-respect enough to assert, that, as he feeds all other classes, he has *some* right to something

like a proportionate share in the power of legislation for the whole. Still, however, he is only beginning to see his rights and his consequence; but as yet it is only a dim view that he catches, such as we get looking through a dark glass dimly at an eclipse. And hence it is, that you can see a people, such as the American people, numerous, powerful, enlightened, free; with old women enough to beat off all invaders with broomsticks; submitting to pay twenty millions of dollars annually for military establishments and schools, and in return, to take for themselves *some statistical facts and conjectures, cut out of newspapers, and made up in one of the bureaus of a public department!* Ah, we are a wonderful people!

CORN AND CARROTS.

Fine Yield of Corn.—We learn from the Port Tobacco, Md. Times, that on Col. Wm. D. Merrick's Glavis farm, twelve barrels and three bushels of corn were taken from a single acre. The acre selected is much inferior to many others, and the yield of this acre is "but a fair average of one hundred and fifty circumjacent acres of the same field." This is all certified to.

That would make sixty-three bushels to the acre, worth say 50 cents, or $31 50 per acre. This is fully equal to the production in the West—nine thousand four hundred and fifty bushels from one field. We should like to know the price that such land will command—the kind of corn, and how many acres to a plough? And again, why it is that the population of Charles county, where this corn is supposed to have been made, had diminished five hundred in population between 1820 and 1840? But look here again—

Great Agricultural Yield.—Capt. Nye has raised this season, on his farm at Clinton Place, near Newark, N. J., six hundred and three bushels of white or Belgium carrots to the acre, an amount of produce probably never exceeded in that climate.

Now if Col. Merrick could have had, as Capt. Nye had, the manufacturer along side of the agriculturist—the consumer near the producer—then the same land might have been employed in producing *tons* instead of bushels. Here we see one acre producing ten times as much money, gross sales, in New Jersey, as in Maryland—but in New Jersey *the loom and the anvil are near to the plough*, while in Maryland they are a great way off. Corn, of which the earth bears little, will bear keeping and transportation, carrots will not. In Jersey they make their ploughs and their wagons for themselves and others. In Maryland, they send to Jersey and other Northern States for them. If that most magnificent of all water-powers, the great falls of Potomac, were not prevented, by "man's inventions," from being put to the uses for which a bountiful Providence designed it, we should have from Montgomery county, too, the substitution of six hundred and three bushels of carrots instead of forty bushels of corn, as noted in the following:

Montgomery County, Md.—There is a great deal of land in our county, which, a few years ago, would scarcely pay for its cultivation, that now produces well. We know of one lot of one hundred acres of such land, that last year produced over eight hundred barrels of corn. We also know of some smaller lots, on which ten barrels per acre were raised. Much of this description of land, now poor, but readily improved at a low cost, can be purchased very cheap.—*Rockville Jour.*

But ——— let us "live and learn." True it is, let us hope, that we are learning; but are not cultivators of the soil the slowest to learn of all the classes that make up human society? Is there one among them, on an average, who ever undertakes to study the political causes of the fluctuations and depressions that take place in the price of his staples. Here is a journal devoted to that object, but will they encourage a work which *urges them to think for themselves?* In Charles county we have, we won't say how—*few* subscribers.

THE HORTICULTURAL SOCIETY OF MASSACHUSETTS.

Any Southern reader would have a right to look upon a full statement of what has been done in the hard, cold, rigorous climate and soil of Massachusetts for the advancement of horticulture, by Dearborn, Wilder, Walker, French, Breck, and their associates, as an exaggeration, a little tinged with *coleur de rose*. For ourselves—seeing is believing, and tasting is the naked truth—still we shall make no attempt at describing what we have there seen, in the way of fruits and flowers, as well in and around the magnificent villas and highly cultivated grounds around Boston, as in their Exhibition Hall. If it were not for the indomitable perseverance of that people, and the well-rooted love of such pursuits, which no vicissitude now can shake or wither, we might have some fears for the effect of Mr. Wilder's retirement from the presidency, so much against the wishes of the Horticultural Society; but, however engrossed with the labors of the business-man, the passion for this beautiful occupation of the heart and mind, once established, as with him, and becoming, as it were, second nature, will insure in him always a ready, and reliable counsellor in case of emergency; and with such collaborateurs the Massachusetts Horticultural Society may ever be looked to, as the great parent tree, ready at all times to supply grafts and scions for the whole country.

As to the stocks upon which the country may draw, in the apple department, and in respect of the fruit yielded by the *zeal* of which we have often spoken without exaggeration, we might be content to refer to the following list of specimens exhibited by the friend whom we took the liberty at the late festival to designate for the variety and extent of his contributions. We might be satisfied with stating the number in the aggregate; but we prefer to give the entire list for once, to show to our Southern friends who think they do well, and really do excel, when they can show some half dozen varieties of apples—sometimes neither the best, nor the best cared for. They will here see that *when there is a will there is a way!*

Be it remembered that Mr. French is an amateur fruit-grower of independent fortune, not following the cultivation of fruits as a trade; though if he did—and honestly, it would not be easy to find a more useful or honorable pursuit—far more so than that of politics or war when followed as a trade.

Mount Monatiquot, Braintree, September 25, 1848.

Hon. J. S. Skinner:—*Dear Sir.* I send you, according to your request, a list of the Apples exhibited by me at the late Triennial Exhibition of the Massachusetts Horticultural Society. (The list contains but a part of the variety I have in cultivation.)

Porter,	Sugar Sweet,	Ribston Pippin,
French's Sweet,	Yellow Newtown Pippin,	Pomme d'Apis,
Winter Gilliflower,	Royal,	Fearn's Pippin,
Baltimore,	Dominisk or Lord's,	Black Apple of Cox,
Canada Reinette,	Murphy,	Ross's Nonpareil,
Monstrous Pippin,	Spice Apple,	De Neige,
Seeknofurther,	Adams' Sweet,	Wellington,
Blenheim Orronge,	Parmain,	Hubbardstown Nonsuch
Kenrick's Autumn,	Grovenstein,	White Seeknofurther,
Golden Russett,	Lyscom,	Baldwin,
Fall Greening,	Blooming Red,	Pumpkin Russett Sweet,
Hawthornden,	Donver's Winter Sweet,	Esopus Spitzenberg,
Jonathan,	Been Apple, (sweet,)	Seaver's Sweet,
Nonsuch,	Roxbury Russett,	Fallawater,
Dutch Codlin,	Pennock,	Ruggles,
Sweet Greening,	Nonpareil,	Large Striped Red,
Wine,	Yellow Bellflower,	Mele Carle,
Long Nonsuch,	Hoary Morning,	Gardner's Sweet,
Wales Apple,	Long Russett,	Burrasoe.

16 varieties names lost—74 varieties in all.

Yours, with respect, B. V. French.

TABLE OF PRICES.

Louisville, Kentucky, Sept. 14, 1848.

Messrs. Editors: Gent.:—I give below the form of a table which, when filled up, would interest your readers, and enable them to prove the correctness of your theories, that the cultivation of rich soils not only lessens the money price of labor, but increases the wealth of the laboring classes. If the consumer of food should be by the side of the producer, it is important that the *locus in quo* should be in a district of a larger food-producing capacity. The seed should be sown not on the sandy plains of New Jersey or the "stony land" of New England, but on the rich alluvials wherever they can be found, and at points easily accessible and salubrious. I give the prices, &c. in and around this city: with your facilities of obtaining information, you can readily fill out the table with the prices of the same articles at Manchester, Glasgow, Lyons, and other places where our food is now consumed, and where are made the articles we consume.

	Louisville.	New York.	Philada.	Boston.
Value of land suitable for vegetables, and 3 miles from city—per acre,	$1.25			
Corn-producing capacity of land in the vicinity, and without manure—per acre,	45			
Value of lots in the suburbs, per square foot,	1.43			
Price of brick laid in the wall, per M,	6.50			
Ordinary laborer's wages per day,	75			
Wages of journeymen mechanics per day,	1.25			
Female house servants, per week,	1.50			
Farm laborers, per month,	10.00			
Taxes, on $100 property,				
Average prices for the year, at retail.				
Coal, per bushel,	12			
Hard wood, per cord,	2.50			
Hay, per ton,	8 00			
Apples, per bushel,	25			
Flour, per bbl.	4.50			
Corn meal, per bushel,	35			
Potatoes, per bushel,	30			
Butter, per lb.,	15			
Eggs, per doz.,	7			
Turkeys, per lb.,	6			
Chickens, per pair,	25			
Cabbages, per head,	2			
Pork, per lb.,	3			
Beef, per lb.,	4			
Population of Louisville, say	46.000			

We shall feel very much obliged to any friend or friends of domestic industry, who will fill up these blanks for towns from New Orleans to Boston, and when we get their letters, we can make out and publish a table. This letter was mislaid, or would have been sooner published.

INSURE YOUR LIVES.

We have room for but a line, but gladly use that;—so much do we wish to let our friends in the country know how practicable and how advisable it is for them to *get insurance on their lives*, and thus save their families from future want, by a small present payment. How easy for every one to retrench enough to cover this object! In another number we will explain, having time now only to call attention to the advertisement of the Connecticut Mutual Life Insurance Company, on the cover of this number.

MIGRATION OF BIRDS.

It is a curious fact that the males of migrating birds, or at least of some species, arrive some weeks before the females. An experienced and intelligent bird-catcher assures me that the male nightingale generally makes its appearance in this country about the first of April, and the female about a month afterwards; and that his song increases in power, and is longer continued, when the period for the arrival of the female is near at hand. A favorite bush having been selected, the nightingale awaits the appearance of his mate in or near it, singing his song of love, and greeting her arrival with all the little blandishments of affection. When she begins to sit, his song is less frequent and less powerful, and ceases soon after the young are hatched.

The black-cap, whose song is scarcely less pleasing than that of the nightingale, arrives also some time before the female, and calls her to him in the same manner. I have one of these birds in my possession: his song is wild and sweet; and, as Mr. White says, when he sings in earnest he pours forth very sweet but inward melody, and expresses great variety of soft and gentle modulations, superior, perhaps, to those of any of our warblers, the nightingale excepted.

The bird-catcher above referred to showed me his call-birds, and gave me some proofs of their skill. On seeing strange birds, they immediately begin their call, which is succeeded by their song, and this seldom ceases till the wild birds are trapped. He says the call-birds then show a degree of pleasure which cannot be mistaken; and he seems persuaded that his birds are fully aware of the purpose for which their call and song are required.

The wheat-ear arrives about the middle or end of March, and builds its nest in rabbit-burrows. At least they do so occasionally, as I have had one brought to me which was found in digging out a rabbit. A shepherd, whom I met on the Brighton Downs, informed me that these birds are annually getting less numerous, and forsaking those haunts which they formerly most frequented.

Magpies congregate in considerable numbers: sometimes from twenty to thirty in a flock. Probably the want of wood keeps them together as a precautionary measure; and they have a scout, like the crow, who looks out for danger while his companions are feeding. They are wild, and take long flights on being disturbed.

The periodical flight of birds is very curious. That in the spring is much less considerable than the autumnal one; September, October, and November being the chief months for the passage of various kinds of birds. Bird-catchers state that the flights take place from daybreak to twelve at noon, and sometimes from two o'clock till it is nearly dark. Birds fly against the wind during their passage, with the exception of the chaffinch, who flies across it. The male chaffinches are observed to fly by themselves, and are shortly followed by the females. This is also the case with the titlark.

Birds flock together in February to choose their mates; and probably in the autumn, for the purpose of leading their young to places where they can procure food, or enjoy a climate congenial with their nature. Many flocks of birds, however, appear and disappear in places where they had not previously been seen for many years Our assemblages of birds, however, are nothing when compared with the flocks of the passenger-pigeon (Columba migratoria) of America. Audubon, in his Ornithological Biography, gives a curious and interesting account of the flight of these birds. He says that, in passing over the Barrens, a few miles from Hardensburgh, he observed the pigeons flying from north-east to south-west in greater numbers than he had ever seen them before; and, feeling an inclination to count the flocks that might pass within the reach of his eye in one hour, he seated himself on an eminence and began to mark with his pencil, making a dot for every flock that passed. In a short time finding the task impracticable, as the birds poured in in countless multitudes, he rose, and, counting the dots already put down, found that one hundred and sixty-three had been made in twenty-one minutes. He then travelled on, and still met more as he proceeded. The air was literally filled with pigeons; the light of noonday was obscured as by an eclipse, the dung fell in spots not unlike melting flakes of snow, and the continued buzz of wings had a tendency to lull his senses to repose. Throughout the day, immense legions were still going by, and, on his arrival a little before sunset at Louisville, distant from Hardensburgh fifty-five miles, the pigeons were still passing in undiminished numbers, and they continued to do so for three days in succession.

Mr. Audubon makes the following curious estimate of the number of pigeons contained in *one only* of these mighty assemblages. Taking a column of one mile in breadth, which he thinks is far below the

average size, and supposing it to pass over without interruption for three hours, at the rate of one mile in a minute, it will give us a parallelogram of one hundred and eighty miles by one, covering one hundred and eighty square miles. Allowing two pigeons to the square yard, we have eleven hundred and fifteen millions one hundred and thirty-six thousand pigeons in one flock. As each pigeon daily consumes fully half a pint of food, the quantity necessary for supplying this vast multitude must be eight millions seven hundred and twelve thousand bushels a day. Nor is the account of their roosting places less curious. One of these, on the banks of the Green River in Kentucky, was repeatedly visited by Mr. Audubon. It was in a portion of the forest where the trees were of great magnitude, and where there was little underwood, and the average breadth was about three miles. On arriving there about two hours before sunset, few pigeons were to be seen. A great number of persons, however, with horses and wagons, guns, and ammunition, had already established themselves on the borders. Two farmers had driven upwards of three hundred hogs from their residence, more than a hundred miles distant, to be fattened on the pigeons which were to be slaughtered. The sun had set, yet not a pigeon had arrived. Every thing, however, was ready, and all eyes were gazing on the clear sky, which appeared in glimpses amidst the tall trees. Suddenly there burst forth a general cry of "Here they come." The noise which they made, though yet distant, is described as like a hard gale at sea passing through the rigging of a close-reefed vessel. As the birds arrived, they were knocked down by thousands by the pole-men. As they continued to pour in, the fires were lighted, and a magnificent, as well as wonderful, sight presented itself. The pigeons, arriving by myriads, alighted everywhere, one above another, until solid masses, as large as hogsheads, were formed on the branches all round. Here and there the perches gave way under the weight, with a crash, and falling to the ground, destroyed hundreds of the birds beneath, forcing down the dense groups with which every stick was loaded. The pigeons kept constantly coming, and it was past midnight before a decrease in the number of those that arrived could be perceived. The noise made was so great that it was distinctly heard at three miles from the spot. Towards the approach of the day the noise in some measure subsided, and long before objects were distinguishable, the pigeons began to move off in a direction quite different from that in which they had arrived the evening before, and at sunrise all that were able to fly had disappeared.

PLANTS AND SEEDS.

Few things appear to me more curious than the fact, that the seeds of various plants and flowers, which have lain dormant in the ground through a succession of ages, have vegetated on being exposed to the air, or have been brought into action by the application of some compost, or manure, agreeable to their nature.

This was shown in trenching for a plantation a part of Bushy Park, which had probably been undisturbed by the spade or plough since the reign of Charles I., or still longer perhaps. The ground was turned up in the winter, and in the following summer it was covered with a profusion of the tree mignionette, pansies, and the wild raspberry, plants which are nowhere found in a wild state in the neighborhood; and, in a plantation recently made in Richmond Park, a great quantity of the foxglove came up after some deep trenching. I observed a few years ago the same occurrence in a plantation in Devonshire, the surface of which was covered with the dark blue columbine. A field also, which previously had little or no Dutch clover upon it, was covered with it after it had been much trampled upon and fed down by horses; and it is stated, from good authority, that, if a pine forest in America were to be cut down, and the ground cultivated, and afterwards allowed to return to a state of nature, it would produce plants quite different from those by which it had been previously occupied. The *Hypecoum procumbens* was lost in the Upsal garden for forty years, but was accidentally resuscitated by digging the ground in which it had formerly grown. A species of *Lobelia*, which had been missing for twenty years in the Amsterdam garden, was unexpectedly recovered in the same manner. There is a very curious account in Monson's Preludia Botanica, of the appearance of a species of mustard, *Sisymbrium Iris*, after the fire of London, and another species, *Sisymbrium Panonicum*, made its appearance suddenly among the ruins, after the fire of Moscow, and continues abundant there ever

since. A gentleman tells me that he saw a crop of barley where oats had been sown, in Glamorganshire, and the farmer assured him that the ground had not been stirred before for thirty years. A similar circumstance occurred in Scotland. So completely indeed is the ground impregnated with seeds, that if earth is brought to the surface, from the lowest depth at which it is found, some vegetable matter will spring from it. I have always considered this fact as one of the many surprising instances of the power and bounty of the Almighty, who has thus literally filled the earth with his goodness, by storing up a deposit of useful seeds in its depths, where they must have lain through a succession of ages, and which only require the energies of man to bring them into action. In boring for water lately at a spot near Kingston-on-Thames, some earth was brought up from a depth of three hundred and sixty feet; this earth was carefully covered over with a hand-glass, to prevent the possibility of any seeds being deposited upon it, yet in a short time plants vegetated from it. If quick-lime be put upon land which, from time immemorial, has produced nothing but heather, the heather will be killed, and white clover spring up in its place.*

The care which is taken to supply the ground with those seeds which, being of a farinaceous nature, would not preserve their vital powers through a succession of ages, as other seeds do, is very curious. Many of them are deposited by crows, and other birds and animals. The Rev. Mr. Robinson,† in his Natural History of Westmoreland and Cumberland, says, that "birds are natural planters of all sorts of trees, disseminating the kernels upon the earth till they grow up to their natural strength and perfection." He tells us that early one morning he observed "a great number of rooks very busy at their work, upon a declining ground of a mossy surface, and that he went out of his way on purpose to view their labor. He then found that they were planting a grove of oaks.‡ The manner of their planting was thus: They first made little holes in the earth with their bills, going about and about till the hole was deep enough, and then they dropped in the acorn, and covered it with earth and moss." "The young plantation," Mr. Robinson adds, "is now growing up to a thick grove of oaks, fit for use, and of height for the rooks to build their nests in. The season was the latter end of autumn, when all seeds are fully ripe."

Mr. Edwards observes that even the droughts of the autumn continue to increase and propagate seeds and plants; for, by causing deep chinks or chaps in the earth, the seeds of trees and larger plants that require depth are lodged at proper depths for their growth, and at the same time secured from such animals as feed on them.

Mice bury a great number of seeds for their winter store, many of which vegetate: and some seeds are provided with a sort of down, by which they are carried, with the help of the wind, to great distances: others fix themselves on the ground by means of a glutinous substance attached to them.

It is a curious fact, that more recent deposits of earth, such as peat, leaf-mould, &c., produce little or no vegetable substances, while, as has been shown, soil, from whatever depth it is brought, is impregnated with seeds, which grow freely on being exposed to the influence of light and air.

The coral reefs in the South Seas are first of all covered with marine substances —then with the excrements of birds, in which are undigested seeds that spring up and flourish in the deposits which have been formed on the reefs. So various are the ways in which a beneficent Providence has enabled the earth to produce food for the benefit of his creatures, making a small migrating bird, or an insignificant insect, the instrument of his power and goodness.

The influence which particular soils have on the colors of flowers is very curious. Whoever has attended to the growth of the better sort of tulips knows that, by planting them in too rich a soil, the colors will *run;* and unbroken tulips, that is, new varieties from seed, sooner obtain their perfect colors by being removed from one soil to another. If a common wild primrose is taken up, and the root separated and planted in another soil, the blossom loses its brilliant yellow hue, and becomes of a pale brown or light chocolate color.

The tendency observed in plants to follow light, which is so necessary for them, makes them display a power approaching to real motion. The following exemplification of this tendency is taken from the Memoirs of the American Academy of Arts and Sciences at Boston.

* The *Didymodon flexifolium* was seldom to be found by even the keenest muscologists. Dr. Greville discovered a patch of it where heath had been burnt in Devonshire, and since that it has been found in several places in Scotland and elsewhere in similar situations.

† This being told by a reverend gentleman, we must believe it; but the probability is, they intended to return and disinter them, as the dog does the meat he buries.

‡ I have observed in another place that rooks probably bury seed for the purpose of feeding upon them in the winter.

In the spring a potato was left behind in a cellar where some roots had been kept during the winter, and which had only a small aperture at the upper part of one of its sides. The potato, which lay in the opposite corner, shot out a runner, which first ran twenty feet along the ground, then crept up along the wall, and so through the opening by which light was admitted.

MANUAL OF MANNERS.

Much of what follows under this head may seem to be rather intended for, if not particularly adapted to the other half of the human race; but as the aim is to exhibit the moral principle of good breeding, which is of universal applicability, we choose to lay up this manual of manners in the Mothers' Department, and if gentlemen never go into their departments for any worse purpose than to study the principles of good manners, all we have to say is, that they would have less occasion to pray "forgive us our trespasses."

The subject will be treated under the heads, Politeness, Demeanor, Outward Appearance, Visiting, Conduct at Table, Amusements and Recreations, Conversation, Occupation of time, Choice of Books, Punctuality, Business Correspondence, Confidential Intercourse, and General Maxims.

POLITENESS.

As man is a social being, that science must be an important one which teaches him how to conduct himself in society. It is called politeness, and all real politeness is, and must be, founded on moral principle. Manners and morals indeed are so nearly allied, that politeness is nothing more than a sort of philosophical combination of the two; while what is called etiquette possesses too often very little share of either.

Politeness is the art of pleasing. It is to the deportment what the finer touches of the pencil are to the picture, or what harmony is to music. In the formation of character it is indispensably requisite. "We are all," says Locke, "a kind of chameleons, that take a tincture from the objects which surround us." True courtesy, indeed, chiefly consists in accommodating ourselves to the feelings of others, without descending from our own dignity, or denuding ourselves of our own principles. By constant intercourse with society, we acquire what is called politeness almost intuitively, as the pebbles of the sea-shore are rendered smooth by the friction of the waves. But, like every other branch of education, it is more easily acquired in youth than when the mind has been formed, and the habits confirmed, by increase of years.

A striking characteristic of courtesy is, that it is more calculated to win esteem than either wit or learning is; because it has a tendency to gain for us the respect of our fellow-creatures, while any appearance of superiority or pretension only excites ill-will.

Religion itself teaches us to honor all men, and to do unto others as we would that others should do unto us. This includes the whole principle of courtesy, which in this assimilates to the principle of justice. It comprises, indeed, all the moral virtues in one, consisting not merely in external show, but having its motive in the heart, and moulding and guiding the disposition. The politeness which superficial writers are fond of describing, has been defined as "the appearance of all the virtues, without possessing one of them;" but by this is meant the mere outward parade, or that kind of artificial adornment of demeanor, which owes its existence to an over-refinement of civility, or rather to a too strict compliance with etiquette. What is forced or formal is contrary to the true character of courtesy, which is prompted and guided by superiority of mind: one of the essential characteristics of politeness being goodness of disposition, and the inclination always to look at the bright side of things.

The principal rules of politeness are:—

To subdue the temper.

To submit to the weaknesses of our fellow-men.

And to render to all their due, freely and courteously.

To do this effectually it requires—judgment to recommend ourselves to those whom we meet in society; and discrimination, to know when and to whom to yield; as well as discretion to treat all with deference due to their reputation, their station, or their merit.

Sincerity is another essential characteristic of courtesy. It is the want of this which makes society what it is said to be, artificial.

Good breeding, in a great measure, consists in being easy, but not indifferent; good humored, but not familiar; passive, but not unconcerned. It includes, also, a sensibility, nice, yet correct, a tact, delicate, yet true. There is a golden mean in the art, which it should be every one's object to attain, without descending to obsequiousness on the

one hand, or to familiarity on the other. In politeness, as in every thing else, there is the medium between too much and too little—between constraint and freedom; for civilities, carried to extreme, are wearisome; and mere ceremony is not politeness, but the reverse.

The true Christian is the truly courteous. "Religion," says Leighton, "is in this mistaken sometimes, in that we think it imprints a roughness and austerity upon the mind and carriage. It doth, indeed, bar all vanity and lightness, and all compliance;" but it softens the manners, tempers the address, and refines the heart.

A failing in conduct, or an infirmity of temper, is more easily excused in society than any deficiency in politeness. To please, one must possess that indescribable charm which real refinement alone can impart, and which true politeness only knows how to appreciate.

Arrogance is one of the greatest obstacles to courtesy. He who presumes too much on his own merit, shows that he does not understand the simplest principles of politeness. Pride is highly culpable. No man, whether he be the king on the throne, or the meanest beggar in his realm, possesses any right to comport himself with a haughty or discourteous air towards his fellow-man. The poet truly says—

> "What most ennobles human nature
> Was ne'er the portion of the proud?"

A kind word, or a gracious smile, will secure that good-will, which a haughty demeanor, or a high look, may forfeit for ever.

The really courteous man has a thorough knowledge of human nature, and can make allowance for its failings. He is always consistent with himself. The polite alone know how to make others polite; as the good alone know how to inspire others with a relish for virtue.

A taste for literature generally tends to improve the manners, and to cherish in the mind a desire for the refinements of society; though many literary persons do not cultivate this taste as they ought. Men of erudition are often deficient in address, because they have neglected the outward appearance, and the cultivation of the manners, considering these as beneath their notice. They have lived more among their books than in society; and while they have been improving and enriching their minds, they have paid comparatively little attention to the ordinary courtesies of life; which men of inferior pretensions, the children of this world, wise in their generation, assiduously cultivate. Such persons are not so ignorant of human nature as not to know that mankind generally look no deeper than the surface; and that in society, showy accomplishment is too often preferred to real merit.

True politeness makes life agreeable Without it the observances of society degenerate into cold and idle ceremony. It prompts us to be on good terms with every one; or, if otherwise, it furnishes us with the tact to conceal our feelings and our dislikes. A well-bred man seldom complains of the want of proper attention on the part of others. Self-possession is one of the essential points of his character; and he is not easily induced to forget his own place, or be guilty of any thing calculated to deprive him of that proper respect which he feels to be his due.

A truly well-bred man shows his politeness also by the encouragement and affability with which he treats those who may appear abashed in his presence. He feels a pleasure in relieving the distress of one who thus discovers his embarassment and want of breeding, and strives to put him at ease with himself and with all around him; for therein consists the great art and charm of true politeness.

Another characteristic of politeness is, that it is differently illustrated in different individuals. The clergyman, for example, is, and ought to be, more dignified and affable than the member of any other profession, yet the latter may be equally well-bred in his way. Society respect only such a tone as is in unison with a man's condition and character: pretension or assumption being quite foreign to good breeding. Like all arts, however, politeness has its limits, and the well-bred man knows his own position too well ever to consider it necessary to step beyond it.

SNOW-STORM SONNET.

Old father Winter's powdering o'er his hair;
Grim Vanity! he's gray enough already,—
For one so old, he ought to be more steady,
Yet he's as fickle as the springtime fair.
But yesterday, his was a balmy breath—
To-day he blusters, sending out his frost
To nip the buds, and smite with sudden death
The tender flowers that venture forth to peep
If cruel Winter yet has fallen asleep:
The daring act their gentle life has cost.—
Thus died Louise, our tenderest summer flower,
So meek, so mild, so beauteous in her bloom:
The blast of winter howl'd around her bower,
She shrank away, and hid within the tomb

COOKERY.

Les Anglais ne cuissent leurs legumes qu'à l'eau; encore ne sont ils qu'à moitié cuits.—*S. P. sur la Cuisine Anglaise.*

The advancing spring renders it incumbent on us to say something about vegetables, in the cooking of which, so as to render them wholesome and easy of digestion, our cooks are wofully deficient. In England and America, animal food seems to be the principal article of nourishment, bread or other vegetables being only an accompaniment necessary to enable us to swallow the meat, and being scarcely deemed a palatable food if taken alone. The fact is, that among us the cooking of vegetables is in so primitive a state as to be almost wholly confined to boiling them, or rather to parboiling them, in water, with the addition of a little salt, and perhaps of a little pearlash, to keep them green. Of course we do not allude here to potatoes and other roots. Cabbage, brocoli, and cauliflowers are extremely nutritious and wholesome when properly prepared, but are, especially the former, exceedingly indigestible when served up in the usual English mode, half raw, to be eaten with meat and melted butter. Greens of every kind, turnip-tops, and colewort, are not only agreeable to the palate, but good purifiers of the blood, and have a gentle cathartic action, provided they are not eaten without undergoing a sufficient quantity of boiling before they are prepared for the table; for to eat them simply boiled is to swallow them as the hungry hog would devour a thistle. Endive is a delicious vegetable when it has undergone the culinary art, though in England it is scarcely ever used but in the form of salad. Lettuces are also delicious when dressed in various ways, as are also cucumbers, which with us are used only in their raw state with vinegar, thereby engendering, if eaten to excess, that most afflicting malady, the cholera morbus. Spinach, a most wholesome and digestible vegetable, one adapted to the most delicate stomach, and which acts most beneficially upon the system, is, when eaten in its unsophisticated state—that is to say, its leaves plain boiled—one of the rankest and most disagreeable of the garden tribe; and yet it is served up in this state at our tables. We could enumerate a great many other delicacies of the kitchen garden either not used by us, or rendered unwholesome by our mode of cooking them.

The principal things to be attended to in the cooking of vegetables, is to take care that they are sufficiently softened to be digestible; that the most grateful flavour they are capable of producing is developed; and that any rank or disagreeable taste that may belong to them is got rid of. The means of effecting these three things lie in a very small compass. The first is attained by boiling them a sufficient time; and the second and third by changing the water several times during the operation of boiling, and by the addition of a little sugar, salt, or spice, as the case may require it. As an instance of the mode by which the most unpleasant flavor may be destroyed in a vegetable production, and the most agreeable of which it is susceptible rendered predominant, we shall relate a circumstance that occurred to ourselves, a few years since.

Being at Bourdeaux, we one day gave a dinner, at the hotel in which we lodged, to a few English friends whom we had met there. Anxious to taste, and let our guests taste, a *gigot à l'ail*, (a leg of mutton and garlic,) a dish for which the Bourdelais cooks are celebrated, we ordered one as part of the repast. When the roast was placed upon the table at the second course, it appeared to us all to be a *gigot aux haricots*, (a leg of mutton and dried kidney-beans;) but the meat was delicious, and the beans certainly superior to, and having a different flavor from, any *haricots* we had ever tasted before. Vexed, however, at what we considered an inattention to our orders, we summoned the landlord, and begged to know why, when we had ordered a *gigot à l'ail*, he had presumed to send up a *gigot aux haricots?*

"I have shown no inattention," he replied, "and made no mistake. The dish of which you have just eaten, and which your guests seem to have liked, was a *gigot à l'ail*, and what you have mistaken for beans is garlic."

"Is it possible!" we exclaimed. Again we tasted the garlic; its rankness was gone, but there was in it a delicious flavor for which we could not account. After apologizing to our host,—"If the question be not indiscreet, and the matter no secret, how can you impart this delicious flavor to garlic?" we asked.

"There is no secret in the case," he replied; the process is very simple. The garlic is thrown into five different boiling waters, with a little salt, and boiled five minutes in each. It is then drained, and put into the dripping-pan under the roasting mutton."

Since our return to England, we have often had this dish dressed; and no guest of ours, until he was told of it, ever discovered that he had been feasting upon garlic.

The next thing to which we must direct the reader's attention is spinach, a vegetable which we cannot too strongly recommend. It must be prepared as follows:—

After being carefully picked and washed four or five times in abundance of water, let it be put into boiling water containing some salt, in a large vessel where it may have plenty of room. The leaves that rise above the water must be pressed down. When the spinach is about half done, take it off the fire, strain it, and prepare some more boiling water and salt, in which it must be again boiled till sufficiently done. The moment it is so, throw it into a cullender and keep pouring cold water over it for some time; then make it into balls, and with your hands press out every drop of water it contains; afterwards chop it very fine until it becomes almost a paste.

Now put a lump of butter into a stew-pan, and place the spinach upon the butter; let it dry gently over the fire. When the moisture is evaporated, dredge it with a little flour, then add a small quantity of good gravy, with seasoning to your taste; let it boil up, and serve it up with sippits fried in butter.

The Parisians are very fond of spinach with sugar, which is a great delicacy, and may be prepared in the following manner:—Boil some good cream just before you put the spinach in the stew-pan with the butter. When you have added the flour to the spinach as before directed, together with a little salt, put in the cream with some sugar and nutmeg, let it simmer for ten minutes, then serve it up on sippets, with a very small quantity of pounded lump-sugar strewed over it.

We now come to endive, than which nothing can be more grateful to the palate when nicely prepared.

The endive, after being well picked and washed, must be parboiled in four different waters, to destroy the bitterness peculiar to it. It must then be boiled in salt and water until done, when it must be thrown into cold water, squeezed and chopped fine. It may then be put into a stew-pan upon a lump of butter, and a few young onions chopped very small added to it. Let it dry, then dredge it with half a table-spoonful of flour, and add some gravy, some seasoning, and two lumps of sugar; let it stew very gently during a quarter of an hour, then serve it up, either alone on sippets, or under sweetbreads, fricandeau, or mutton chops.

We conclude this article, with a mode of dressing cauliflowers with Parmesan cheese.

Having boiled the cauliflowers, prepare a sauce in the following manner. Into a quarter of a pound of butter, rub a table-spoonful of flour. Then put it into a stew-pan; as the butter melts, add by degrees half a pint of water, or a little more if you require more sauce. Stir the whole until it boils; after it has boiled a couple of minutes, take it from the fire, and when entirely off the boil add the yolk of an egg beat up with a little lemon juice and half a table-spoonful of soft water. Shake the stew-pan till the whole is mixed and the sauce set.

Now powder the cauliflowers with rasped Parmesan cheese. Then pour the sauce over them; when the sauce is firmly set upon them, cover the surface with rasped cheese and bread crumbs, and brown it with a salamander.

THE WHOLE DUTY OF WOMAN.

CHASTITY.

Wouldst thou be honored of thy Creator; wouldst thou be happy in thyself; wouldst thou be lovely in the eye of man? Without chastity thou wilt be neither of these.

For its loss is the loss of peace and satisfaction to thy soul; and the consequences too often the worst that can befall thee.

He that robbeth thee of it, will despise thee, and expose thy want; and she that hath in secret forfeited her own will hold thee in much contempt.

Behold the house of incontinence; the mark of infamy is indelibly stamped on the threshold and on the posts of the door.

At the window sitteth misfortune, forcing a smile; and within are remorse and disease, and irretrievable misery.

The children of her house are the curse of their mother, and their lives the growing monuments of their infamy.

Art thou chaste? Boast not therefore; the security of thy possession is as brittle as glass, that may by accident fall and be broken.

Be on thy guard, for thou knowest not the weakness of thy nature, nor the power of temptation.

Is there a man with whom thou delightest to talk, let not thine ear be too familiar with his discourse.

Doth he teach philosophy and entertain thee with the researches of knowledge, yet beware lest he instruct thee too far.

Is he accounted modest and sober and virtuous, depend not on the truth of these pretences.

Doth he promise thee fair; doth he protest in the sincerity of his heart he meaneth no harm? Yet believe him not; neither put confidence in his discretion.

Doth he only ask a kiss of thy cheek? Indulge not his frequent request, lest the sweetness thereof inflame him to desire, and the poison of his lips descend into thine own bosom.

Taste not the wine when the bowl goes a second time round; join not often with him in the sprightly dance; nor suffer *opportunity* to overtake thee.

By avoiding temptation thou mayest preserve thy chastity; but man is the serpent of deceit, and woman is the daughter of Eve.

ACQUAINTANCE.

Who is she that biddeth thee good morrow; that kisseth thy cheek at parting, and giveth thee an invitation to her house?

She is an acquaintance; believe her not; go thou to her home, tarry awhile and thou wilt find her out.

The coldness of her respect will appear in thy welcome, and the distance of her behavior will pall thine entertainment.

Doth she promise thee much in thy prosperity, and wish an opportunity to oblige thee, thou shalt see her avoid thee in the day of thy trouble, her door will be shut against thee, and thy name estranged from her knowledge.

Doth she sympathize in thy misfortune; doth she tell her sorrow for thy present distress; yet her cheek is dry, and she forgetteth thee the moment she turneth from thee.

Doth she rejoice to see thee, yet her eye sparkleth not; is she sorry for thy departure, yet her countenance altereth not.

Good offices are familiar to her tongue; but, if thou claimest her promises, she is astonished, and knoweth not what thou meanest.

She calleth herself thy friend to thy face, and owneth to a third person she hath some knowledge of thee.

Trust her not with thy dealings; let her have no knowledge of thy ways; for she is the spreader of scandal, and inquireth after news to divulge it.

Avoid also the number of her sisters; nor let them find out the way of thine house.

FRIENDSHIP.

As the tenderness of a mother in the hour of thy distress; as the love of a father in the day of thy trouble, so is the help of a friend in the time of need.

Dost thou think thou hast many friends; do they profess much love; are they lavish in their promises of kindness? Be not credulous, nor rely on the form of set speeches.

The breath of the mouth is cheap and costeth nothing, and the tongue moveth slippery within; but the heart is often unacquainted therewith.

Hast thou tried their sincerity; hast thou experienced the veracity of their promises; have they served thee when thou stoodst in need of their assistance? Yet, for all this, beware how far thou confidest in them.

Try them once and again, and at the third time they may cast thee off, and say thou troublest them too often.

Hast thou a friend, put it not in her power to be much thine enemy, if thou canst avoid the necessity thereof; for thou knowest not how slight an occasion may turn her heart against thee.

Thy bent of inclination, thy agreeable accomplishments, may excite many to a show of amity for a while; but friendship dwelleth not in outward appearance.

Thou art not indebted for their kindness; the favor thou receivest is but the price of thy talents, and their own interest the motive of their good-will towards thee.

There are those who make friendships on purpose to betray; who confer obligations that they may exact obedience.

Who think they have a right to command thee; thy life and thy reputation, they will boast as the effect of their tenderness, and thy success as their care towards thee.

Have no confidence in these; neither desire to be intrusted with the privacies of their actions.

Who giveth thee a secret and enjoineth thy silence, she doth it that she may have the pleasure of telling it herself.

Yet let not thy distrust stir up ingratitude. The favor of the day deserveth the thanks thereof till the injury of to-morrow cancels the obligation.

Is there a friend indeed, thou wilt know her when thy acquaintance forsake thee. Will she defend thy innocence when all men accuse thee falsely; will she bear reproach unjustly for thy sake, take her to thy bosom; she is a jewel of a high price, a diamond of inestimable value.

The Plough, the Loom, and the Anvil.

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THE TRUE AND PROFITABLE MODE OF DIMINISHING THE SURPLUS PRODUCTION OF COTTON.

We have desired to impress upon the minds of our readers the great truth that "population makes the food come from the rich soils, while depopulation drives them back to the poor ones," and that if they desire to bring into activity their river bottoms, their swamps, their marl, and their lime, it can be accomplished in one way, and one alone, and that is by bringing to their sides the loom and the anvil, that those who drive the shuttle and strike the hammer may eat on the ground the food that is needed for their sustenance while engaged in converting the wool into cloth, and the ore into iron, for the use of those who produce the food. Had we needed confirmation of the correctness of this view, we should have found it in the message of Governor Johnson, of South Carolina, an extract from which was given in our last number, (page 433.) He tells us that scarcely any of the productions of the State, cotton excepted, will bear transportation to market; that it is cheaper to import grain from the Northern States to the towns and cities on the seaboard, than to bring it from the interior of the State; and that lime may be imported from Maine into Columbia, sixty miles inland, at less cost than it can be obtained from the vast deposits within the State itself. She has few consumers at home; and she makes no roads; and the reason why she does not is, that her population is so widely scattered that the cost of making them is greater than can be borne. It is the land of free trade and abstinence from governmental interference, and yet the people are unable to make roads without governmental aid. Canada is in a situation precisely similar. She has no consumers, nor can she have; for *she has perfect free trade with Britain*, and is thereby impoverished, and she has thus far but twenty miles of railroad. India wants consumers that she cannot have *while she shall continue to have perfect free trade with Britain*, and therefore India makes no roads. South Carolina can send to market cotton, of which the earth yields by pounds, and so can India; but neither of them can send to market food, of which the earth yields by tons; and they have on the ground no consuming population to bring it forth.

South Carolina is becoming depopulated, and the necessary consequence is that men fly from the vicinity of rich lands to seek the poor ones at the heads of the streams in Texas, or Arkansas. She makes no roads, and her chief city is supplied with hay and grain from the North, while meadow lands abound, and swamps and river bottoms ask in vain for drainage to enable them to furnish tons of food for men, and horses, and cattle, in place of the pounds of cotton, or pecks of corn that are obtained in "the mountain region" of the State. Lime abounds, and fuel abounds, and poor soils, whose produce would be trebled by aid of lime, abound, yet it is found cheaper to import it from the northern extremity of the Union, than to quarry and transport its own. The State is almost destitute of consumers, and *therefore it is* that she is dependent upon other States for large supplies of many of the products of the earth, while other States are enabled to supply those products *because* consumers are numerous. In every part of the

earth, and in every age, it has been seen that in every advancing nation the supply of food has grown faster than population, facilitating the acquisition of the necessaries and comforts of life, while in every declining one the supply has diminished more rapidly than population, the difficulty of obtaining the necessaries of life increasing with the diminution of numbers. Let our readers cast their eyes over the world, and they will see that among the most scattered people starvation is a matter of constant occurrence,* while if they desire to find the people who consume most largely, they must seek them in the densely peopled Belgium, in England, and New England.

What is now true of South Carolina bids fair speedily to become true of others of the Southern States. Their whole system is one of exhaustion, followed by emigration. Men now fly from Alabama, as heretofore they have flown from Maryland, and Virginia, and Carolina. In every Southern paper we are struck with the number of "movers,"—of men who are abandoning the vicinity of rich lands to seek in the West poor ones similar to those they have already exhausted, for exhaustion must come wherever men are unable to return to the land the refuse of that which they take from the land. The effects of the system are well described in an address recently delivered before the Georgia Agricultural Society, by Mr. W. Tyrrell, represented to be the owner of three thousand acres of the best cotton lands of that State. From that address the following is an extract:

"Unless we reform our present system of tillage, we soon shall be absolutely ruined. By excessive cotton culture we are fast bringing about a state of things in which our negroes and our lands will be alike worthless. The abandonment of our old and worn plantations in Georgia for the cultivation of the fresh virgin soils at the Southwest, which has served the turn of so many when cotton was at a fair price, will not be available under an entirely different condition of things, in the markets of the world. As the latter change in the progress of nations, unless we alter our system of agriculture, and wisely adapt it to the wants of civilized man, what has hitherto been to us a prolific source of wealth, will hereafter bring to us poverty and degradation. Abolitionists need not trouble themselves about the manumission of our slaves, nor politicians about establishing *new competitors* in planting, in California and New Mexico. The competition will soon reach a point where the ownership of this species of property will cease to be profitable or desirable, unless we produce breadstuffs, wool and provisions, as well as cotton; and thereby *improve* instead of *exhausting* our lands."†

Everywhere throughout the South, the excessive cotton culture is spoken of as the cause of the present depression, and as likely to be the cause of the total destruction of value in labor and land, to be attended with ruin to their owners. Such being the case, we might naturally suppose that there had been a very great increase in the product by which the markets of the world had been overwhelmed; but that no such increase had taken place, we propose now to show, in proof of the proposition that where the consumer does not take his place by the side of the producer the exhaustion of the land, attended with *diminished* returns to labor, is a necessary consequence.

In the following table we give the amount produced, the average price, and the sum estimated to have been yielded by the crop for the years from

* The most populous part of Ireland (Ulster) is, even now, comparatively prosperous. The most distressed is that in which the population is the least dense, Connaught. The present state of that unfortunate country is due, not to over-population, but to over-taxation by the government, the landholders, and the manufacturers of England. Of what is taken from the land nothing goes back upon it.

† These views in relation to the question of slavery, and the effects of diminished production on the condition of the slave, are very common, but they are incorrect. See the question discussed in our last No. in the letter from Mr. Carey to Mr. Appleton. They show, however, the probable destruction of the value of all property from the want of that diversification of employments which arises when the loom and the anvil take their place by the side of the plough.

1840 to the present time, and an estimate for the crop now coming into market.

1840	870,000,000 pounds	8·6 cents,		$74,820,000
1841	654,000,090 "	10·2 "		66,708,000
1842	674,000,000 "	8·2 "		55,468,000
1843	952,000,000 "	6·0 "		57,120,000
1844	812,000,000 "	8·1 "		65,772,000
1845	958,000,000 "	5·9 "		56,522,000
1846	840,000,000 "	7·8 "		65,520,000
1847	711,000,000 "	10·1 "		71,811,000
1848	940,000,000 "	7 "		65,800,000*
1849	1020,000,000 " supposed	5 "		51,000,000

The average product of the last three years is 890,000,000, being almost precisely the same as that of 1840, although the population of the cotton-growing States must have increased twenty-five per cent. or considerably more than a million of souls, and although all the energies of this greatly increased population have been given to the extension of the cultivation of their great staple. The reason for this is to be found in the fact that men are everywhere exhausting the land, impoverishing themselves, and flying to seek new land, when if they were to return to the land the refuse of its products, they would become rich, and thus be enabled to clear and drain the richer soils, by which they are everywhere surrounded. Throughout the whole South the tendency has thus far been in the same direction in which have travelled Maryland, Virginia, and South Carolina, which abound in fertile soils, from which men are flying as if from pestilence, while those who remain cultivate large surfaces of exhausted lands, from which they obtain small crops.

To all this the South Carolinian would answer that he had been exhausted by the tariff—that if he had had perfect free trade with Great Britain, and with the world, he would have grown rich, because of the increased demand for cotton that would have resulted from his own increased power of consuming cotton fabrics; but that he has been taxed for the support of avaricious manufacturers at the North, who have grown rich at his expense, while his market has been diminished by reason of his diminished power of consumption, in consequence of having to give forty bales out of a hundred for the support of monopolists, &c., &c.

How far this view is borne out by facts, we propose now to inquire:

The consumption of the British Empire for the three years previous to the last has been as follows—*in millions of pounds:*

	1845.	1846.	1847.
United Kingdom,	157	141	74
Colonies,	85	87	67
	242	228	141†

The colonies of Great Britain enjoy all the *advantages* of perfect free trade, which should, according to many of our teachers, produce the highest prosperity, and yet their power of consumption tends to diminish when it should increase, because of the exhaustive nature of their trade with the mother country. The latter is determined to be the great workshop of the world, and that she may be so, India is compelled to send cotton produced at a distance of sixty days' journey from the Ganges, and rice to feed the man

* For this table, and all others used in this article, except when specially acknowledged to be derived elsewhere, we are indebted to an article on the Cotton Trade, by Professor McCay, of the University of Georgia, published in the Merchants' Magazine of December last.

† Burns's Glance, quoted by Professor McCay.

who is to twist the cotton, and then after the lapse of perhaps a couple of years, the same cotton and rice find their way to the hills in the form of cloth, to be consumed by the producer of cotton, who obtains one yard where he would have five could he manufacture it at home, and cultivates poor lands while surrounded by rich ones that he is unable to clear or drain. His position and that of the South Carolinian are precisely the same. Both *would* make their exchange at home if they *could*. Both are *compelled* to make their exchanges abroad, at great loss of labor and manure, and this they call freedom of trade!

The exhaustive nature of the process is manifested in the diminished consumption at home as well as abroad. Ireland can have no manufactures, and she is ruined because she, like the other colonies, is compelled to waste on the road, and in idleness, the labor that should be applied to the conversion of food and cotton into cloth, and food and ore into iron. Her power of consuming cotton is daily diminishing, as is that of the north and west of Scotland.

The export of cotton yarn and cloth by Great Britain to other countries has been as follows—in the first six months of

	1845.	1846.	1847.	1848.
	Millions of Pounds.			
European States, . .	100	94	69	81
All other countries, . .	65	52	69	49

Throughout the whole of Europe there has been a determination to throw off the colonial system, and to bring the consumer, with his loom and his anvil, to take his place by the side of the plough and the harrow of the producer, and the result may be seen in the gradual decline of the export of cloth and yarn to the continent. Has that, however, been attended with a diminished power of consuming cotton? On the contrary, the continental consumption of American cotton, which was in 1844 but 309,000 bales, rose in 1845 and 1846 to 437 and 450 thousand, and is estimated this year, notwithstanding the disturbances, at 420,000. In 1847, because of the high prices, it fell to 340,000, the reduction being in nearly the same proportion which the production of that year bore to the average of the two previous years.

The advantage of trading directly with the consumer of cotton, thus superseding the necessity for depending on English merchants and English mill-owners, and diminishing the machinery of exchange and the cost of exchange, will be seen from a comparison of the regularity of movement in the *direct* with the great changes in the *indirect* trade, as follows:

	1845.	1846.	1847.	1848.
Direct, bales, . .	437	450	309	420
Indirect, millions of pounds,	100	94	69	81

We see that the export to "all other countries" has undergone great changes; having been 65 in the first half of 1845, falling to 52 in 1846, rising to 60 in 1847, and falling to 49 in 1848. The downward tendency of the system is here made manifest. It was arrested in 1847 by the repeal of our tariff of 1842; the effect of which was to cause a vast influx of cotton goods into this country, the 14 millions of yards of the first six months of 1846 being replaced by 49 millions in 1847, making a difference of about 8 millions of pounds. In 1848, the 49 millions fell to 33. If, now, we deduct the increase in the trade with this country, we shall obtain the following quantities as the export to all "other countries" than the European states:—1845—65; 1846—52; 1847—61; 1848—43. The natural tendency is to have the loom seek the plough, and there exists in almost every part of

the world that exercises in that respect the power of self-government, a determination that it shall take its natural and proper place.

The export to France of the crop of 1847, was 241,000 bales. In 1848 it increased to 279,000 bales.

Here, at home, the consumption has grown with remarkable rapidity; and here we have exhibited in full force the beneficial effect of the approximation of the plough and the loom.

Year.	American consumption. *Bales.*	Average for three years. *Bales.*	Increase, per cent.	Year.	American consumption. *Bales.*	Average for three years. *Bales.*	Increase, per cent.
1843 . .	325,000	305,000	3·4	1846 . .	423,000	386,000	9·0
1844 . .	347,000	321,000	5·2	1847 . .	428,000	413,000	7·0
1845 . .	389,000	354,000	10·3	1848 . .	523,000*	458,000	10·0

The consumption has thus increased almost 60 per cent. in ten years; and whereas the advance of 1843 over the average of the three preceding years was only 3·4 per cent., that of 1845 over the then preceding three years was about ten per cent.; and that of the past year, if here correctly represented, is equally great when compared with the three past years.

The change that has taken place in the last five years is most remarkable; and shows the advantage to the planter of the system that tends, by diversifying the pursuits of a nation, to render productive its whole labor power.

In 1845, the quantity consumed by the people of the British empire, was . 242 millions.
While that consumed by the people of the United States was about . . 170 "

In 1847, the consumption of the former had fallen to . . . . 141 "
While of the crop grown in 1847, the consumption of the Union has been 243 "

Among the most important facts is the steadiness of the growth of the home demand, compared with the unceasing fluctuations of the foreign one; and thence may we derive a useful lesson as to the importance of looking more to our home markets, and less to those abroad, than we have been accustomed to do. It is impossible to trace the history of the last twenty-five years without being struck with the extraordinary revulsions resulting from changes of policy on the part of the government and the monetary institutions of Great Britain, against which no one could guard, and which have, consequently, spread ruin in every part of the world connected with that country, *and exactly in the ratio of their intercourse with her.* The people of the Union have suffered most heavily in times past; and if they have on this occasion escaped comparatively unharmed, the fact is due to the increased independence that has resulted from the existence of the tariff of 1842.

The great cotton consumers of the world are now the people of the Union. Being only 21 millions in number, their power of consumption is greater by fifty per cent. than that of the almost countless millions of British subjects; and their power in this respect has been increasing, while that of all the colonies of Britain has been diminishing. Great, however, as it is now, it gives but eleven pounds of cotton per head, or an average, after deducting that which is used for other purposes than clothing, of about 35 yards of cloth

* "The New York Shipping and Commercial List, which is the highest authority on the subject, gives 607,000 bales as the American consumption for 1848. Of this 523,000 bales was delivered to the factories at the North, and 75,000 was the estimated consumption at the South and West. This estimate is probably too low. Certainly the amount allowed for Georgia is not so large as it ought to be."—*Professor McCay.*

It must be borne in mind, that, by the consumption of 1848, is meant that of the crop that commenced to come to market in September, 1847, and closed in the summer of 1848. The power of consuming cotton at home was maintained during that time by the effect of the famine in Europe in 1847; but since that time many mills have been closed, and there is now no disposition to build new ones, for those in existence are working without profit, and frequently at a loss.

to each. This is less than one-half of what would be consumed, were the labor power of the nation rendered productive by the close approximation of the loom and the anvil to the plough and the harrow. Were the policy of the nation such as would enable the farmers and planters to obtain in their immediate neighborhood the furnaces, the forges and the rolling-mills, the cotton and the woollen mills, required to supply their wants, and to give them a market on the ground for their surplus food and surplus labor, now to so vast extent wasted—and to enable them to save the labor now wasted on the road—and the manure now wasted on the road and in distant markets—the home consumption of cotton would probably rise to 400 millions within less than seven years.

Had the tariff of 1842 been, from the first, adopted as the settled policy of the nation, there would be, at this moment, in existence at least a hundred cotton mills, and possibly treble that number, more than we now have. Allowing, however, only 150, and the consumption of each to be but 1000 bales per annum, here would be a demand for 60 millions of cotton, accompanied everywhere by a greatly increased power of consumption, because of the increased value of labor and land. The substitution of the tariff of 1846 for that of 1842 made during the first year a considerable market for the products of English looms; but the effect has been general impoverishment; and while many mills have been closed, the building of others has been arrested, and the market for foreign cloths has already, even in the present year, fallen to two-thirds of that of 1847.

Year.	Calicoes, printed and dyed. *Yards.*	Calicoes, plain. *Yards.*	Other cottons. *Yards.*
1845 (First six months of)	8,803,000	7,963,000	4,809,000
1846 " "	6,360,000	5,367,000	2,480,000
1847 " "	20,972,000	22,131,000	5,734,000
1848 " "	19,220,000	9,950,000	3,996,000

The consumption of 1848 over that of 1846, consequent upon the change of tariff, is less than twelve millions of yards, or as much as would be produced in eight mills, consuming cotton at the rate of 2000 bales per annum. The cotton-growers have gained these eight; and they have lost a hundred and fifty that would be now in existence, had the tariff of 1842 been adopted as the settled policy of the country.

The power of consumption in the South, at the present time, is less by one-third, so far as that power is derived from cotton, than it was nine years since, notwithstanding the vast increase of population. The crop produced in 1839 paid for commodities and things required by the planter and his hands to the extent of 74 millions of dollars, whereas that of the present season gives a purchasing power to the extent of only 51 millions. Had this power grown only with the growth of population, it would be 92 millions; but it ought to grow more rapidly, and should at this moment far exceed 100 millions; whereas it is but 51 millions. Had the tariff of 1842 been adopted by the South, and were we now consuming a hundred and fifty thousand bales more than we now are, as we should be doing, the balance would produce more in the markets of the world by probably thirty millions of dollars than we now obtain for the whole. The planter would thereby gain not only these 30 millions, but the price of the 150,000 bales in the bargain; and, in addition, he would have been improving his land by the cultivation of food to be consumed at home, instead of raising cotton to be sent abroad. In estimating it at 150,000 bales, we feel well assured that we are far short of the truth. The growth of the power of consumption, when men are enabled to live together, combining their efforts to make their joint labor productive, can scarcely be estimated. The consumption

of iron doubled from 1843 to 1847, and the prosperous makers of iron consumed largely of cotton. The furnaces and rolling-mills are being closed, and the consumption of cotton is being reduced. Had the South adopted the tariff of 1842, the products of iron would have gone ahead still more rapidly. and more cotton would have been consumed, and the price of cotton would have been higher, enabling the planter to make railroads on which to use the iron, and thus to get his cotton to market more cheaply, and thus to accumulate the means to improve his plantation, and to build mills, and thus to augment the demand for iron. Every step in the approximation of the consumer to the producer is a gain to the latter. Every step in the opposite direction is a loss to him.

Everywhere throughout the South there is an impression that there is an over-production of cotton, and that it must be reduced. What would have been the state of affairs but for the vast increase of the home demand? England could consume no more than she does at present. Her colonies have that perfect freedom of trade for which the Carolinian sighs; yet their consumption diminishes, and *it increases nowhere but where there is protection.*

The difficulty does not consist in *over*-production, but in *under*-consumption. Let the planter make a market on the land for the products of the land—let him pursue the course that is needed to give to every county in the Union its place where cotton, or wool, or iron ore, can be converted into cloth or iron, thus making a market for the surplus labor and food, and saving the manure; and before two years shall elapse the demand will overtake the supply, enabling him to realize abroad for what can be spared to go into the general market of the world such prices as will give value to his labor and his land. Everywhere throughout the South there exists a desire for combination of action to diminish the supply, but these are weak inventions that can result in no advantage. They want combination of action *to increase the demand.* The supply can be diminished in one way alone, and that is by making a market for food; and that can be done only by bringing the consumers of food to take their places by the side of the food and the cotton. Let that be done, and the *power* to produce cotton will grow, while the *necessity* for depending on cotton will diminish; and with each step the planter will become a more independent being, enjoying more and more that *real freedom of trade* which results from determining for himself what he will produce and where he will make his exchanges, instead of that *bastard* freedom of trade which consists in raising cotton, because he can raise nothing else that will sell, and sending it abroad when he would prefer to exchange it at home.

We take the following from a late number of the Carolinian:

"We are the slaves of tyrannical systems, and must work out our own redemption at home:

> 'Hereditary bondsmen, know ye not, who would be free,
> Themselves must strike the blow?'

"Yes, there is reason for all the distress which pervades the country, and that reason points to the remedies which are to be used in the cure of the disease. Economy and independence furnish the words of the magic key.

"Let the planter make himself independent by producing all that he consumes, and he will soon see where the secret of success lies. The bread that he eats—the animal food that he consumes—the steeds which he rides and drives—the mules which perform his farm labor—the wool which clothes his laborers—the leather for shoes and harness—all these things are sold to the planter at a profit; and when he pays for them out of his cotton crop, it is all swept away. Let the planter make all that he can on his plantation—let him rear all the domestic animals he may desire for use, or more if he can, and let him plant marketable crops, not for exchange as he now does, but for cash to be paid to him, to be invested permanently, or to be spent in the education of his children, and he will find that instead of every year growing poorer he is actually growing richer.

"Let the planters of the South commence and pertinaciously adhere to this system, and in three years there will not be a single man from Tar river to the Rio Grande who will desire the aid of an Agricultural Convention to help him out of difficulties arising from the low price of a staple which from its frequent fluctuation in value renders it not only an uncertain income, affecting the interest of the planters alone, but one which brings in its train ruin to all who deal with the planters."

The advice is excellent, but why is it that it should now be needed? Why have not all these things been done long since? Why are they not now done? It is because they could not and cannot be done. In the natural course of things the consumer of food and cotton seeks to place himself where the food and the cotton together grow; but every attempt that has thus far been made to bring about this union has been attended with failure, because of the perpetual changes resulting from the English system of policy. Canada has no factories, and she can have none. Nova Scotia has no furnaces, and she can have none, although coal and iron both abound. The manufacturers of Ireland have been ruined. Those of India have also been ruined, and each successive province added to that great empire has been exhausted; and thus has it been rendered necessary to add province to province, and kingdom to kingdom, to keep up the revenue. The whole policy of England tends to produce the state of things now existing at the South, and the protective system is but a necessary measure of resistance to it on the part of the planters and farmers of the world. Were there no nation in the world but the people of the United States, they would constitute a community perfect in itself, capable of supplying all their own wants, and they would be better supplied, and at far less cost of labor than at present. The wealth now wasted on ships and wagons employed in dragging about the world the food and the cotton that are yielded in return to labor that would be better employed in the work of converting both into cloth and food, and ore into iron, would then take the form of furnaces and mills, and the power of consuming food and cloth, and iron, would be doubled, because the labor required for their production would be reduced by more than one-half.

LEAVES—THEIR VALUE.

What shall I do with my Leaves? Are they good for any thing? asks a correspondent. Do with them! good for any thing! Why treasure them to be sure, as if they were coin of the realm; they are good for every thing which a gardener has to do. They are the best of all shelter, the best of all materials for bottom-heat, the best of all soil, the best of all drainage, the best of all manure. It is true they contain little or no nitrogen, but they rot quickly, are full of saline matters, on which every thing that bears the name of plant will feed gluttonously, and from their peculiar structure allow air to pass in and water to pass out with perfect freedom.

If we wish to know what leaves are good for, we have only to burn them, and see what a quantity of ash they leave behind. All that ash is as much food for other plants as beef and mutton are for us. It is the material which Nature is perpetually restoring to the soil in order to compensate for the waste which is produced by the formation of timber. In wild land, trees are annually thus manured; were it otherwise, a wood would be a roof of life overshadowing a floor of death. If we can remove the leaves from our plantations, it is only because of the artificial richness of the soil in which they grow. This sufficiently indicates the value of leaves, which are in truth hardly less important in their death than they were in their life, though in a different way.

ON THE USE OF SWAMP MUCK AS A MANURE.

All that is said, that has a local bearing, in the Vermont State Agriculturist, from which the following remarks are taken, applies with equal truth to many other States—especially, as we know, to the Western Shore of Maryland, and to other Southern States. On the Eastern Shore, the farmers do begin to understand the value and use of a material which nature has kindly provided, as she has done many others, if man would only take the hint; but blind are the eyes of ignorance, and laziness is not the companion that will open them. The spirit of inquiry and research must be implanted in youthful minds, or it rarely takes firm root, and parents who have been reared in ignorance of books and journals that would instruct them in a better knowledge of their profession, don't like to have their children more wise than themselves. Hence you so rarely see the farmer, averse to reading himself, put an agricultural book or journal in the way of his son, and hence we have in vain offered them the most profound works in six volumes, for $12, the *half* of which, with many hundred engravings, cost more than $30: we allude to the Farmer's Library and Monthly Journal of Agriculture, *bound*, the subscription price of which, in sheets, was $15.

Probably no district is better supplied with swamp muck, in a condition and in situations suitable for the purposes of husbandry, than Vermont. But, strange to say! the vast deposits of this cheap and effective fertilizer, though found on almost every farm, are very seldom drawn upon. Our farmers do not seem to be aware of its valuable properties, or they consider it too much trouble to drain their marshy grounds merely for the purpose of procuring it. Experiments have also been made with it which have very much disappointed the expectations formed, since many who have tried it, regarding all soil as fruitful in proportion to its *blackness*, have imagined that muck, which is as black as coal, must be the very quintessence of nutriment. But this criterion is by no means a reliable one. It is indeed true that *muck* or *humus*, or *vegetable mould*, or *geine*—they are all the same—is a fertilizer, but as it is in great measure insoluble, in the absence of other substances with which it combines, its action is at best but feeble. Let us, however, inquire out the elements which it is capable of supplying to the vegetable organism, the conditions under which those elements are adapted to the wants of the plant, and the means necessary in order to this preparation.

The general term *muck* or *humus* is applied to the black or dark-brown substance left as the result of the decay of vegetable matters. It consists of those elements of plants which are drawn from the soil, including the salts and mineral matters which constitute the ashes of the plant, together with a large part of the carbon which entered into the composition of its vegetable fibre. This vegetable fibre is the chief constituent of all plants, and the decay of the latter involves that of the former. It consists chemically of carbon, hydrogen, and oxygen in these proportions:

52·5 carbon,
42·3 oxygen,
5·2 hydrogen.

100 parts *by weight.*

When burned in the open air, or in oxygen, its hydrogen and carbon combine with its oxygen, and form water and carbonic acid, which escape as gases, and nothing of the vegetable fibre remains. The hydrogen always burns first. When there is not sufficient oxygen to burn the whole, as in the case of charcoal-making, the hydrogen burns and the surplus carbon remains in the form of coal. This coal contains, besides carbon, a small portion of various salts, which constitute the ashes of ordinary combustion. (These are not constituents of vegetable fibre, which is universally the same

substance, but vary in different plants.) Now, impossible as it may seem to the common apprehension, the processes of burning and decomposition are actually the same, the only difference being that in the one a few moments accomplish the result, the flame and intense heat which accompany it being the consequence of the condensation of a process which requires perhaps years in the slower progress of the other. The same amount of heat is actually developed in the one case as in the other, though given off by slow degrees, and through so long a time that it is not perceived at any one moment; the products are in both cases the same; and the residuum the same. To be sure the *mechanical textures* of the two substances, muck and charcoal, are dissimilar; but when *chemically* examined they present the same *general* characteristics. The muck, however, which is found in our swamps will not be found *exactly* similar in constitution to hard wood or pine coal, because, though vegetable fibre whose decomposition furnishes the carbon of both be universally the same, the amount of *ashes* or alkalies and earths which result from the decomposition varies with the plants which furnish the material. Thus oak, maple, and all other hard woods, contain more potash and lime than pine and hemlock; whence hard wood ashes only can be used for soap-making. The leaves of hard wood trees make a better compost than those of pine, partly for a similar reason. The rushes, and other marshy plants which furnish the material for the greater portion of our swamp muck, contain much less of these alkalies and earths than upland plants, and the muck made from the former is, therefore, not so rich as that produced from the latter. Nevertheless swamp muck contains a considerable proportion of them, and since these mineral elements are the only ones furnished directly by the soil to the growing plant, and as the crops taken off the land must be used for other purposes than manure, a clear profit is gained by applying swamp muck—equal in value to the amount of ashes it contains.

But its mineral elements are not the only contributions to fertility furnished by this substance. The carbon of plants is not derived directly from the soil, but is separated by the leaves and roots from the carbonic acid gas, which is continually supplied to the atmosphere by combustion and decay. All substances containing carbon give off, during the process of putrefaction, more or less carbonic acid, which is formed from the combination of the carbon with the oxygen of the air. This gas is a constant element of the atmosphere, but is continually changing; being produced on the one hand by fires, decomposition, and animal respiration, and consumed on the other by the leaves of plants, which decompose it and return to the atmosphere the oxygen it contained. Thus a most beautiful system is maintained: the vegetable world supplies the animal, not only with food, but also with the vital principle of the air it breathes: while the animal furnishes the plant both with the necessary elements of growth, and with the gaseous compound from which its fibre is formed. Now the union which takes place between the carbon of muck and atmospheric oxygen is a slow one, occupying years before the carbon is all consumed. Hence for a long period muck will furnish plants, on the very spot where they need it, with a chief element in their structure.

Again: pure humus is very sparingly soluble in water at ordinary temperatures; but when mixed with strong alkalies, as quick-lime and potash, or quick ashes, it becomes converted into humic acid. This with an excess of lime, or with the other alkaline bases in the soil, forms a class of salts denominated *humates*, which are freely soluble in water, and are thus fitted for absorption by the roots of plants.

We see then that pure muck applied to soils is comparatively inert, being

useful only on account of the small proportion of mineral substances it contains—that its effects in furnishing a supply of carbonic acid are lasting—and that when composted with lime it is rendered useful by combination with other matters in the soil. So much for its *chemical* character.

Its mechanical properties add much to its value as a manure. It is exceedingly light and porous, so that when applied to clay soils their texture is thereby loosened, and rendered more permeable to the roots of plants, while yet its affinity for water is so powerful that on sandy lands it prevents the effects of drouth. It will imbibe three-fourths of its weight of water without becoming wet, so that in light soils its tendency is to retain moisture, and in heavy ones to permit the excess of it to escape downwards by loosening their texture. Furthermore, its absorbent powers are of infinite service in the barn-yard, where it is the very best material for mixing with animal manures. Composted with these it prevents excessive heat, takes up the juices and gases which would otherwise escape, and is itself in a measure decomposed by the action of the substances they contain. Two parts of muck carefully mixed with one part of stable manure are said by those who have tried the experiment, to be equal in value to three parts of pure stable manure.

From this hasty review of the origin and nature of muck we draw the following practical maxims:—

Muck in a pure state is beneficial to old lands.

Its good effects are very much augmented by composting with lime and unleached ashes.

It is invaluable as an absorbent of the juices of animal manure.

Its effects are lasting.

If you have any muck beds on your farm, have a few hundred loads of it dug and thrown in heaps during summer or fall, when the water is low. It will have a few months to drain before you will want to draw it. If the ground is sufficiently firm to bear a team, haul out enough of it to cover your yards and hog-pens a foot deep before you put up your cattle, and during winter keep the surface of your manure heaps covered with it. Or if you do not keep much stock, and lime is cheap in your neighbourhood, compost it in fall with quick lime, at the rate of one barrel of lime to a cord of muck, and let it remain until the following spring. Ashes may be substituted for the lime in the proportion of $1\frac{1}{2}$ to 1. We speak from experience when we say that you will find this compost, especially on light lands, and for fruit trees and vines of all descriptions, superior to any stable manure of whatever kind. Its effects are not so sudden as with some other specifics, but they are certain and durable.

We hope that the immense deposits of this article, so frequently found in our swamps and intervales, will soon be taxed for the benefit of the farmer. Time has been, perhaps it has not yet passed away, when Vermont farmers thought hardly of Providence for placing them in a land of rocks and mountains, and sandy pine plains, while they neglected the materials given them to work with, and refused to employ those agents which nature has placed at their disposal. Time was, when bad crops were attributed not to natural causes, for of these nothing was known, but to the direct interference of supernatural power. But men are beginning to reason on the subject of their business. These superstitions are passing away, and we trust soon to see the day when the light of science shall illumine every object in the path of the husbandman, as clearly as it now does the caverns of the miner, or the laboratory of the physician.

To gardeners and fruit growers in Burlington we can furnish an excellent article of muck, which will be delivered to order, during the winter.

THE PREMIUM HONEY AT BALTIMORE.

THOUGHTS ON WAR, AS IT CONCERNS THE FARMER AND PLANTER.

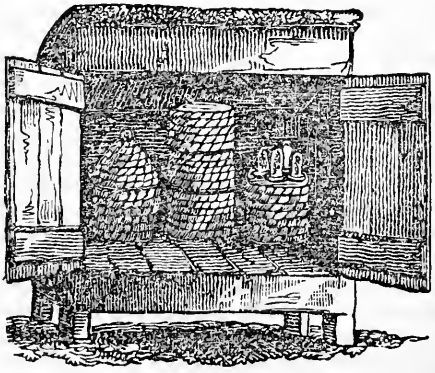
THERE were some beautiful specimens of honey, and of improvement in the structure of bee-hives, at the great State Fair at Baltimore, in November, presented by Mr. Whitman and others. We are not informed who took the premium, but this we know, that one of the exhibitors, friend STABLER, of Montgomery county, has had the kindness to send us some of his, all the way to the City of Brotherly Love: an act of obliging remembrance from an old friend, the more willingly registered, as our contemporaries of the press run very much ahead of us, in their occasions to acknowledge things of this sort. By-the-by, as these "Christmas boxes" and "New-Year's gifts" often come, like Almanacs, a long time before their time, is there any reason why an equal license may not be taken after the day has passed? In that case we would venture to whisper that it may not yet be too late to send us a New-Year's gift in the shape of a *club*—of subscribers.

As to the honey, it was eaten with the addition of far-famed Philadelphia butter, not only for its own sweet sake, but in pursuance of the injunction, "Butter and honey shall ye eat, that ye may know to choose the good and refuse the evil."

Every one has heard the anecdote of the snuff-maker, who grew rich in the practice of his trade, and as usual, "set up his coach," but had in him too much honesty and truth to repudiate his calling, as some do who rise from meaner employments to live in palaces, and set themselves up for "exclusives!" When the builder asked the honest snuff-maker for his coat-of-arms, to be painted on the panel of his coach, he told him to give a man with finger and thumb regaling his olfactories with a pinch of Maccabaw, and under it to write:

"Who'd have thought it,
Nose has bought it!""

Now for the hieroglyphic sign of that trait which distinguishes the Stabler family, we would recommend.



"Brethren, give *diligence* to make your calling sure."

We are sometimes tempted to wish that all the world would turn Quakers, so that industry, and usefulness to our fellow-man, might be substituted throughout the world, for frivolity and war, of which we always think with horror, as a scandal to civilization and Christianity—and especially where people boast of being their *own rulers*.

"I hate that drum's discordant sound,
Parading round, and round, and round:
To thoughtless youth it pleasure yields,
And lures from cities and from fields,
To sell their liberty for charms
Of tawdry lace, and glittering arms;
And when Ambition's voice commands,
To march, and fight, and fall in foreign lands.

"I hate that drum's discordant sound,
Parading round, and round, and round:
To me it talks of ravaged plains,
And burning towns, and ruin'd swains,
And mangled limbs, and dying groans,
And widow's tears, and orphan's moans;
And all that misery's hand bestows,
To fill the catalogue of human woes."

To us belongs the peculiar disgrace of a *Republican* government taxing the peaceful Farmer and Planter to the amount of twelve or fifteen millions of dollars *annually*, to keep up warlike establishments and schools, because, forsooth, some day or other, we *may* have war—for if not otherwise, we can easily provoke it—and would it not be a pity, after having made the people pay some 2 or $300,000,000, not to have war every twenty years? Cannot any one see that, otherwise, this enormous amount, sweated out of the substance of the farmer, would be absolutely thrown away? If we would have an excuse for this enormous expenditure, every year, so as to cajole the people into paying it, we must have war now and then!—but then let any man of common sense, who can add two and two together, ask himself whether, even as a means of self-defence against possible (for it is barely possible) invasion from abroad, it would not give us more physical strength and power of making ourselves respected, if, instead of throwing away these $15,000,000 every year, we were to expend the same amount in improving, by appropriate instruction, the rising generation in agriculture and peaceful arts; thereby increasing, beyond calculation, their *productive capacities;* and also, in developing the internal resources of the country, by opening and expediting all the channels of exchange between the producer and the consumer? 4 or 500,000,000 dollars is the least that has been expended, in time of peace, on the army and navy, since the war with England. Now let any farmer, at his fireside, take his pencil and calculate how many thousand miles of railroads and canals such a sum would have built, and how many teachers might it have prepared in State Normal Schools, to instruct in common schools the sons of farmers in agricultural chemistry and geology, in vegetable and animal physiology, in the principles of mechanical philosophy as involved in the structure of all agricultural machinery, the principles of civil engineering, &c. The cost of publishing one military reconnoissance or nautical exploration, would place, for instance, "*The Elements of Agriculture,*" a 25 cent book just published by Carey & Hart, in the hands of half a million of boys, and thus sow the seeds of knowledge that would *prevent* war, and in place of it, yield a rich harvest of national honor—the honor of being the best informed, and, as a consequence, the most peace-loving and just of all nations! Have landholders, for whom we are laboring, no interest in questions of this sort? If they have not, who have?

Let us hope that we may regard the resolutions presented by Mr. EARLE and passed at the Maryland State Society, combined with many other corroborative symptoms, as ominous of a change of public sentiment—and of a change obedient thereto in the action of Government—on these subjects; conducive alike to the honor of the country, and to public liberty. Be it our duty to use our humble means to accelerate such a change; and oh that in this we could have the *press-gang* to assist us!

THE CORN TRADE OF EUROPE.

[From the London Mercantile Gazette, Dec. 1.]

"THE grain trade is completely paralysed by the continued arrivals of enormously large supplies of foreign grain, flour, and pulse, and prices decline week after week, in the British markets, not from an abundance of home grown produce, but from the constant influx of foreign grain. By the official account recently published of the imports into Great Britain it appears that, during the month ending 5th of November, 392,939 qrs. of wheat, and 228,952 cwt. of foreign manufactured flour, were imported, and that duty was, within the same period, paid on 506,720 qrs. wheat and 251,182 cwt. flour. Taking all kinds of grain and pulse together, the immense quantity of 796,168 qrs. were received, and duty was paid on 908,090 qrs., exclusive of the flour above mentioned. Can any surprise, therefore, be felt at the present depressed state of the trade? There is certainly no immediate want for these large supplies, and general opinion being opposed to a rise, no one is inclined to buy more than necessary for present use. Stocks in granary are consequently accumulating; more is pressed on the different markets than the consumptive demand can take off, and the English grower is everywhere undersold. Hitherto the bulk of the foreign supply has been from the Baltic, and from France; now, however, receipts are beginning to come to hand from America, and in a short time we may expect arrivals from ports lying east of Gibraltar. As a sample of what America is likely to do, we have only to call attention to the imports into Liverpool during the week ending November 27, consisting of 124,000 barrels of flour, 19,000 quarters of wheat, and upwards of 50,000 barrels of Indian corn. Business has, as may easily be conceived, been quite prostrated, and the prices of wheat, previously much depressed, have further receded 2s. per quarter at all the leading markets in the kingdom."

As the present policy of our rulers tends to compel our farmers to "compete in the great grain markets of the world" with the poorest people of the world—with those who have made no market on the land for the products of the land, and are therefore in the full enjoyment of that *freedom* of trade which *compels* them to make abroad those exchanges which they would prefer to make at home, and to waste on the road and in foreign markets the manure that would render their labors doubly productive—we deem it not amiss to present to their view, occasionally, the state of those markets, that they may appreciate at their full value the advantages to be derived from further dependence upon them. We are now importing many millions of dollars of food in the form of iron, and coal, and the labor expended in the work of twisting and weaving our cotton, while "the great grain markets" are being choked by the products of the serf of Russia, and the impoverished people of Sicily, and Egypt, and Poland, and to such an extent as to render it totally impossible that we should compete for those markets except at prices that must be ruinous to the farmer, whose land is thus deprived of value while he himself is rendered unable to purchase the *apparently* cheap, but *really* dear products of foreign looms and furnaces. We cannot obtain the foreign market, and we close the domestic one, thereby driving the miner and the furnace-man, and the worker in cotton or wool, to seek the West, there to become producers of food—thus burning the candle at both ends. Such has been the course of Virginia and South Carolina, and what has been the result? Whenever they shall determine to make their exchanges at home, they will thereby place themselves in a position to become two of the most prosperous States in the Union, but not until then. The experience of all countries and all ages goes to show that the plough never has prospered and never can prosper at a distance from the loom and the anvil.

Can it be that any American farmer or planter can read the above, from a London paper, with indifference, or without seeing how directly such items bear upon his pursuits and his condition? Yet so we fear it is, and it is to awaken his sensibilities and to lead him *to think* that we have established this journal. We would have the cultivators of the soil reflect, that unless the policy of the government is such as to multiply *consumers* of their pro-

duce, and to insure them fair remuneration to their labor, it were useless for him to study the means of keeping up and augmenting the fertility of his land—nor will he do it long while the world is glutted with his surplus products. It is only in remunerating markets, to be found near the land, that teachers are to be found to instruct in the ways of its improvement—science never comes, nor will industry dwell long, where there is no certainty of reward. These are questions which we would exhort our friends of all parties to study for themselves. Make a good market, and farmers will soon become skilful.

Until that is done, we in vain publish accounts of 100 bushels of corn and 50 bushels of wheat to the acre. If we would compel the manufacturer to take his place by the side of the agriculturist, such crops would become too common to be thought extraordinary.

BUTTER MAKING.

Messrs. Editors of the Plough, the Loom, and the Anvil:

Having noticed an article in the last number of your paper, relative to "butter making," in which it is recommended to apply "hot water or steam" to the milk or cream, to prevent the butter from tasting of the turnips fed to the cows, and deeming the remedy rather an impracticable one, and having discovered a plan which is equally effectual and much more economical and convenient, I will submit it to you, and if you deem it worthy of a place in your columns, you are privileged to insert it. My plan is to take the whole turnips, or any other roots which we desire to feed to the cows, and place them in the midst of the cut straw or corn stalks in the steam-box, and steam them until they are soft. During the steaming process, the unpleasant smell of the turnips will escape from the box, it being not perfectly tight, and at the same time they will impart a palatable flavor to the straw or stalks, which will cause the cows to devour the whole with great eagerness.

Since we commenced steaming the turnips with the stalks, the cows have increased greatly in the quantity and quality of the milk over that given when the turnips were fed raw and the stalks dry; and we are now selling the butter for the highest market price. The cows fill themselves on this feed as they would on grass, and give a fair quantity of milk. We steam only twice a week, the box being large enough to hold a sufficient quantity to supply 12 cows with all they will eat for 3 days. We use coal for fuel with which to get up the steam, and it requires but about 150 lbs. per week, or 75 lbs. for one steaming.

When we have not turnips or other roots to steam with the straw or stalks, we mix a small quantity of hay and bran with them, by which the mass is rendered palatable.

The amount of provender saved by this process is astonishing, and the cattle do equally as well as when fed with good hay.

John Wilkinson.

Mount Airy Agricultural Institute, Germantown, Dec. 12, 1848.

Gooseberries and Currants.—The following are six good varieties of Gooseberries, flavor being the principal consideration: Red Champagne, Woodward's Whitesmith, Pitmaston Greengage, Keen's Seedling Warrington, Yellow Champagne, and Red Turkey. With regard to Currants, you may be very well satisfied with the Red Dutch and White Dutch. Half your plantation of Red Currants may, however, consist of Red Dutch, and the other half of Knight's Large Red. We are not aware of any White Currant superior to the White Dutch.—*English Paper.*

DEPRESSION OF MANUFACTURES.

"There are at the present time, says the Pawtucket (R. I.) Gazette, more spindles stopped, and more operatives out of employment, in our town, than we have known at any time since 1829. Our manufacturers have been disposed to keep their wheels moving as long as they could without heavy losses to themselves. As to profit, one of our citizens said to us a few days since: 'The only account I have been able to keep without any degree of certainty, for some time past, is on the loss side of the book.' The mills which have been stopped, are, in most cases, owned by men perfectly solvent, and who are now able to discharge any liabilities resting upon them, but who were, perhaps, doubtful as to their continuing able, if they continued to manufacture goods and sell them at ruinous prices, or lock them up in a storehouse. What the final result of this stagnation will be we are not able to predict.

"When we take into consideration that the British factories have been almost on half time during the past year, and a number of our own factories not working full time, we may conclude that there are at present enough of factories to make enough of clothing in one year, to supply the world for two, for at present the markets are still glutted."—*Scientific American.*

The tariff of 1846 was to make cloths so cheap that consumption would be greatly increased. They are cheap, but labor is *cheaper*, and the market is glutted because of the inability of the laborer to buy. The workmen of Pawtucket—and the workwomen of Pawtucket—and the workmen and workwomen of hundreds of mills—and the workmen in the coal mines—and in the furnaces and rolling-mills—are earning low wages, even when employed, and many are absolutely idle—and the consequence is that there is *a glut of every thing, labor included.* Were the tariff of 1842 to be re-enacted, the glut of labor would cease, because there would be a demand for workmen and workwomen, who would then earn wages to enable them to be consumers to the farmer, and they would enable the manufacturer to buy wool and cotton to the further benefit of the farmer. *The farmer and the planter are the real sufferers by the present system*, and they it is that are to benefit by a change. They should never forget that every man who is driven from the loom and the anvil is forced to take to the plough—and every one becomes, necessarily, a rival, when he would gladly be a customer.

THE CLIMATE BEST SUITED TO THE COTTON PLANT.

DIFFERENT KINDS OF COTTON—INSTANCE OF YANKEE ENTERPRISE.

The following article is copied more particularly for the sake of preserving the tables of the mean temperatures of places in Texas, Louisiana, Mississippi, and Alabama.

Speaking of the climate of Georgia and South Carolina, the writer merely remarks: "The hilly parts, 200 miles from the sea, are agreeable and favorable to health." He might have gone further, and have safely characterized the climate of the mountains of Georgia, the Carolinas, Tennessee, Kentucky, and Virginia, as unsurpassed in the world, even in the most delightful parts of Italy. Such was the opinion, as expressed on personal observation, by the *Abbe Correa De Serra*, (a travelled man of vast research,) who declared that the world could not supply a region of country more favorable to longevity.

One of the most remarkable instances of Yankee enterprise which has fallen under our observation, is the undertaking of a Down Easter, living, we believe, in Charleston, S. C., to establish a *cheese dairy* in these mountains.

On the watch for a traveller's early breakfast at that capital hotel, the United States, Philadelphia, we chanced to file in next to the proprietor of this mountain dairy, who told us he had purchased in these mountains a farm of *twenty acres!* This was his fulcrum, or resting point, from which his one hundred head of cattle went abroad daily to luxuriate over mountain and valley, the young cattle demanding no feeding whatever throughout the year. He had *sixty cows at the pail*, and is probably the only cheese-maker in all these "diggings." What a glorious climate, and what a broad and propitious field for the exercise of Yankee industry! If it lay north of the Hudson, and if there were any thing like permanence in the policy of the government, how it would teem with fac-

tories, and dairies, and tanneries, and with hundreds of thousands of active human beings!!

In inquiring more particularly into the climate best suited to the AMERICAN COTTON PLANT, not only in its native country, but in the countries where its culture is most successfully conducted, we must remember what both Baron Humboldt and Professor Dove have pointed out, that while Europe has a true insular or sea climate both in winter and summer, North America inclines to a continental climate in winter and to a sea climate in summer; that is, has a cold winter with a cool summer. But northern and central Asia have a true continental climate both in winter and summer, or a cold winter and a hot summer. Notwithstanding this, we must also recollect, that though each locality may participate in the characteristic climate of its continent, yet that all places near the coast will have more or less of an insular climate, while those in the interior, such as are of a continental nature, though in varying degrees.

The different kinds of cotton cultivated in the United States of America appear, in the present day, and as far as we have been able to procure satisfactory information, to be varieties of one species; that is, that the Georgian is the Sea Island carried into the interior; the Sea Island itself was originally introduced from Anguilla, one of the West India islands. The New Orleans does not differ specifically from the Sea Island cotton, and is admitted by the planters of the Southern States of America to be identical with the plant of Mexico, from whence indeed they import their finest seeds. It is probable that it was from the neighboring coast of Mexico that the indigenous cotton of that country was introduced into the West Indies, and from thence it was taken to the Island of Bourbon. Hence we may account for Gossypium Barbadense being identical in species with both the New Orleans and Sea Island cottons as well as with Bourbon cotton, as is evident from the colored representations given of these three varieties by Dr. Wight.

The Mexican plant is not a native of the temperate regions of that country, but of the Tierras Calientes, or hot districts. It is produced, for instance, in the neighborhood of Vera Cruz, and is described as growing spontaneously near Valladolid, a town situated on the great plain of the peninsula of Yucatan, described by Humboldt as one of the warmest regions in equatorial America. Mr. Stephens states that the spontaneous growth of cotton around that town had led to the erection of a cotton factory in the place. Mr. Norman, in his "Rambles in Yucatan," says: "The cotton plantations, or rather the districts where the material is raised that is consumed in the manufactory in this city, are to the north, and known as the Tizemen district. The same spot is seldom cultivated for two successive seasons. After the crop is gathered, the ground is suffered to be overrun with weeds and brushwood; which, when years have elapsed, are cut down and burned, and the field is replanted." This rude method of culture is adduced only to show how little attention is paid to the plant in its native country. But as it is desirable to know something precise respecting the climate of one at least of its native districts, we take from Professor Dove the following notice of the means of observations made at Vera Cruz for thirteen years. This town, situated on the coast in N. lat. 19·12, and W. long. 96·9, has a mean temperature of 77°·02, with a difference of only 12°·42 between the hottest and coldest months: thus—

Jan.	Feb.	March.	April.	May.	June.
69·98	71·60	73·40	77·18	80·42	81·86
July.	**Aug.**	**Sept.**	**Oct.**	**Nov.**	**Dec.**
81·50	82·40	80·96	78·44	75·38	71·06

The Mexican cotton has been introduced into Texas, as well as into Louisiana and Alabama. In the Southern parts of Texas, where the climate is described as being very congenial, "the plant does not require to be renewed more frequently than once in three or four years to yield a crop superior in quality and quantity to the annual planting of Louisiana." Mr. Kennedy informs us, in his work on Texas, that cotton planting commences there in February, and picking begins at an earlier, and continues for a longer period than in the United States; also that the average return on the acre is considerably greater in Texas than in the States, and the expense of cultivation considerably less, in consequence not only of the greater richness of the soil, but also of the superior mildness of the climate. The cotton is, moreover, of a superior quality, and that "planters of acknowledged veracity stated that it is not uncommon to pick 4000 lbs. of seed cotton from an acre of ground." But in connection with this statement we must not forget that Mr. Spalding, himself an American cotton planter, says, "The besetting sin of agricultural statements is their exaggeration."

Mr. Featherstonhaugh, after crossing into northern Texas, in about lat. 33° 40′, from the United States, observes that he had never seen the cotton plant growing in greater perfection before; for in the cotton districts he had passed through, the plant was a low, dwarfed bush, not exceeding two feet in height, but here the bushes were five feet high, often bearing 300 bolls, and yielding from 1500 to 2500 lbs. of seed cotton to the acre. This gives from 25 to 30 per cent. in weight of raw marketable cotton. He states that it is considered a fair crop if one bale of 450 lbs. to the acre of such cotton is produced. The most successful cultivation of cotton in the United States is in Louisiana, Mississippi, and Alabama. In the southern parts of these States—as, for instance, in the latitudes of New Orleans and of Mobile, there is little frost, and the winter is considered mild, with considerable heat in summer; but this is tempered to a great extent by the pleasant and salutary effects of the sea breeze, which sets in from the Gulf of Mexico for a great part of the day. There are heavy dews at night, and frequent showers occur both in spring and during the summer. In the interior and more northern parts of these States, (which are in some parts elevated from 500 to 1000 feet above the level of the sea,) frost is expected in October, and continues till near April; sometimes occurs even in May, so as to injure, though it does not then destroy, the cotton plant. The heat of summer is considerable, but still tempered by the influence of the Gulf of Mexico, and of the numerous great rivers, as well as by dews and occasional showers of rain. The cultivation of cotton is commenced about the beginning of April, when the land is still saturated with the winter rains, and difficulty is sometimes experienced in getting the land sufficiently dry. Otherwise a good shower of rain is essential when cotton is first sown, and it is desirable also to have occasional showers during the planting, ploughing, and hoeing seasons. The bolls of cotton begin to open about the middle of July, and continue doing so until the frosts come on in the middle or end of October. The yield is about 400 lbs. of clean cotton to the acre.

In order to have a precise idea of the climate of the most favorable cotton districts, and for the advantage of comparing them with that of other countries into which it may be wished to introduce the American cotton, we select, from Professor Dove's Tables, as published by the British Association, the following mean temperatures of places in Texas, Louisiana, Mississippi, and Alabama, as indicated by their initial letters.

	Lat. N.	Long. W.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean of Year.
1. Galveston, T.	29°18′	95·1′	60·3	62·5	75·0	73·2	83·5	86·5	88·2	88·5	87·1	64·2	60.1	59·4	74·03
2. New Orleans, L.	29·58	90·7	56·75	58·39	66·58	72·41	77·26	81·78	82·22	82·12	79·42	69·71	58·71	52·26	69·80
3. Mobile, A.	30·12	87·59	56·40	57·37	65·64	70·00	76·36	82·17	82·41	82·73	78·94	69·97	61·50	55·50	69·92
4. Baton Rouge, L.	30·26	91·18	52·37	51·86	61·55	68·99	76·58	82·9	80·1	82·04	76·58	66·84	62·47	55·89	68·18
5. Jackson, L.	30·51	91·1	47·6	49·4	56·6	65·4	70·8	78·7	81·7	79·9	75·1	67·4	50·	48·4	64·25
6. Houston, T.	31·54	95·56	65·2	60·5	68·7	72·7	85·5	80·1	84·2	81·4	83·5	72·3	62·3	60·0	73·03
7. Natchez, M.	31·34	91·25	50·13	50·89	62·2	69·93	72·72	80·62	81·78	80·13	74·99	64·58	55·23	49.09	66·10
8. Vicksburg, M.	32·24	91·6	51·40	53·72	63·99	74·01	76·84	80·65	82·48	80·11	76·40	64·92	55·26	50·91	67·56

To compare with these, we shall further adduce, from the same Tables, the mean temperature of places on the Atlantic coast, as in Florida, Georgia, and Carolina, as well as in the interior of the two last.

	Lat. N.	Long. W.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
9. St. Augustine, F. . . .	29°50′	81°27′	60·73	64·97	67·55	70·06	76·89	81·41	82·81	82·67	80·16	73·83	63·55	60·92	72·13
10. Savannah, G.	32·5	81·10	52·15	53·74	61·19	67·36	73·14	77·89	82·23	82·09	75·96	66·92	57·20	50·50	66·70
11. Charleston, C.	32·47	79·57	49·61	52·80	58·34	63·20	75·19	78·85	80·70	80·15	74·3	66·7	58·6	51·8	65·91
12. Fort Johnston, C. . . .	34·0	78·5	51·42	52·19	60·52	65·28	73·70	78·98	81·57	80·39	76·32	69·11	60·13	53·83	66·96
13. Columbia, C.	34·0	80·58	37·7	42·9	47·3	62·2	67·3	72·4	76·1	76·5	66·3	53·2	43·7	39·5	57·09
14. Augusta, G.	33·28	81·54	45·69	47·63	53·66	62·34	69·38	77·72	79·47	75·95	72·96	60 35	54·23	43·45	61·90

The climate of Georgia is somewhat warmer than that of Carolina, but the low flat country of both is moist and unhealthy. The spring is commonly rainy, the heat of summer is considerable, but relieved by the gentle winds which blow almost daily from the sea. The winds change from S.E. to S.W. about the end of July, but variable, from storms of thunder and lightning, and the heavy rains of July and August. The cold weather seldom commences until about the beginning of December, and terminates in March; but the winter is usually mild, and snow seldom falls near the sea, and soon melts away. The hilly parts, 200 miles from the sea, are agreeable and favorable to health. The winter is colder; snow falls to the depth of five or six inches. Though the above Tables are sufficient to give a general idea of the climates, it would be desirable for agricultural purposes to have also the maxima and minima; for a night of frost may destroy plants, as great heat with drought will be equally injurious from drying them up. Cotton is sown in April, picking commences in July or August, and continues till November, and, on the coast, sometimes even to December. The returns per acre are about 125 lbs. or 130 lbs. of Sea Island cotton to the English acre. Of the short staple cotton, Mr. Spalding states that in the hill country, from the Mississippi to the Carolinas, not more than 500 lbs. of seed cotton, or 150 lbs. of clear cotton, can be obtained to the English acre.—(*Ure*, i. p. 115.) The short staple cotton is cultivated all the way from the southern borders of Virginia to the south-western streams of the Mississippi. The mean quantity over all is given by Mr. Spalding at 125 lbs. of both Sea Island cotton wool and of the short stapled wool to an English acre, but the amount of labor is much greater for the former than for the latter.—(*Ure*, Cotton Manufacture, i. p. 116.)

In comparing the climate of the above cotton regions with that of other countries, it is necessary to remember the peculiarity of American climate, with which this article was commenced, and also how much the best cotton districts are influenced by the Gulf of Mexico or the Atlantic ocean. The climate to the west of the Alleghany mountains is considered more mild than that under the same parallels in the Atlantic States, and by some even to the extent of 3° of latitude. This has been explained by the warm air of the Gulf of Mexico being driven up the basin of the Mississippi as well as that of the Ohio. The configuration of the valley being north and south no doubt favors the course of the southern winds, while the valleys of the Atlantic States being transverse, oppose any such transmission, or the migration of plants. The majority of the places of which the mean temperatures have been adduced being on the sea-coast, necessarily participate to some extent in the peculiarities of insular climate, that is, of seasons moderately contrasted. But still the differences between the hottest and the coldest month of the year is much greater than at Vera Cruz, that is, than 12°; being at Mobile, Galveston, and New Orleans, 27°.23, 29°.10, and 29°.96, respectively. But in the interior, at Natchez and at Vicksburg, the differences are greater, being 32°.69 and 31°.57. On the Atlantic States the differences are nearly as great as those on the south coast, being 31°.73 at Savannah, and 31°.09 at Charleston, while in the interior the differences are much greater, being 36°.02 at Augusta, and 38°.80 at Columbia. The application of these facts we shall pursue in a subsequent article.

The Stomach.—I firmly believe that almost every malady of the human frame is connected with the stomach; and I must own I never see a fashionable physician mysteriously consulting the pulse of his patient, but I feel a desire to exclaim—Why not tell the poor gentleman at once, "Sir, you have eaten too much; you've drunk too much; and you have not taken exercise enough!" The human frame was not created imperfect. It is we ourselves who have made it so. There exists no donkey in creation so overloaded as our stomach.

ACTION.

As amongst the Egyptians, the lion was the hieróglyphic of strength, so was the horse of agility; and truly nothing displays it more elegantly than he does, when gamboling in a state of liberty. In the race-horse, action, as in eloquence, is the next thing to substance; and *virtus in actione*, should be the horse-breeder's motto. But the action of the race-horse is of a nature peculiar to his calling. He must not only possess great stride in his gallop, the result of just proportion in his limbs and moving levers, but also a quickness in repeating that stride, or he would lose in time what he gains in space. It is then when stride and quickness are united, that the fleet courser is produced; and in his race with Diamond, Hambletonian is asserted to have covered twenty-one feet at a stroke at the finish of it; and Eclipse is generally believed to have covered eighty-three and a half feet of ground in a second, when going at the top of his speed, which, by a calculation by Monsieur Saintbel, amounted to about twenty-five feet of ground covered at a stroke.

The action most approved of in a racer, as describing the greatest extent, with the least fatigue to the animal, is what is termed on the Turf "round action;" that is, when, on a side view being taken of a horse in his gallop, his fore-legs appear to form a wheel or circle. Different ground, however, requires different action; and a large, long striding horse may be beaten on a hilly, or turning course, by one of a smaller size, but with a shorter stride, which prevents the Newmarket courses being a certain criterion of a good runner at Epsom, which is very trying ground, by reason of its acclivity, for the first half mile. The state of the ground, likewise, whether wet or dry, soft or hard, tells so much in a race, as often to give it to a horse very little thought of at starting, as was the case with Tarrare, winner of the St. Leger, at Doncaster, in 1826. The celebrated Euphrates, the winner of so many gold cups, and who ran till he was in his teens, was nearly a stone below his usual form, after even a hard shower of rain. This variation of fleetness corroborates our assertion, that the virtue of what is termed blood is mechanical, or, what is the same thing, that the excellence of all horses is mechanical, and that the smallest deviation from a true formation of the acting parts operates so powerfully as to render them, under certain exertions, nearly valueless.

WIND.

It is true, "speed wins the race;" but to make it available to the race-horse, it must be accompanied by endurance, or "bottom." A great promoter of this is clear wind, or freedom of respiration, the want of which makes the war-horse rebel in the manège, the hunter run into his fences, the draught-horse fall, as if he were shot, and the racer either stop, or bolt out of the course. In fact, when the organs of respiration are fatigued, all animals are nearly powerless. The cause of good wind may be distinguishable to the eye, and arises chiefly from depth in the forequarters, which implies a capacious thorax or chest. However wide a horse may be in his foreparts, he will not be good-winded unless he is, at the same time, deep. But still wind in the race-horse depends on something more, on the nature of his constituent and component parts, which, if in proper proportion, impart to him strength and agility, giving him that easy action which will not readily fatigue these organs of respiration; and so enable him to run on, when others, less gifted by nature than himself, are forced to slacken pace. The good effect of clear wind in a race-horse is in fact two-fold; first, it gives

him signal advantage in a race; and, secondly, horses thus organized require less work to make them fit to start.

The following passage on this point is worthy of remark: "When the animal powerfully exerts himself, a more ample supply of pure blood is required to sustain the energies of life, and the action of the muscles forces the blood more rapidly through the veins; hence the quick and deep breathing of a horse at speed; hence the necessity of a capacious chest, in order to yield an adequate supply, and the connection of this capacity of the chest with the speed and the endurance of the horse; hence the wonderful relief which the mere loosening of the girths affords to a horse blown and distressed, enabling the chest to expand, and to contract to a greater extent, in order to yield more purified blood; and hence the relief afforded by even a short period of rest, during which this expenditure is not required, and the almost exhausted energies of these organs have time to recover. Hence, likewise, appears the necessity of an ample chest for the accumulation of much flesh and fat; for, if a considerable portion of the blood be employed in the growth of the animal, and it be thus rapidly changed, there must be provision for its rapid purification; and that can only be effected by the increased bulk of the lungs, and the corresponding largeness of the chest to contain them."*

Certain thorough-bred horses would deceive an inexperienced observer as to the real state of their organs of respiration, by an appearance of difficulty of breathing, which, in reality, they do not possess. The term for this apparent defect is, in one instance, hard breathing, or high-blowing, and in another "cracking the nostrils." Of the first description was the celebrated Eclipse, whose breathing in his gallop could be heard at a considerable distance; and of the latter (still more common) may be reckoned many of the best racers of past and present days. Indeed, a race-horse cracking his nostrils in his exercise, and snorting well afterwards, are considered indicative of good windedness. On the other hand, when a race-horse becomes a roarer, which is a common effect of a severe attack of the epizootie, called the Distemper, he is rarely able to struggle in a race, although there have been several instances of winners under such very unfavorable circumstances.†

TEMPER.

Temper is a property of much importance to the race-horse, subject as he is to its influence under more trying circumstances than most other descriptions of horses. In the first place, his fine and nearly hairless skin, softened and cleansed as it is by frequent copious perspiration, is so highly sensible to the friction of the wisp and brush, as to induce him to try to rid himself of this tormentor, by attacking the person who is dressing him, and thus becomes vicious in the stable. It will also be recollected that he is at this time, perhaps, in the very highest state of condition and good keep of which his nature is susceptible. On the race-course, again, he has often to encounter the (to him) unnatural sound of music, and many strange objects; perhaps two or three false starts before he gets into a race; and too often when doing his best in a race, very severe punishment both by whip and spur. It is in his race, however, and chiefly in the last struggle for it, that the temper of the race-horse is most put to the test; and, if really bad, he either runs out of the course, to the great danger of his rider, and to the

* *Library of Useful Knowledge, Farmers' Series*, "The Horse," p. 182.

† Mr. Hull's Quibler, an English horse, afforded an extraordinary instance of stoutness. He ran, in December, 1786, round the flat Newmarket course, in *fifty-seven minutes and ten seconds:* and this year, (1848.) Trustee, by the sire of Fashion, trotted at New York twenty miles within the hour. It takes *blood* to do such things.—*Ed. P. L. & A.*

inevitable loss of his owner and those who have betted on his winning, or he "shuts himself up," as the term is, and will not head his horses, although in his power to do so. It is evident, then, that breeders should not send mares to stallions of known bad temper, as nearly all those propensities are found to be hereditary; and we could name one or two of the best horses of the present day, who are generally rejected as stallions to breed racers from by reason of these propensities.

It would be absurd to draw a comparison between the English race-horse in training, and the horse of the Desert, "educated," as Mr. Gibbon eloquently says of him, "in the tents, among the children of the Arabs, with a tender familiarity, which trains him in the habits of gentleness and attachment." Nevertheless, we are inclined to believe that the tempers of many naturally quiet horses are made uncertain, and oftentimes decidedly vicious, by want of proper judgment, as well as of good temper, in those who have the management of them. Brutes, like men, demand a peculiar mode of treatment, when we require them to do their utmost for us; and it is certain that this principle holds good in regard to both, namely, *that, in general, kindness gains its point, cruelty provokes resistance, and a proper degree of severity produces obedience.* The panther, in the fable, knew who fed her with bread, and who pelted her with stones; and we may be assured, that so noble and high-spirited an animal as the horse feels with acuteness sensations of pleasure and pain.

We often hear it asserted that the British thorough-bred horse has degenerated within the last few years, and is no longer the stout and long-enduring animal that he was in the bygone century, particularly during the last twenty years of it. We are inclined to believe that there is some truth in this. *We do not think we have such good four-mile horses, as they are termed, as formerly, which we consider easily accounted for.* They are not wanted, very few four-mile races being now run, even at Newmarket, or in the country, and, therefore, a different kind of race-horse is sought for. It may, however, be true, that the inducement to train colts and fillies, at a very early period of their lives, for these short races, has had an injurious effect on their stamina, and, consequently, on the stock bred from them. Formerly a horse was wanted for a lifetime, now he is cut up in his youth to answer the purposes of perhaps but one day;—a system, we admit, quite at variance with the original object of horse-racing, which was intended to benefit the community, by being the means of producing, as well as displaying, the constitutional strength of the horse in its very highest perfection.* Another cause may have operated in rendering thorough-bred horses less powerful than they were, or less capable of enduring severe fatigue. During the period of high weights and long courses, horses and mares were kept on in training until after they had arrived at the age of maturity, neither did they begin to work so soon; whereas now, no sooner have they won, or run well for some of our great three-year old stakes, than they are put into the stud to produce racing-stock, which is perhaps to be used much in the same manner as they themselves have been used, or, we should have rather said, abused.

But, admitting this alleged falling off in the powers and performances of the British thorough-bred horse, it may be the result of causes unconnected with those already noticed. Although there may be no era of greater intellectual brightness than another in the history of any animal but man, yet, as is signified by Plato in the eighth book of his Republic, there have always

* May we hope this will meet the eye of certain correspondents of the New York "Spirit of the Times?"—*Ed. P. L. & A.*

been periods of fertility and sterility of men, animals, and plants; and that, in fertile periods, mankind, as well as animals, will not only be both more numerous, but superior in bodily endowments, to those of a barren period. This theory is supported by the relations of ancient historians, in the accounts they give of animals which nowhere exist at present, and in the properties they ascribe to some of those which now do exist.

But to return to the alleged alteration for the worse in the British race-horse. *We admit the fact, that he is not so good at high weight over the Beacon at Newmarket, or any other four-mile course, as his predecessors were,* whose descent was closer than his is to the blood of Herod and Eclipse, and the descendants of that cross, said to be the stoutest of any. Nevertheless he is, in his present form, more generally adapted to the purposes to which the horse is applied. He has a shorter, but more active, stroke in his gallop than his predecessors had, which is more available to him in the short races of the present time than the deep rate of the four-milers of old times; and as he is now required to start quickly, and to be on his legs, as the term is, in a few hundred yards, he is altogether a more lively active animal than formerly; and, as such, a useful animal for more ends than one. In former days, not one trained thorough-bred horse in fifty made a hunter. Indeed, few sportsmen had the courage to try the experiment of making him one. He went more upon his shoulders, as well as with a straighter knee, than the modern race-horse does, and required much greater exertion in the rider to pull him together in his gallop. All those sportsmen, however, who remember such horses as the late Earl Grosvenor's John Bull and Alexander, must admit, that, in form and substance, they were equal to carrying the heaviest weight across a country, and the last-mentioned horse was the sire of several very powerful, at the same time very brilliant hunters. But as it is action after all that carries weight, the thorough-bred horses of this day are not deficient in that respect, unless undersized; and there are more thorough-bred hunters at this period, and have been more for the last thirty years, than were ever known before. This improvement in action also qualifies the full-bred horse for the road, whereas formerly not one in a hundred was fit to ride off turf. Indeed daisy-cutters and thorough-bred horses were nearly synonymous terms; but at present a young lady on a bit of blood is an every-day sight; and a young gentleman on any thing else in the parks, or on his road to hounds, is become rather a rare one. This is a very saving clause to breeders of race-horses, as a market is now generally found for such as are undersized, or tried to be deficient in speed for racing; whereas in former days a bad race-horse was, like Rosinante, neither saleable nor pawnable.

SPEED.

All animals in a state of domestication exhibit powers far beyond those that are natural to them in their wild state, and writers on the horse have advanced to the utmost verge of possibility, in recording the maximum speed of the English race-horse. Most of the instances stated by them, such as Flying Childers having run a mile in a minute, are unsupported by authority, and therefore not worthy of regard.* That the horse, however, has ever been considered the swiftest beast of the forest, may be gathered from the frequent allusions to his fleetness by inspired as well as by heathen writers. Thus, the chariot-horses of Oenomaus, King of Elis, were said to be begotten by the winds, emblematical of their prodigious swiftness; and Homer represents the steeds of Achilles to be the produce of Zephyrus (the

* We have not seen it contradicted, that Firetail, in 1772, ran a mile in one minute and four seconds.—*Ed. P. L. & A.*

west wind, said to be the swiftest of any) and Podarge, whose name signifies speed. Nor is Virgil far behind the rest in his encomium on the fleetness of his colt, which he makes to challenge the very whirlwind itself. As it is speed, however, that wins the race, it is most essential to the race-horse provided it be accompanied by stoutness; and unless we wish to fly through the air like Pacolet on his wooden horse, we may be contented with the speed of the present English race-horse. Perhaps the following is a fair specimen; and as it is of a late date, the same uncertainty does not attach to it, that hangs over the unsupported traditions of our earlier racing days. In 1832, Theodore, the property of the Honorable Edward Petre, and winner of the Doncaster St. Leger Stakes, ran the distance, being one mile seven furlongs, or two miles, all but one-eighth part of a mile, in three minutes and twenty-three seconds, carrying eight stone six pounds. He was trained by the late Mr. Croft, who also trained the second and third horses in the same race.*

EXPENSES OF A BREEDING RACING-STUD.

Some persons must be breeders of race-horses, but whether to profit or loss, depends on various circumstances. Amongst them may be reckoned the following:—Judgment in selecting the parent stock or blood; conveniences for keeping the produce well and warm, and on land suitable to breeding; and plenty of money at command, to enable a breeder to purchase mares of the very best racing families, and to put them to the best of stallions. When this is the case, we think breeding (we mean quite distinct from risk in racing) would seldom fail to pay, if the foals were sold off at weaning time, or even at a year old. A few years back, eight of the Earl of Durham's *foals* realized £200 a-piece; and, still later, several of Mr. Nowell's (of Underley Hall, Westmoreland) yearlings fetched the enormous sum of £500. No doubt, in all studs great loss is sustained by a certain proportion of the young stock which promises to be small and not worth training; but here breeders are often deceived. For example, the late Lord Grosvenor sent Meteora. the best mare in England of her day, to Chester Fair, when two years old, to be sold for £16, because she was considered as too small; and he also suffered Violante, the best four-mile racer of her day, to be sold, *untried*, for £50, but fortunately purchased her again. The great prices, however, occasionally paid to breeders for some horses, (4000 guineas, for example, to the Earl of Jersey, for Mameluke, the like sum for Priam, and 3000 guineas a-piece have lately been given for other three-year-old colts,) make up for the loss inseparable from such as, by mis-shape, diminutive size, and casualties, are culled out, and sold for what they will fetch, which seldom amounts to much.

VALUE OF STAKES AND PRIZES.

Agamemnon is made to say, that that man would be rich who had treasures equal to the value of the prizes the horses had won, which he offers to Achilles. We are inclined to think, that if this king of Argos could come amongst us now, he would find prizes more valuable than any contended for

* Uneas ran the mile at E. Feliciana, Louisiana, in 1′45½, 1′48, 1′47½.
Beta, at Nashville, in 1′45, 1′45, 1′57, 2′01.
The two-mile heats were run by Ann Hays, at New Orleans, in 3′43½, 3′42½.
The three-mile heats were run at the Union Course, Long Island, by Treasurer, in 5′42.
The four-mile heats were run by Fashion, on the Union Course, Long Island, in 7′32½ 7′45, May 10, 1842.—*Ed. P. L. & A.*

in his time; and that sterling cash, and not "the bubble honor," is the main object of the British sportsman on the turf. But here is the inducement to incur the great expenses of a racing breeding-stud. It is possible that a three-year-old *colt* might have won last year, at three starts, the enormous sum of 8350 guineas.* But even this is comparatively trifling when compared with the doings on the turf in the New World. A produce stakes of 5000 dollars each, 1000 forfeit, is to be run for over the New York Union Course in 1843, for which the produce of twenty-nine mares are named; and, supposing all to come to the post, the owner of the winner would be entitled to receive 145,000 dollars! The stakes closed in January, 1839, and the distance to be run is four miles.

COLOR OF THE THOROUGH-BRED HORSE.

The beauty of forms observable in the animal system is subordinate to their general utility, and they please us in proportion to their aptitude to unite these two objects. We admire the elegant make of a swan, but the pleasure is doubled when we behold the ease and dignity of its motion. The colors, however, which Nature has bestowed with such profusion upon the surface of some of these animals, birds in particular, exhibit beauties independent of aptitude, and could only have been intended for their adornment. The prevailing color of the thorough-bred horse is peculiarly elegant and chaste, being a bright bay, with black mane and tail, and black legs to correspond, although occasionally relieved with a small white star on the forehead, or a white heel of the leg. It is remarkable, that what may be termed vulgar colors, such as light sorrel, or dun, or brown with mealy muzzle, are very seldom met with in the thorough-bred horse; and we know but one instance of the piebald, and very few roans.† Black is not common nor approved of, although several of our best racers, almost all the Trumpator blood, have been of that color, Smolensko amongst them. The real chestnut prevails a good deal, and is quite equal to the bay in the richness and brightness of its hues. Such was the color of Eclipse; and, as is the case with game-fowls, in the breeding of which there are instances of a reversion to the original color, after fifteen descents, it is not uncommon for thorough-bred stock to be chestnuts, although got by a bay stallion out of a bay mare, or from sire and dam of any other color, provided the blood runs back to his, Eclipse's source. Indeed, a small dark spot which that celebrated horse had on his quarter has been frequently found in his descendants in the fifth or sixth generation.

It is an old and trite saying, that "a good horse cannot be of a bad color;" nevertheless, colors of horses are, to a certain extent, indices of their physical powers. Such has proved to be the case with men; and it was found in the ill-fated Russian campaign, that men of dark complexions and black hair bore the severity of the climate better than men of an opposite appearance to them. It is, however, rather a remarkable fact, that by far the greater number of eminent English prize-fighters have been men of light, not dark complexion. The ancients reckoned thirteen colors of horses, giving the preference to bay (badices).‡

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* *Vide Racing Calendar*, 1834, for amount of the twentieth Riddlesworth stakes, at Newmarket; the Derby and Oaks, at Epsom; and the St. Leger stakes, at Doncaster.

† See *The Corker*, by W. Sketchley, Gent. Lond. 1814. General Washington owned and ran one called the "Roan Colt."—*Ed. P. L. & A.*

‡ General Jackson preferred the iron-gray; and his performances of one sort and another on the turf were long strides in his advancement to the Presidency.—*Ed P. L. & A.*

ENGLISH TABLES,

USEFUL TO THE READERS OF ENGLISH AGRICULTURAL WRITINGS.

As it is not convenient to be changing sterling into American currency in all cases of quotations from English journals, it will be well for every reader in the country to bear in mind that the pound sterling for ordinary calculations may be regarded as about equivalent to five dollars, the English shilling to 24 cents, or say a quarter of a dollar, and the English penny to two cents.

The stone weight, so often met with in English agricultural writers, sometimes means eight pounds, as for instance, when applied to meat; otherwise, according to the following tables, the most authentic to be found, 14 pounds would be understood as a stone.

No little perplexity is often experienced by ordinary readers, in understanding the true meaning of the terms employed to convey what writers intend to be understood, when speaking of measures of capacity, measures of weight, surface, volume, &c. We give, therefore, here from the London Literary and Scientific Almanac for 1846, the following useful tables, or such at least as we suppose may be so, to many of our readers. These tables will be found convenient for reference from time to time.

WEIGHTS AND MEASURES.

William the Conqueror introduced into England what was called Troy Weight, from Troyes, a town in the province of Champagne in France, now in the department of Aube; where a celebrated fair was held. The English were dissatisfied with this weight, because the pound did not weigh so much as the pound in use at that time in England. Hence arose the term Avoir du poids, which was a medium between the French and ancient English weights.

All measures of capacity were first taken from Troy weight, and several laws were passed in the reign of Henry III., enacting that 8 lbs. Troy of wheat, taken from the middle of the ear, and well dried, should make one gallon of Wine measure; and eight such gallons made a bushel.

Avoirdupois weight was first made legal in the reign of Henry VII., and its particular use was to weigh provisions and coarse heavy articles. Henry fixed the stone at 14 lbs., which has been confirmed by a recent act of parliament.

Agreeably to the Act of Uniformity, which took effect 1st January, 1826,

The term measure may be distinguished into seven kinds, viz.: length, surface, volume, specific gravity, capacity, space, time, and motion.

The several denominations of these measures have reference to certain standards, which are entirely arbitrary, and consequently vary among different nations. In this kingdom,

The standard of Length is a Yard.
Surface, is a Square Yard, the $\frac{1}{4840}$ of an Acre.
Solidity, is a Cubic Yard.
Capacity, is a Gallon.
Weight, is a Pound.

The standards of angular measure and of time are the same in all European and most other countries.

1. Measures of Length.

The imperial standard yard is divided into three feet, and each foot into twelve inches, and its length is fixed, (see act of Parl. 5 Geo. IV. c. 74,) by reference to the length of the pendulum vibrating seconds in the latitude of London, in a vacuum at the level of the sea; the former being to the latter in the proportion of 36 imperial inches to 39·1393 imperial inches. The length of the seconds pendulum at Greenwich is 39·12929 inches; at Leith Fort, (nearly in the parallel of Glasgow,) under the same circumstances is 39·1555 imp. inches; and at New York, 39·1017 imp. inches. The imperial standard yard may, however, be more distinctly defined as the

distance between the points of oscillation and suspension of a pendulum vibrating (in a mean solar day in a vacuum at the level of the sea) at London 90088 times. The Scots' standard ell (the use of which is now abolished) measured 37 imperial inches. The French standard measure, (which is defined as the ten-millionth part of the quadrant of the terrestrial meridian,) measures 39·371 imp. inches, the French toise 76·735 imp. inches, and the French foot 1·06577 imp. foot. The French decimetre measures 3·937 inches, the centimetre ·3937 of an imp. inch, and the millimetre ·03937 of an imp. inch.

An inch is the smallest lineal measure to which a name is given, but subdivisions are used for many purposes. Among mechanics the inch is commonly divided into EIGHTHS. By the officers of the revenue, and by scientific persons, it is divided into TENTHS, HUNDREDTHS, &c. By engineers it is frequently divided into twelve parts called lines, each of which may be made to represent one inch, and the inch one foot.

Inches.	Links.	Feet.	Yards.	Pole or Perch.	Chains.	Furlongs.	Mile.
7·92	1						
12	1·515	1					
36	4·545	3	1				
198	25	16·5	5·5	1			
792	100	66	22	4	1		
7920	1000	660	220	40	10	1	
63360	8000	5280	1760	320	80	8	1

3 inches make a palm, 4 inches a hand, 5 feet a pace, and 6 feet a fathom.* In Cloth Measure 2¼ inches = 1 nail, 4 nails = 1 quarter, and 4 quarters = 1 yard.

The Surveyor's Chain contains 4 poles, or 22 yards, or 66 feet, or 792 inches, which being divided into 100 links, gives 7·92 inches for each link. The square Chain is equal to 484 square yards, or 1·10th of an acre. The Geometrical Pace is 5 feet, the Military Pace two and a half feet.†

3 miles form 1 league, 60 geographical miles, or 69½ English miles equal 1 degree, 360 degrees equals the circumference of the Globe, or any circle.

CLOTH MEASURE.

Scotch and Irish linens, all sorts of woollen cloths, muslins, ribands, cords, tapes, &c., are measured by the yard.

Dutch linens, called Hollands, are bought by the Flemish ell, and sold by the English ell. The Flemish ell is also used in measuring tapestry.

The yard in cloth measure is the same as in Long Measure, but differs in its divisions and subdivisions.

2¼ Inch	make 1 Nail	nl.
4 Nails	1 Quarter	qr.
4 Quarters	1 Yard	yd.
3 Quarters	1 Flemish ell	Fl. ell.
5 Quarters	1 English ell	Eng. ell.
6 Quarters	1 French ell	Fr. ell.
4 Inches	1 Hand, used for height of horses.	
6 Feet	1 Fathom, used in measuring depths.	

* The fathom is used in sounding to ascertain depths, &c., and for measuring cordage.

† The pace is a measure taken from the space between the two feet of a man in walking, usually reckoned at 2½ ft., but the geometrical pace is 5 feet.

LONG MEASURE.

This measure is used to measure all things that have length, height and depth, without regard to breadth.

An inch is the smallest lineal measure to which a name is given, but the length of a mile is not the same in every country. The Scotch and Irish miles were formerly about $1\frac{3}{4}$ English, but are now the same as English. A Spanish and Polish mile is about $3\frac{1}{2}$ English. A Swedish, Danish, and Hungarian mile is from 5 to 6 English miles. A Russian mile or verst is about $\frac{3}{4}$ of an English mile; and the French toise is about 6 feet

The Dutch mile is		8101	yards.
Roman		1628	"
Arabian		2148	"
Persian Parasang		6086	"

4	Inches	make 1 Hand		hd.
$7\frac{23}{25}$	Inches	1 Link		lk.
12	Inches	1 Foot		ft.
$2\frac{1}{2}$	Feet	1 Pace		pace.
3	Feet	1 Yard		yd.
5	Feet (a geometrical)	1 Pace		pace.
6	Feet	1 Fathom		fath.
$5\frac{1}{2}$	Yards	1 Rod, Pole, or Perch		rod, p.
4	Poles, or 100 Links	1 Chain		ch.
40	Poles, or 10 chains	1 Furlong		furl.
8	Furlongs, or 1760 yards	1 Mile		mile.
6	Miles	1 League		lea.
60	Geographical Miles, or $69\frac{1}{2}$ English Miles	1 Degree		deg. or °
360	Degrees	The circumference of the Globe or any Circle.		

II. MEASURES OF SURFACE.

The imperial square yard contains 9 imperial square feet, and the imperial square foot 144 imp. square inches; the circular foot, (that is a circle whose diameter is 1 foot,) contains 113·097 square inches; and the square foot contains 183·346 circular inches (that is circles whose diameters are each 1 inch). The French square foot contains 163·563 imp. square inches, and the square decimetre 15·506 imp. square inches.

This measure is used for all kinds of superficial measuring, such as land, paving, flooring, roofing, tiling, slating, plastering, &c., &c., and any thing having length and breadth only.

Flooring, roofing, thatching, &c., are measured by the square of 100 feet, and bricklayers' work by the rod of $16\frac{1}{2}$ feet, the square of which is $272\frac{1}{4}$ feet, though this is partly a cubic measure, as the brickwork is reckoned to be one and a half brick thick.

Square Inches.	Square Links.	Square Feet.	Square Yards.	Square Pole or Perch.	Square Chain.	Square Rood.	Acre.
62·726	1						
144	2·295	1					
1296	20·661	9	1				
39204	625	272·25	30·25	1			
627264	10000	4356	484	16	1		
1568160	25000	10890	1210	40	2·5	1	
6272640	100000	43560	4840	160	10	4	1

Land is measured by a chain, called Gunter's Chain. It is 4 poles, or 22 yards long, and consists of 100 equal links, each $\frac{23}{25}$.

Ten chains in length and one in breadth, or 100,000 links, make an acre.

640 Acres	= 1 Square Mile.
30 Acres	= 1 Yard of Land.
100 Acres	= 1 Hide of Land.
40 Hides	= 1 Barony.

III. Measures of Volume.

The imperial cubic (or solid) yard, contains 27 imperial cubic feet, and the imperial cubic foot contains 1728 imperial cubic inches. The cylindric foot (that is a cylinder 1 foot long and 1 foot in diameter,) contains 1357·17 cubic inches. The spherical foot (that is a sphere 1 foot in diameter) contains 904·78 cubic inches; and a conical foot (that is a cone 1 foot in height and 1 foot in diameter at the base) contains 452·39 cubic inches. The cubic foot contains very nearly 2200 cylindrical inches; (that is cylinders 1 inch long and 1 inch in diameter,) it contains very nearly 3300 spherical inches, (that is spheres 1 inch in diameter;) and it contains very nearly 6600 conical inches (that is cones 1 inch in height and 1 inch in diameter at the base.) The cubic metre contains 34·3166 imperial cubic feet; the cubic decimetre contains 61·027 imperial cubic inches, and the cubic centimetre contains ·061027 of an imperial cubic inch.

SOLID OR CUBIC MEASURE.

A cube is a solid body, and contains length, breadth, and thickness, having six equal sides. A cube number is produced by multiplying a number twice into itself, thus 64 is a cube number, and is produced by multiplying the number 4 twice into itself, as $4 \times 4 \times 4 = 64$.

1728	Inches	make 1 Foot.
27	Feet	1 Yard
40 50	Feet of Rough, or Feet of Hewn Timber	1 Ton or Load.
108	Feet	1 Stack of Wood
128	Feet	1 Cord of Wood.
$277\frac{1}{4}$	Inches	1 Imperial Standard Gallon.
$2218\frac{1}{5}$	Inches	1 Imperial Standard Bushel.

The English foot is to the Paris foot as 1 to 1·065977.
The English square foot is to the Paris as 1 to 1·136307.
The English cubic foot is to the Paris as 1 to 1·211277.

IV. Standard of Specific Gravity.

The imperial cubic inch of distilled water, (according to act of Parliament, before cited,) weighed in air by brass weights, at the temp. of 62° Fah. therm. (the barometer being at 30 inches,) weighs 252·458 imperial Troy grains: and at 391 or the maximum density, it weighs 253 imperial Troy grains; consequently, the imperial cubic foot of distilled water at 621 weighs 997·137 imperial avordupois ounces. The cubic foot of water is commonly reckoned to weigh 1000 ounces, or $62\frac{1}{2}$ lbs. avoirdupois weight. The cubic centimetre of distilled water at 391 weighs 15·540 imperial Troy grains, and the cubic decimetre 155·40 imperial Troy grains, or 2·206 pounds imperial avoirdupois weight.

DIVISION I.—AVOIRDUPOIS WEIGHT.

This weight is used in almost all commercial transactions, and in the common dealings of life.

By an act of parliament passed the 5th of October, 1831, and which came into effect on the 1st of January, 1832, it is directed that all coals, cinders,

and culm, sold from and out of any ship or vessel in the port of London, or at any place within the cities of London and Westminster, or within the distance of 25 miles from the General Post-office, in the city of London, shall be sold by weight, and not by measure.

Coals sold in any quantity exceeding 500 lbs. are to be delivered to the purchaser in sacks containing either 112 lbs. or 224 lbs. net; 10 such sacks, or 2240 lbs. make a ton, equal to 20 cwt.; 25½ cwt. are equivalent to 1 chaldron. A barge load or keel is 21 tons, 4 cwt.; and a collier, or ship load, about 20 such keels, or 424 tons.

By an act of Parliament which came into effect on the 29th of September, 1822, bread must be sold by the pound avoirdupois, and bakers are prohibited from selling by the peck loaf with its subdivisions.

Flour is sold nominally by measure, but actually by weight, at 7 lbs. avoirdupois to a gallon, 14 lbs. to a peck, &c.

By a late act of Parliament the legal stone is, in all cases, to consist of 14 lbs. avoirdupois; 8 such stones 1 cwt.; 20 cwt. one ton, &c.

Troy Grains.	Drams.	Ounces.	Lb.	Stones.	Qrs.	Cwts.	Ton.
437·5	16	1					
7000	256	16	1				
98000	3584	224	14	1			
196000	7168	448	28	2	1		
784000	28672	1792	112	8	4	1	
15680000	573440	35840	2240	160	80	20	1

Peculiar Weights belonging to this division:

			Cwt.	qr.	lb.	
8	Pounds	= 1 Stone				Used for Meat.
14	Pounds	= 1 Stone	= 0	0	14	Used in the Wool Trade.
2	Stone	= 1 Tod	= 0	1	0	
6½	Tods	= 1 Wey	= 1	2	14	
2	Weys	= 1 Sack	= 3	1	0	
12	Sacks	= 1 Last	= 39	0	0	

We were lately conversing with a gentleman of character and intelligence not surpassed by any cultivator of the soil in this or any other country. His residence is near Darien, Georgia. He approved entirely of the doctrines maintained in this journal, as to the mutually friendly connection between American ploughs and American looms and anvils, and, to our surprise, maintained with the utmost confidence, that, for manufactures, there might be obtained, in Georgia, white labor as abundant and cheaper than in Massachusetts. There is no doubt that the same thing may be affirmed of the region of Virginia, where the power for manufactories is superabundant, and where demand would soon be followed by abundance of materials, as timber, wool, iron, &c. But for the "last thirty years" the Virginian has been convinced, he says, that there is nothing like that "free trade" under which the whole tide-water country has been as dormant as a fine buck shot down in his tracks.

Connubial Statistics.—The Lowell Offering states that in one mill, during the past eighteen years, eighty-two of the "boys," and four hundred and five girls have been married during five years; and from another mill one hundred and eighty-seven of the girls have been married during five years; and from a single room in another corporation twenty-eight were married in one year.

"THE VALLEY OF THE MISSISSIPPI."

MESSRS. EDITORS,—Under the above heading, in your number for this month, you have expressed very just views in relation to the subjects treated of in a little pamphlet of mine, which was a republication of a series of newspaper articles. This series has since been continued; and in subsequent articles I have endeavored to show *what* fabrics the West are *now* prepared to manufacture with profit, and have fully stated these to be the *coarser description of cotton cloth*, or sheetings, at and under number 14, heavy drillings, tickings, and cotton flannels, &c., on which we have such an immense advantage in transportation, and which require so little skill in the fabrication; and the opinion, that as soon as we should begin to erect mills for such manufactures, the East would not attempt to compete with us, was thus qualified. The object of this communication is to place myself right before those who have read your comments.

Of the 2,200,000 bales of cotton produced in this country, over 1,000,000 bales are probably made up into these coarse cloths. Cheap food, cheap power, (coal at $2\frac{1}{2}$ to 5 cents a bushel,) cheap material, and cheap transportation, give to Lower Ohio an advantage, in the manufacture of these goods, of at least 20 per cent. over New England, and of 30 per cent. over any position in Europe. Here, then, should be the *locus in quo* for the manufacture of these goods. As for female labor, (unskilled labor, just now,) we have it in great abundance. You of the East have employments of every kind for such labor, while we have comparatively none for it, save in our cities. The United States is the only agricultural country on earth in which females do not labor in the fields; and, in our western rural districts, in every family there is probably an average of two females above the age of fifteen, who would be glad to work for three years in a convenient and respectable cotton factory at less than eastern prices. For the manufacture of these *coarse* fabrics, three years are sufficient for our purpose. Under the admirable Lowell system, the operatives at fine, as well as coarse work, average only about four years in the mill. The erection of the mills I have advocated would give profitable employment for our females at the very time when their labor at home is comparatively unproductive, say from fifteen to eighteen; and, in most cases, they would obtain a better education during their three years at the mill than at home. The working up of this million of bales here, at present prices, would pay our carriers about one and a half millions of dollars more than they now receive, and would distribute among the laborers in the mill and the field, the *home* factors and stockholders, the enormous sum of sixty-two millions of dollars per annum. We should then control, not only the cotton, but the cotton fabric;—not the laces for the rich, but the covering for the masses:—the material and the product that has become a necessary of life to the savage and semi-barbarian, as well as to civilized man.

The advantage before stated applies as well to foreign as western demand; for we have, on the banks of our rivers, and above our coal beds, every material in the greatest abundance and perfection for ship-building. The county of Perry, Indiana, scarcely a nail's breadth on our map, has full 200,000 acres of wild land, a large part of which is subject to entry with soldiers' warrants, at a cost of seventy cents an acre; its surface is hilly, but its soil is fertile; in most of its hills, and above high-water, are horizontal strata of rich bituminous coal, averaging over four feet in thickness; above is the primeval forests of oak, poplar, chestnut, ash, black walnut, hickory, cherry, maple, and gum, in quantities sufficient for the construction of a navy; the Ohio borders this county for fifty miles; and, from nearly every one of its townships timber can

be floated in the spring to the Ohio, by the Anderson, Deer, Bear, and Oil creeks, (rivers;) under the surface is the best of iron ore; within a few miles are the rich hemp fields of Davis county, Kentucky; in Missouri are rich and convenient beds of copper; and all around is the cheapest food on earth. From this point ships of five hundred tons can be taken to sea with full freights during six months of the year. Why, then, should we not supply ships for the maritime districts of the world, now nearly denuded of timber, after they have borne our coarse cotton fabrics to the most remote consumers? Why should we continue to send our peculiar staples, corn, meat, and cotton, to be combined at Manchester into cloth, and then sent to China in ships made of the fresh-water timber of the St. Lawrence?

I, for one, deprecate the introduction among us of a manufacturing *caste;* I would afford no encouragement to hand-loom weavers, or the makers of tapestry and laces. Let these fabrics be still and for ever made where labor is cheap; but, unless we soon create a division of labor, and make a market for our agricultural products at home, we shall soon be cursed with the caste referred to.

You have doubtless observed that, within the last few years, a very large proportion of the foreign emigrants are mechanics and manufacturers; a large portion seek homes in the West; their preference is for the country and a freehold; but, as agricultural products are now at a low price, they are crowding into our cities, and bringing and communicating the vices of the districts from which they come. The only means of prevention before us are the reduction of agricultural labor; the working up of more of our materials; and the adoption of the Lowell system, by which but a few years of labor in the mill are required.

To my apprehension, we are just now in the transition state. In a very few years more the prices of our great staples must fall to a point much lower than now; and land and labor must correspond. Then we shall have a *mania* for manufacturing *every thing*. The general proposition will be—manufacturing labor, *ex necessitate rei*, must receive a higher reward than agricultural labor. As our people are peculiarly impulsive, they who can will rush at once into the new business; many will not have counted the cost; many will rely on general principles, and fail in consequence of their ignorance of qualifying causes. Whatever is unwisely done will not only affect ourselves, but the sections of the East with whom we should compete, and the Eastern cities by which we are supplied with foreign goods.

The Eastern factors and manufacturers, from Portland to Richmond, are mainly dependent on this great valley for their profits; if we are prosperous, so are they; if we are depressed, so are they; if we cannot pay for what they have sold, and have made to sell us, they are ruined. It is their interest that we should increase in wealth by every means in which wealth is produced; if we waste our labor in keeping up the expensive machinery of exchanging cheap and bulky articles, we have nothing to pay for the cost or profit of what is made abroad for us; but if our labor is mainly employed on the machinery of production, we can pay the highest profits on what we obtain from others.

If we now manufactured at home our axes, scythes, and chains, our coarse carpets, coarse cottons, &c., and then sent our surplus wheat, corn, and pork, to foreign markets, in vessels built of our cheap timber, and rigged with cordage made of our cheap hemp, we could give profitable employment to your Eastern artisans on fine work, and insure a satisfactory business to your factors who furnish us foreign luxuries.

And now, let me ask you, who are endeavoring to teach us how to grow rich and independent by bringing the loom nearer the cotton, to teach us

how to make and operate the loom and the spindle. You once gave us, month after month, the cost and the profits of the plough; you *detailed* all the best experiments made in the field. Now let us have, *in detail*, the cost, and the most profitable way of using the anvil.

Your machine-shops, as is said, now lack work; we need machinery, but we do not know how and where to get that machinery which will do the best and most work. If your machinists will show us the relative capacity of their machines, how we can obtain them, and how use them, and what profit we can make by using them, we may send on more orders than can be filled.

Supply us with the tools to make our coarse fabrics out of our heavy and bulky materials, then show us how to use these tools most advantageously; and, while we consume largely of and pay promptly for your costly broadcloths, lawns, fine muslins, and imported silks, we can afford to pay more for the product of your seaboard fisheries than we now have to spare for all our imports. Yours, respectfully, HAMILTON SMITH.

Louisville, Ky., Oct. 29, 1848.

THE IRISH POOR IN LIVERPOOL.

"THE Liverpool vestry have been appealing to Sir George Grey for relief from the prospective immigration of the Irish during the approaching winter: it has already commenced. Frightful consequences are apprehended from the outbreak of cholera among the crowded thousands. Last year, sixteen medical officers perished from fevers caught in attending the sick: and so great a mortality occurred in the permanent local population, that districts have been extensively depopulated, 4000 houses are uninhabited, and an expense of $40,000 incurred. The fare from Dublin to Liverpool is only 1*s.*, whilst it is 4*s.* to return. Sir George Grey, in reply, held out no hope of assistance."

Such are the results of the separation of the loom and the anvil from the plough and the harrow. Ireland abounds in rich lands untouched. She is capable of affording abundant food to quadruple her present population; but the colonial system has deprived her of all her consumers of food, and the producers are ruined. Forced to fly, as do the people of Virginia and South Carolina, they make their way to Liverpool or Glasgow, there to starve in wretched cellars, unless they can find means for further emigration, perhaps to die of ship fever on the way to Canada. England is now paying the forfeit of her system. Her Indian customers have been ruined; and every week furnishes new evidence that the power of India to consume foreign cloths has diminished, because of the impoverishing effect of a system that compels men to waste on the road the labor and the manure that should be applied to the work of production. Ireland is ruined; and the latest journals express the strongest apprehensions of the effect likely to result from the immense immigration of poor people who would stay at home if they could, and who *could* do so were it not that they have been limited to agriculture as their sole means of employment. The last number of the Westminster Review [Oct., 1848] speaks of the "certain and rapid deterioration in the condition of the bulk of the people of this island (Great Britain) consequent on the constant overflow into it of the increasing mass of Irish misery, without other limit than the reduction of our native population to the same level of squalid wretchedness." Famines occur in all countries in which the consumer does not take his place by the side of the producer, and pestilence follows in the wake of famine—and yet we have wise economists who teach us that the system which has ruined Ireland and India is the one under which we shall become most prosperous. Let them repeal the tariff of 1846, ineffective as it is, and they will have full opportunity to study the effect of the colonial system.

PRACTICAL HINTS FOR SMALL GARDENERS,

WHICH LARGER ONES MAY DO WELL TO HEED.

We once got a lecture, by letter, from the late John Randolph, of Roanoke, for allowing a correspondent of the Turf Register to say that Eclipse was *sired* by Duroc, instead of *got* by him. He said it reminded him of an old maid in Virginia, who called a certain old-fashioned coin a *water*-reen. The word *cloaca* in the following means the privy.

Manures.—Although it is as vain to attempt to keep a garden in good heart without manure as it is to try to preserve a good state of bodily health without a sufficiency of food, there are parties to be found every day who think the experiment worth trying. Because they keep neither horses nor pigs, they will not go to the expense of buying those substances by which the exhausted energies of the earth are restored. The starved ground, through this ungenerous treatment, is unable to repay the toil expended on it, and dwarfish and unhealthy productions are the result. Although the subject is one not very proper to be presented to ears polite, it is nevertheless of the utmost importance, and a few lines devoted to it will not be very badly spent. The question of manures may be called a national one, intimately connected with our wealth and happiness, and any one who points out the most economical modes of fertilizing the land confers a benefit on his fellow-creatures. Our observations now refer to small gardens, but a principle will pervade them applicable in some degree to the largest farms.

The resources of an ordinary house and garden, if properly husbanded, will go far towards manuring a good-sized piece of ground. All vegetable refuse, leaves, stalks, &c., should be collected into a heap, and when thoroughly rotted, will make the very best manure for flower-beds or for plants in pots. The flower-garden will never require a dressing more powerful than good leaf-mould—some special things, roses, for instance, excepted. If the sweepings of paths and of sitting-rooms, or of the house generally, which contain a good deal of sand, are mixed with this vegetable refuse, in a year a good compost will be ready for use. Wood ashes are highly beneficial for any purposes, but cinders are not desirable things except in heavy clayey soils. The fine soft ashes arising from coal, thoroughly burnt, may be always used with advantage. Bones, old rags, cuttings of hair, &c., are all useful; and the amount of these things in a year from a small family is very great. Those who live in country places may often have road scrapings for the trouble of fetching, and these are great improvers of a manure heap. All these matters should be turned occasionally, and used when thoroughly rotten and incorporated.

But the cloaca is the grand source of manure when properly managed, which is not the case in one instance in ten. In most houses there is a common receptacle, into which all substances, liquid and solid, are thrown, becoming in the process of accumulation a great nuisance, and a still more formidable one when removal becomes necessary. Now a little management will prevent the nuisance, and turn the affair to the best account. The cloaca and the dust-hole should always be adjoining, that the dust and ashes from the house may be spread over the surface of the former *every day*. Bad odors are thus neutralized, and the whole contents are removed without any unpleasantness. One thing, however, must be sedulously attended to in connection with this arrangement: no slops must be allowed to find their way into this receptacle, or the object will be defeated. All liquids brought out of the house in the morning must be disposed of in another way. If you have no kitchen garden, or no meadow land, get rid of these slops by the common sewer. If you have a larger garden, or land, have some heaps of hungry soil always ready, and saturate them with the contents of the

slop-pail. By removing these heaps and placing others, every thing will be saved, and a most efficient manure provided at small expense. When the cloaca is emptied, the mixture must stand for a year, and be turned over two or three times before it is used. If these regulations are observed, more comfort will be secured in domestic arrangements, and every thing will be available for the land.

"PLAINDEALER" is a little too plain for us. His denunciation of seedsmen, and of agricultural implement-makers, is too indiscriminate and sweeping for our columns. That impositions are frequently practised, it needs no ghost to tell us; but will "Plaindealer" tell us among what class of people rogues and cheats are not to be found?—or can he designate a profession or class of people more useful to the farmer than the honest seedsman, and the manufacturer of sound, well-made agricultural implements and machinery—to whose ingenuity, by-the-by, the farmer is much more indebted for labor-saving contrivances than to his own class.

Than imposture, in regard to the genuineness and the soundness of seed and fruit-trees, nothing can be more pernicious, or worthy of exposure and denunciation; and if "Plaindealer" will *specify cases*, he shall find us not backward in stigmatizing them with all our power; but who does not know, of that class, gentlemen as public spirited and as trustworthy as among the same number of cultivators?

How often, among farmers, do we find people ready to take advantage of the public credulity to put off some wonderful kind of wheat or potato, or corn, springing from some miraculous origin—a few grains found in a mummy-box, or in a pigeon's crop, of which the fortunate owner has a *small* parcel that he will let go as a great favor at 200 per cent. over the market price!

Foreign Provisions.—The following table has been published of the exports from the United States to Great Britain during the last five years. The increase in all articles of animal food, such as bacon, pork, butter, and cheese, appears, says the Mark Lane Express, absolutely astounding.

EXPORTS FROM THE UNITED STATES TO GREAT BRITAIN.

Articles.	1843.	1844.	1845.	1846.	1847.
Oil, sperm, gls. . .	325944	295867	907597	626633	638780
Oil, whale, gls. . .	68728	345656	184898	84356	209299
Staves, m. . . .	467	85	331	2560	2074
Naval stores, brls. .	145066	270317	279263	305654	245779
Beef, brls. . . .	6886	43117	41188	80820	66473
Tallow, lbs. . . .	3653614	4657200	5243440	6125452	5924156
Hides, No. . . .	8882	33107	41179	67058	24481
Pork, brls. . . .	3230	10280	14140	13001	73940
Bacon, bales . . .	656328	350189	96907	530026	14367105
Lard, lbs.	4569484	8976805	5678675	8211389	17798770
Butter, lbs. . . .	1059776	521829	530549	515519	1235071
Cheese, lbs. . . .	2313643	5278965	5934202	6840373	13662280
Wheat, bush. . .		22238	2010	974398	2544563
Corn, bush. . . .		89073	135688	1192680	15526525
Flour, brls. . . .	19436	167296	35355	1015244	2457086
Cornmeal, brls. . .	3	29	1	50165	713083
Rice, tierce . . .	9216	16125	18127	38271	48618
Wool, lbs.				610625	349576
Hops, lbs.		4166	68894	72252	441006

ON THE RELATIONS OF THE PLOUGH, THE LOOM, AND THE ANVIL.

LETTER FROM COL. CAPRON.

Laurel Factory, December 21, 1848.

My Dear Sir :—To answer your letter of the 3d, with satisfaction to you or myself, would require more time and reflection than I have been able to give it since it came to hand—and the closing up of the old year, with all the multifarious interests under my charge, will prevent me replying fully to your inquiries for some weeks to come.

Your letter shall lie before me to remind me, (if that be necessary,) of the duty I owe you, and the great cause you are so ably advocating, in the Plough, the Loom, and the Anvil, and shall receive my attention at the first practicable moment.

It is of vital importance to the Southern States—in fact their only salvation—*diversity of employment* with a *home market*, is what they want. Let every man, woman, and child become producers as well as consumers, in some of the various pursuits which will naturally spring up, by the conjunction of the plough, the loom, and the anvil, within their own borders, (as is the case in Massachusetts,) and the Southern States will be the great States of the Union.

There is no obstacle, either in climate, soil, or population, but what would yield to the march of improvement; if once the really great talents of the South be directed to this object, with one half the energy and ingenuity displayed in making a President, or in trying to reason themselves into the belief that it is legislating "at the expense of the *many* for the benefit of the *few*," that causes the *universal* diffusion of wealth amongst the *teeming* population of the Eastern States, and their rapid advancement to wealth and prosperity—whilst at the same time the *sparse population* of the Southern States are taking the Irishman's advance of two steps backwards to one forward. Very truly yours, Horace Capron.

The stumbling-block which keeps the Northern manufacturer from coming with his skill, and his possession of, or his ability to command capital, to put them both in force in various branches of manufacture in the South, (where so many natural advantages exist,) is the apprehension that in the South it is impracticable to make sure of the *requisite and suitable labor*. Without possessing, on this point, the full and exact knowledge that would enable us to speak with that degree of confidence which would be proper, and which we should desire to do, as a faithful interpreter or organ between the North and the South; and, aware that Col. Capron, educated in the North, and possessing, in an eminent degree, capacity and experience, could give the requisite information; having been now for a series of years managing a large factory in a sparsely settled slave-holding country, we applied to him for his views, of which this is the first instalment, or rather "note of preparation." Thus much to explain the preceding letter, and such as he may find leisure to favor us with hereafter, on a subject which is every day engrossing more and more of public attention. To us there seems to be something wanting in the public sentiment, and in the legislation of Maryland and other Southern States, to attract capital from the great commercial emporiums more into the country. Each county should have its little woollen factory and savings bank, ready to lend money to industrious mechanics, and manufacturers, and farmers, to buy materials, and implements, and lime, and manures. Something should be done—we can't exactly say what—to resist the centripetal force which draws all the surplus labor, all the surplus population, and all the surplus capital from the country into one great commercial city. It would be far better for a State to have ten towns scattered over it, of 10,000 inhabitants each, than to have 100,000 in one corner of the State. In the first case, almost every man would have the loom and the anvil near his plough. He could supply his consumer with little or no loss of time, or cost of transportation. In the last case, the cost of going and coming, of sending and fetching, consumes a great part of his substance. Let the constant study of the farmer and planter be—to draw the manufacturer to the side of the agriculturist. Let such be the spirit and tendency of all legislation that bears on the landed interest.

"COMMON SENSE" IN "THE UNION."

During three years of laborious attention, ensuing the 4th of March, 1844, while conducting the Farmers' Library, in New York, with anxiety for its success, the greater as our pay was specific, and otherwise satisfactory, our old friend Ritchie, of the Union, could never find time to bestow on our labors one word of editorial sympathy and encouragement, although he often expressed, and doubtless felt a wish to do so. As, however, it was obvious he had much higher objects to look after, there was left to us only the mortification never to be able to command a single friendly pat on the back, with a word of benediction, from an old brother chip of the press—the more reasonably to be expected, as then, at least, we had given no political offence by attempting, as now, to reconcile the interests and combine the influence of our countrymen, working at "The Plough, the Loom, and the Anvil." On the contrary, during the period referred to, under a sense of responsibility for the interests of others, which we had no right to put in jeopardy by mingling political opinions with practical instruction, we had so held on the even tenor of our neutral way, as to elicit, gratefully be it acknowledged, expressions of good-will from a great number of leading presses politically affiliated with the Union—so much so, that, vain as it turned out to be, the hope was not altogether unnatural, that these expressions reaching it from so many friendly sources, might move the great central organ to echo some of them on a low key—anyhow! Well, at the termination of that three years' engagement, feeling the hand of time beginning to press more heavily, and seeing not a "shot in the locker" for a rainy day, we determined to launch a smaller bark on our own hook, and in it put afloat once more, in the hope that, with untiring industry in the cause of those who believe with us in the natural friendliness of the plough, the loom, and the anvil, some further service may yet be rendered to them all, and especially to the first; and something be yet garnered up in the way of a little property for the down-hill of life. This might seem presumptuous, but had we not seen older and not more diligent—though it may be more skilful and lucky chaps, empowered to furl their sails at the going down of the sun, hop ashore, and snapping their fingers in the very face of Miss Fortune, sit down and laugh at the vicissitudes of political life, with ample means to enjoy all the luxuries of sense and all the pleasures of imagination? Didn't we, in fact, hear Col. Wilder, presiding at the late magnificent Horticultural Festival in Boston, relate how a gentleman, even at threescore-and-ten, being laughed at for commencing to plant fruit trees, answered that he felt bound to discharge the debt he owed to his predecessors; and actually lived, for many years, to enjoy the delicious fruits of his septuagenary plantations!

As now, however, we were heretically attempting to bring about a union of the American plough, loom, and anvil, we abandoned, of course, all hope of a kind word for our enterprise from the "Union" aforesaid; but, tugging at the oar, and asking only for *bread*, what was our surprise to have, from the sling of our old friend, a great *stone* cast with violence by some powerful hand, at our little bark, with obvious intent to crush it at a single throw, denouncing its contents as a baggage of absurd—ridiculous—preposterous—nonsense!—made up of infectious contraband, to be eschewed by the very class of our fellow-citizens for whom we have been laboring, through good and evil fortune, all our lives! A worse than wooden horse, pregnant with doctrines deserving only the countenance of that odious class of monopolizers (the manufacturers) whose very position and calling it is, by the bye, to demand and fashion the raw material, and to pay for and consume, the products of the planter and the farmer, whose true interests we are endeavoring to promote!

For this compendious denunciation of the Plough, the Loom, and the Anvil, by the correspondent of the Union, some comfort may be found, however, in the very many approvals which every day brings, similar to the following, from the Hon. Caleb Smith, of the House of Representatives :

"The only sound principle of political economy is that which you so ably advocate—to place the Loom and the Anvil in the immediate vicinity of the Plough, that the products of the earth may be converted into the various forms which the wants of the community demand, without the waste of labor required to transport them to remote points to effect this conversion, and return them in their varied forms to supply the wants of the consumer."

Such is the doctrine which we must still be allowed to advocate until convinced of our error, if error it be ; and "Common Sense" may rest assured that if he wishes to arrest its progress, particularly in the *South and West*, he must be up and doing; for, although some half-dozen, in Virginia particularly, among whom the Union circulates, as it does everywhere, have followed his advice to let go the handles of "the plough," at least fifty others, for one of these, have come to take hold of them ; and if ever there was, within our observation, a revolution of public sentiment at work on any subject, there is one in progress in the South and West in favor of a policy which shall compel the light machines of conversion to come and take their place by the great and expensive machine of production. One has only to look at the public journals to see that this sentiment has been gathering, like a young storm, within the last six months. *Vires acquiret eundo.* The people begin to see that *that is* "common sense," and it will require something more than old stereotyped assertions to arrest it.

Never having been favored by the Union in the way of an "exchange," even with a weekly, it was only after several weeks, and then by mere chance, that our attention was called to this attack on our journal that appeared in it on the 17th of December last, under the signature of "Common Sense." Every part of our February number is at this moment in the hands of the printer, and a large portion of it in type, and it is therefore impossible to bestow upon him any thing like measure for measure.

It was the "common sense" of the people who lived in ante-revolutionary times that induced them to protest against the colonial system, by aid of which Great Britain was to be made the workshop of the world. It was "common sense" that taught them that under a system which separated the plough, the loom, and the anvil, they must ever remain poor, as have Canada and *all the other colonies* of Great Britain, and therefore it was that they made the Revolution. It was "common sense" that prompted the earliest administration of the government to desire to *protect* American industry. It was "common sense" that led the patriot Jefferson to see how indispensable it was that the manufacturer should take his place by the side of the agriculturist. It was "common sense" that prompted South Carolina to adopt the system of protection at the close of the war of 1812. "Common sense" made the tariff of 1828. "Common sense" taught the people that they were ruined under the Compromise Act, and made the tariff of 1842. "Common sense" it is that is now at work to alter the tariff of 1846, and thus enable the planter and farmer to enjoy that *real freedom* of trade which results from making their exchanges with their neighbors, who consume on the land the products of the land, rather than that *bastard* freedom of trade by which men are compelled to depend on foreign markets, and to pray for potato rots, that they may find a market for their surplus corn.

The *un-"common* sense" of the few is at war with the "common sense" of the many. It repealed the tariff of 1842, and it would sustain that of 1846, in defiance of the experience of the present year. We go for the "common sense" of mankind, against the uncommon sense of those who

would direct them, and therefore it is that we advocate the policy by aid of which the farmer and planter shall be enabled to return to the land the refuse of its products, with constantly increasing return to his labor, rather than that which tends to compel him first to exhaust his land and then to run away himself, as the people of Virginia and South Carolina are now doing.

In due season we shall return to this subject. In the mean time, however, we would suggest to our friend "Common Sense" [he should change his signature to Uncommon Sense,] that he should read the questions appended to an article in our January number, and qualify himself to answer them. A more careful study of the subject, would, we believe, satisfy him that the course advocated by this journal is the one that would most tend to improve the condition, physical, moral, and political, of the people of the Union. There are more things in this world than are as yet "dreamt of in his philosophy."

P. S.—To the exclusion of some prepared matter, we beg leave to refer to the notice of "Common Sense" the following extracts, much more to his taste than any thing we could say. They are from an able and ingenuous work on the agriculture and resources of the British Colonies, written by a loyal subject of the crown, on the very eve of that Revolution which, while it made us independent in name, left us, for certain national ends, from that day to this, more or less subject to the colonial policy of the mother country. If the mantle of this author has not fallen on "Common Sense" of the Union, it would be difficult to say who can show better title to it. The doctrine of both leads precisely to the same result, to wit: to "carrying off the surplus population from the central and northern colonies," and thus "keep off the dangerous rivalship which there is much reason [for England] to fear from the manufactures and commerce of the northern colonies." The danger, let her and let "Common Sense" be assured, is now as great from the Southern and Western States, as then they were from the northern colonies, and when that danger shall have been consummated, we shall then, and only then, *cease to be colonies.*

The author had been advocating the policy of opening new countries and encouraging emigration to the West; and, for that purpose, recommended that government should provide means at *Fort Pitt:* but our canals and railroads, and the Tariff of 1846, and the doctrine of "Common Sense," are far more efficient—and hence the paralysis of all the old Atlantic States.

"In case of such a settlement being made, the whole valuable part of that continent, the southern division of it, would then be in the desirable state of improvement: the population, from being so spread round a great extent of frontier, would increase without giving the least cause of *jealousy to Britain*, land would not only be plentiful, but plentiful where our people wanted it; whereas at present, the population of our colonies, especially the central ones, is confined; they have spread over all the space between the sea and the mountains, the consequence of which is, that land is become scarce, that which is good having become all planted or patented, the people therefore find themselves *too numerous for their agriculture, which is the first step to be manufacturers, that step which Britain has so much reason to dread.** Nothing therefore can be *more political*, than to provide a superabundance of colonies to take off all those people that find a want of land in our old settlements; and it may not be one or two tracts of country that will answer this purpose; provision should be made for the convenience of some, the inclinations of others, and every measure taken to inform the people of the colonies that were growing too populous, that land was plentiful in other places, and granted on the easiest terms; and if such inducements were not found sufficient for *thinning the country considerably, government should by all means be at a part of the expense of transporting them. Notice should be given that sloops should always be ready at Fort Pitt, or as much higher on the Ohio as it is*

* Is not the correspondent of the Union of the same opinion?

navigable, for carrying all families, without expense, to whatever settlements they choose on the Ohio or the Mississippi. Such measures, or similar ones, would carry off that *surplus of population in the central and northern colonies, which has been, and will every day be more and more the foundation of their manufactures.* They never could establish such fabrics, while the plenty of good land in a good climate was so great as to afford every man an opportunity of settling; for while that was the case, none would let themselves as workmen in a manufacture. Consistent with these ideas, we see that those colonies where the good land is most plentiful in a good climate, the manufactures are trifling, or none to be found, which is the case with the tobacco colonies and with the southern ones; but in the northern settlements, where these circumstances are different, we there find many fabrics.*

"Nothing can be more fortunate than the navigation of the Ohio quite to the Apalachean mountains, at the back of the centre of all our colonies, since by that means people may, with only a small or a moderate journey, arrive at a navigation that will carry them through all that immense tract which we may in future colonize, a part of which we are now about to settle, and yet more of which I am urging the propriety of likewise settling. Were it not for this vast navigation, to the very spot almost that one would wish to have it, there would be difficulties in the people getting to the countries we wanted them to settle in; but as we possess this great advantage, it would be unpardonable not to make effectual use of it, in case the establishment of new colonies did not of itself draw the whole surplus of population away from those provinces, *the members in which want so much to be thinned.*†

"Nor is the advantage of drawing off people from the northern colonies confined to the prevention of manufactures; it is further of vast consequence to take them from countries that produce nothing valuable in a British market, and fix them in others abounding with staples of high importance to the commerce and manufactures of *the mother country: this single idea ought to be the corner-stone of all the regulations and measures adopted by this country in her transactions with America;* and if it is well pursued in future, will keep off *the dangerous rivalship, which there is so much reason to fear, from the manufactures and commerce of the northern colonies.*"

New York Canal Trade.—The Albany Evening Journal gives the following official statement of the articles which have arrived at the Hudson River by all the canals during the last four years.

The following is a comparative statement of the aggregate value of the articles:

	1846.	1847.	1848.
The Forest, . . .	$8,589,291	$8,798,373	$6,994,459
Agriculture, . . .	33,662,818	54,624,849	37,336,390
Manufactures, . . .	4,805,799	6,024,518	3,834,360
Merchandise, . . .	276,872	517,594	593,619
Other articles, . . .	3,770,466	3,127,080	2,210,623
Total, . . .	$51,105,256	$73,092,414	$50,969,461

There has been a steady increase in bacon, cheese, and butter.

Bacon, . . .	lbs.	4,000,500	4,902,000	8,183,285
Cheese, . . .	"	35,560,118	40,844,000	43,278,526
Butter, . . .	"	21,477,657	22,724,000	23,729,997

While flour, wheat, rye, and corn fell off in 1848, barley steadily increased—as in

1846.	1847.	1848.
1,427,953	1,528,090	1,548,197

Wool fluctuated most in

1846.	1847.	1848.
8,866,376	12,044,000	8,529,331

* So we are going to find many fabrics in the South and West, or there is no truth in the signs of the times. The Northern States (*then* ceasing to be colonies) are going to make our laces and fine fabrics of wool, and cotton, and silk—while the North and West will make their own coarser fabrics.

The very best of negro clothing is now made at Augusta, Georgia. The ball is rolling.

† So probably thinks our friend "Common Sense."

ELEMENTS OF AGRICULTURE,

For the use of Primary and Secondary Schools. Translated from the French, by F. G. SKINNER, *Junior Editor of the "Plough, the Loom, and the Anvil."*

By the well-known and popular house, Messrs. Carey & Hart, (the publishers,) a copy of this little work has been laid on our table for examination, and we have not the slightest hesitation in saying, with entire confidence, that it is one of *the* books which has been wanting for the sons of planters and farmers, and ought to be in the hands of every boy in the country, who can read, and has sufficient capacity to understand the simplest propositions.

It differs from other catechisms, and is new in this important particular—that instead of being gotten up in the form of question and answer, thus allowing room for the matter to be committed to memory without being understood; in this case the information is first given, and at the end is a series of questions, so skilfully framed as to draw from the pupil such answers as cannot fail to show that he has or has not *studied the chapter with attention.* This will be better understood by giving a single Lesson, as for example:

THE DIFFERENT OBJECTS EXISTING IN NATURE.

8. The art of agriculture requires some knowledge of the different objects that exist upon the surface, and in the interior of the earth. It presupposes, consequently, some acquaintance with natural history, and principally with botany, a science that treats of plants and their properties.

9. All bodies that exist upon the surface, or in the interior of the earth, are divided into three classes, called the kingdoms of nature, namely: 1. The animal kingdom, which includes man and all animals. 2. The vegetable kingdom, in which are included all vegetables, from the largest tree to the smallest plant. 3. The mineral kingdom, to which belong all rocks, stones, earths, and metals.

10. Among the beings that exist, some are endowed with life, such as men, animals, vegetables, or plants; the others are inanimate, or without life, as minerals, rocks, earths, &c. The first are called *organic bodies;* the second, *inorganic bodies.*

11. The organs are those parts of a body created for the maintenance of life.

12. It is easy to establish the distinction that exists between the beings of the three kingdoms. Those that belong to the animal kingdom grow, live, feel, and are gifted with the faculty of moving themselves, or *locomotion.* Those of the vegetable kingdom grow, and live; a proof of this last property is the faculty that they possess of nourishing and reproducing themselves. Those of the mineral kingdom grow only, and this growth takes place in a manner contrary to that of organized bodies. These last increase always from the interior to the exterior, whereas minerals increase by the addition to their surface of small particles that adhere to them.

13. The life of animals and vegetables exhibits a difference worthy of remark; it is that vegetables seem to be endowed with the reproductive power in all their parts. Thus, when the limb of a tree is cut off and planted in the earth, it may produce another tree. This is not the case with animals.

14. Minerals, and other brute bodies, united in large masses in the bosom of the earth, form rocks that are in a continual state of decomposition. The particles derived from this decomposition constitute, by their mixture with organic remains, the different species of soil that are cultivated. In other words, *soils are composed of a mixture of organic and inorganic remains.*

QUESTIONS.—1. The art of agriculture presupposes a knowledge of what? 2. What is botany? 3. Into how many kingdoms is nature divided? 4. What are organic and inorganic bodies? 5. What are organs? 6. How do we distinguish between the beings of the three kingdoms? 7. How do inorganic bodies increase? 8. What remark can be made upon animal and vegetable life?

The whole work is thus divided:

PART FIRST.—*General Notions on the Art of Cultivating the Soil, and of the different Objects that exist in Nature.*—Divisions in the Art of Cultivation.—The different Objects existing in Nature.

Vegetable Anatomy and Physiology.—The Organs of Plants.—The Root.—The Stem and

Leaves—Functions that they fulfil in the Act of Nutrition.—The Organs of Reproduction.—Fruit.—Germination.—Moral Reflections.

The Reproduction of Vegetables.—Reproduction by Generation.—Reproduction by Propagation—Layering.—Multiplication of Plants by Grafting.—Inoculating.

Part Second.—*General Consideration of the Soil.*—The Causes that Affect the Value of the Soil.—The Mineral Parts of the Soil.—Silex, or Silica.—Clay.—Carbonate of Lime.—Plaster, Marl, Magnesia, Iron.—The Organic Parts of the Soil.—The Formation of Humus, and its Properties.—The Action of Humus in the Soil.

The Physical Properties of Soil.—Texture and Depth of the Soil.—Situation of the Surface.—Subsoil.—The Effects of Climate on Vegetation.—The Effect of Climate upon Cultivation and upon Animal Economy.

Part Third.—*Ameliorators.*—General Views of Manures, Ameliorators, and Stimulants.—Liming Lands, or the Use of Lime as an Ameliorator.—Marl as an Ameliorator.—Clay and Sand as Ameliorators.

Stimulants.—Ashes.—Plaster.—Paring and Burning.

Manures.—Formation, Composition, and Action of Manures.—Litter, and Liquid Manures.—Management of Manure.—Varieties of Manure.—Folding Sheep.—Animalized Manures.—Vegetable Manures.

Finally, we have no hesitation in adopting the Preface of the translator, as indicative of the nature and value of the "Elements" before us:

When it is considered that a very large majority of the millions who are constantly in training at our country schools are to be cultivators of the soil, and that on their general intelligence, with some knowledge of the principles of their own profession, must in a great measure depend, not only the prosperity of American agriculture, but the permanence of our free institutions; every lover of his country must reflect with regret on the want of more diffusive and perfect systems of general education, and especially on the absence of a *plain, intelligible, elementary work on the principles of agriculture*, for the use of our common schools. This want, it is now confidently believed, has been supplied by what is here offered, entitled "Elements of Agriculture for the Use of Common Schools," which has lately appeared in France, under the auspices of the department for public instruction, and been sanctioned, as will be seen, by the strong recommendation of men of the highest distinction and authority for learning and benevolence.

This little work is purely elementary in its character, and so plainly written, that while the principles are brought within the comprehension of children who have attained their twelfth year, it cannot fail to be entertaining and auxiliary, if not instructive to their teachers. If in itself it does not make those who study it accomplished agriculturists, it will at least pave the way for their becoming such, by explaining the rudiments of those sciences with which Agriculture is naturally connected.

As will be perceived, by reference to the table of contents, the work is divided into three Parts. The first treats of Natural History, explaining, in a clear and simple manner, the difference between Organic and Inorganic Substances, Animal and Vegetable Life, Vegetable Reproduction, &c. The Second Part treats, in like perspicuous and intelligible style, of Climate, and its effects upon animal and vegetable life. Mineral Manures, more properly called by the French writers *ameliorators*, and Animal and Vegetable Manures, with their management and application, make up the Third Part. Finally, it has been slightly modified, as was needed, to adapt it to the soil and climate of the United States.

This little work, destined, as we believe, to find its way into every school in the Union, is very appropriately

"Dedicated, by the Translator, with unaffected respect, and a high sense of the true dignity of their profession, to the teachers of youth in the United States: the followers of a pursuit the most responsible and honorable, when properly understood; and yet, in proportion to its importance, the least honored and the worst paid, of all others."

In this instance there can be no objection on the score of cost, since the price is, as already stated, but twenty-five cents.

We will send it to any one who will remit us one, two, or five subscribers to "The Plough, the Loom, and the Anvil." The postage will be 4 or 5 cents.

CORN-PRODUCING CAPACITY OF CLARKE COUNTY, VIRGINIA.

To the Editors of the Plough, the Loom, and the Anvil:

Gentlemen:—While looking over the Alexandria Gazette, some time since, I was struck with an account of a great crop of corn, grown by Mr. Blair, near Washington, D. C. It has given me a desire to inform you (who I suppose take an interest in such things) of the product of some of our Clarke lands. To commence, I will give an account of what I consider a most remarkable crop of corn, grown by myself, in 1846, upon 12½ acres of land, rented of Mrs. P., (a neighbor of mine,) and for which I agreed to pay one half in case the crop amounted to 10 bushels or more; if less, two-fifths. The lot had been used as a meadow for twelve years, the timothy had given place to a sward of English grass. It was ploughed in the latter part of March, as deep, and the slice turned as flat as could be done, with one of our large three-horse Barshear ploughs, than which there can be no better for our limestone country. It was harrowed twice, once with the furrow, and again diagonally. It was then laid off 4½ feet, the rows running north and south, care being taken not to disturb the sward. The corn was rolled in plaster and dropped as near 2½ feet in the row as could be guessed at. The season being very fine, we were not particular in thinning, so that in many places there were four stalks left in the hill. With the exception of a little corner, in which we ran a few furrows one evening, (not that it was wanted, but because we had not any thing better to do, having just finished working our own crop,) it was not touched by any implement during the season. Although it was a very wet summer, and the neighboring fields exceedingly grassy, when the corn was cut off of this lot, there was not a spire of grass or a weed to be seen, and the land was as light as an ash-bank, so to speak. When the corn was gathered I gave to Mrs. P. one half, which amounted to 100 bushels of good corn, besides several of nubbins. So much for 1846: now for 1848. There is an island in Shenandoah river, containing within the enclosure, (which is of stone,) 103 acres, of which, 2 acres produced 100 bushels of oats; 51 acres produced 1530 bushels of wheat; 50 acres produced 400 bushels of corn, which is not an average crop for the land. The island belongs to Mr. G. H. B., whose word I have for what is stated above. (Mr. G. H. B. was for many years a subscriber to the American Turf Register, and is perhaps known to you.)

Now, Messrs. Editors, you see what we can do with the plough, and Col. Ware showed you at the Baltimore Fair what we are doing in the way of sheep. If you will come on next Fall, we will be most happy to give you an opportunity to judge of them in the shape of grass-fed saddles, in which it is thought we excel. Hoping that you may be the means, through your valuable journal, of bringing the loom and the anvil to the plough,

I am your subscriber, and obedient servant, Nathaniel Burwell, Jr.

Mill Wood, Clarke County, Va., December 26, 1848.

We should like to know from the intelligent and respected writer of the above account—perspicuous and interesting as it is—what was the kind of corn cultivated, and what is the usual price of land in that region? Is their corn usually sent to market, and at what distance, and kind, and cost of transportation per bushel, or is it converted for the most part into beef and mutton? Do they *corn feed* through the winter the bullocks brought down from Monroe, Bath, and Greenbriar, and other counties? What is the usual time and cost of buying these bullocks? How long are they fed with corn—and with what quantity—and at what cost? What per centage is usually added to the weight of the bullock, and is any account taken of the value of his manure, and what is it estimated at? Being fed on corn, *it* ought to be very rich. In England they feed on *oil* cake, for *the sake* of the additional value to the manure: otherwise, and without reference to that, they would not go to the expense. But such is their estimate of the value of *oil cake manure*, that, the incoming tenant is required to pay *one half* of the oil cake bill, fed to cattle that he never saw, on account of the benefit of the manure which is to enure to him, and which was provided by the outgoing tenant! Has any one in this country made any practical inquiry into these matters? If not, ought it not to be done?—or does it become farmers to go on acting the part of unreasoning beings, following in the exact wake of those who went before, even though the course should lead to deterioration of lands and dispersion of the cultivators of lands? Do, gentlemen, friends of Clarke county, of whom we had the pleasure to see and make acquaintance, some at the White Sulphur in 1847—let us hear from you on these subjects. Do you still think you can compete with Albemarle in the skill and in the productiveness of your husbandry? We ask for information. Editors P. L. & A.

P. S.—Can there be a more superfluous expenditure of the small means at command of Agricultural Societies than to go on offering premiums for large crops on single acres. Would not premiums for the best answers to such questions, for instance, as we have here hastily put, be more useful?

ADDRESS TO THE PLANTERS OF HANCOCK CO., GA.

"*To the Planters of the Cotton Growing States.*—The time has at last arrived, and which might have been foreseen, when you are obliged to look into your condition; and if you desire to better it, the examination must be thorough. For many years after the cultivation of cotton became the chief object of Southern agriculture, money invested in land, negroes, mules, &c., made better returns of profits than its legal interest, or than labor applied to most other objects of industry. This is far from being the fact now; and it is this depreciation of the value of our labor, compared to the value of labor applied to other objects and by other people, that makes it our duty to look for the cause and find a remedy if we can, unless, indeed, we are willing to sacrifice our property and lose our equal position among the States. It sometimes happens that men suffer themselves to be brought to the brink of ruin because the approach is so slow as to be almost imperceptible; and even then, when seen and felt, rather live upon the hope that the times will change, than by a vigorous examination of the remedy, retrieve their prosperity.

"The planters of the cotton growing States for years have seen their lands growing poorer, and the price of their staple product gradually declining. Like the ebb tide, every receding wave leaves the sandy beach a little more exposed; and unlike the tide in this, that there will be no reflux wave of prosperity if our agricultural policy is unchanged.

"We flatter ourselves that the political troubles which now interrupt the regular labor of all Europe, are the causes of the present depressed price of our cotton. In this we deceive ourselves; the effect is but a shade in the price. As all experience proves that the price or value of any commodity whatever depends upon the quantity produced and the demand for it. If all the tillers of the earth were to produce bread, it would have very little exchangeable value, and this is more certainly true of every article of less importance; and so if we continue to increase the quantity of cotton, the price will continue to decline. To understand effects from causes, we must avoid fallacies; and that of expecting better prices when Europe shall become tranquil, is shown by the fact that the article had been for a series of years declining before her present troubles began. The true cause of the depressed, if not ruinous, condition of cotton planters, is therefore clear enough, the *over-production;* and to this cause may be referred the fact within our experience that large crops uniformly lower the price, and short ones increase it. We need not find fault with the English or French, or the New Englander, (if anybody has been silly enough to do so,) for buying our cotton at 4½ cents instead of 15 cents—it is our own folly and over-production that is the cause.

"If we intend to recover our former prosperity, and preserve even the present value of our lands and negroes, we must understand not only our present condition, but what it is likely to be in future. The inquiry may very properly begin with our lands, for they are the most important, and we may take for granted the fact never yet disputed and incontrovertible, that no country can long continue to be prosperous where the system of agriculture practised by its people uniformly, year by year, impoverishes the soil. What would have been the present condition of England, Belgium, Germany, and our Northern States under our system of cultivating the earth? We can best answer the question by taking a survey of our own country, which will tell our future history.

"The lands of the Southern States, taken as a whole, including that portion of the valley of the Mississippi properly southern, when first settled were more valuable (latitude, climate, soil and extent considered,) than those of any other country. To be within the bounds of truth, they would produce (with bad tillage) 30 bushels of Indian corn and 8 or 10 cwt. of seed cotton per acre; less than half a century has reduced their productiveness in the older States to 12 bushels of corn and 3 or 4 cwt. of cotton. Continue the same destructive system, judge of the future by the effects of the past, and our progress to ruin will be accelerated as our lands are impoverished, and in a few years we shall be ready if not compelled to abandon the country. But it may be said, as has often been said and done by the planter, that he will continue to make cotton, to buy more negroes, to make more cotton; and when his plantation is totally ruined, move to Alabama, Mississippi, Arkansas, and finally to Texas. Shall we delude ourselves by resorting to this merely temporary expedient? for in truth it is no remedy, as it increases for a time the quantity of cotton, and does not restore the worn-out lands. But if it benefited the emigrant from the old State temporarily, a moment's reflection will show its utter insufficiency to meet our case. The same agricultural folly and improvidence which has impoverished the lands of the older cotton growing States, is already felt in Alabama, and will most certainly produce the same result in all the cotton growing States. The time may therefore be computed from Georgia and Carolina statistics, and is not very distant, when we shall be presented with the startling fact that we can produce neither corn nor cotton."

The above extract from an address to the planters of Hancock County, Georgia, is worthy of the most earnest attention of all our agricultural readers, whether engaged in the raising of cotton, or tobacco, or wheat, or Indian corn. It exhibits a fair view of the course of operation throughout the whole of this vast country. Every thing that is raised on the land is sold from off the land, and it and its owner become impoverished together. Constant taking out of the meal-bag and putting nothing in, soon brings a man to the bottom.

It is urged that every man shall raise less cotton, but something must be substituted. Were it not, the remedy would be worse than the disease. What then shall it be? Indian corn? Of that there is already a superabundance, and it is *too bulky* to go to distant markets. Wherever the earth yields largely, the product must be eaten on the ground, or it is worthless. The planter cannot raise potatoes, or turnips, or carrots, of all of which the earth yields by hundreds of bushels, because he has nobody at hand to consume them. Give him a consuming population, and he will obtain as many *bushels* of those commodities as he now obtains of *pounds* of cotton, and then he will make the poor land rich by aid of the manure yielded by the food produced on rich ones. Population makes the food come from the rich soils. Let every planter commit to memory this single sentence, and let him unite with his neighbors in this effort to procure the adoption of the measures required for bringing the loom and the anvil to take their natural places by the side of the plough and the harrow. Let him do this, and he will find the growth in the home-consumption of cotton so rapid that in a little time he will be enabled to obtain for *half the quantity* sent abroad *larger* returns than he now has for the whole. The talk about over-production will then cease, for he will then enjoy that real freedom of trade which consists in applying his land and his labor to the production of either food or cotton, instead of being, as now, compelled to flood the world with cotton, because of his inability to raise any thing else, and to receive for it five cents per pound, instead of the ten that he would have were he less dependent on its cultivation.

DAIRY COWS.

As to the best breed of cows for the dairy, I should say, from some experience, that a good Alderney will equal, if not surpass, any other breed; I have two, mother and daughter, (the latter I bred, and is a beautiful animal and has now her second calf;) they produce together upwards of 400 lbs. of good yellow butter in 12 months, and the skim-milk is as good as new from some cows; generally, the cream churns sooner, and the butter is primer than from most other breeds. I have a six months' old calf from the old Alderney by a thorough-bred short-horned bull, which promises to make a fine cow; it has most of the properties of a good dairy cow, with a touch equal to a thorough-bred short-horn. I think, for quantity and quality, there is no kind of cattle that will surpass a good Alderney, (not even an Ayrshire,) or a cross with a good thorough-bred short-horned bull, for dairy purposes: this cross will also be found to feed well when done with for the dairy. I do not breed from my heifers until they are about two years old, and they are kept well, but not expensively. I know nothing of the Kerry breed, but should imagine they are more suitable to their poor native soil than good, rich grazing land; at least, I think they would not pay either for dairy or butcher for the extra good keep. A good sow or two are indispensable where cows are kept; they have been very profitable the last few years. T. Q. W. R.

THE CHEESE TRADE.

It is said that the following particulars are authentic, and may be relied on.

The Western Reserve Chronicle says,—By a reference to the books at the canal office, we are enabled to state the amount cleared for market during the last six years, viz.:

	Lbs.		Lbs.
1842 . . .	1,230,168	1845 . . .	2,995,376
1843 . . .	2,415,177	1846 . . .	4,763,723
1844 . . .	3,944,404	1847 . . .	6,599,170

The Albany Journal gives the following statement of the amount of cheese received at Albany and Troy during the past twelve years:

	Lbs.		Lbs.
1836 . .	14,060,000	1842 . .	19,004,000
1837 . .	15,500,000	1843 . .	24,331,000
1838 . .	13,810,000	1844 . .	26,677,500
1839 . .	14,530,000	1845 . .	27,542,861
1840 . .	18,820,000	1846 . .	35,560,180
1841 . .	14,170,000	1847 . .	40,814,000

The following are a part of the exportations of cheese from the State of Ohio:

	Lbs.
Trumbull . . .	4,000,000
Portage	2,000,000
Geauga	250,000
Madison	200,000
Ashtabula . . .	5,000,000
Five counties, . .	11,450,000

It appears, then, that the State must export at least twelve millions of pounds of cheese—probably much more.

Of butter, the counties engaged in exporting are much more numerous. The following are part:

	Lbs.
Carroll	75,000
Crawford . . .	200,000
Geauga . . .	50,000
Harrison . . .	250,000
Hancock . . .	35,000
Huron . . .	100,000
Muskingum . . .	200,000
Morgan . . .	20,000
Trumbull . . .	160,000
Nine counties, . .	1,020,000

The export of the State is probably about four millions of pounds. The dairy products of Ohio are, therefore, very large.

ON FARM MANAGEMENT.

Prize Essay—By J. J. Thomas.

The great importance of performing in the best manner, the different operations of agriculture, is obvious to every intelligent mind, for on this depends the success of farming. But a good performance of single operations merely, does not constitute the best farmer. The perfection of the art, consists not only in doing everything well, individually, but in a proper adjustment and systematic arrangement of all the parts, so that they shall be done, not only in the best manner and at the right time, but with the most effective and economical expenditure of labor and money. Every thing must move on with clock-work regularity, without interference, even at the most busy seasons of the year.

As this subject includes the whole routine of farming, in a collected view, as well as in its separate details, a treatise upon it might be made to fill volumes; but this being necessarily confined to a few pages, a general outline, with some remarks on its more essential parts, can only be given.

Capital.—The first requisite in all undertakings of magnitude, is to "count the cost." The man who commences a building, which to finish would cost ten thousand dollars, with a capital of only five thousand, is as certainly ruined, as many farmers are, who, without counting the cost, commence on a scale to which their limited means are wholly inadequate. One of the greatest mistakes which young farmers make in this country, in their anxious wish for large possessions, is, not only in purchasing more land than they can pay for, but in the actual expenditure of all their means, without leaving any even to *begin* the great work of farming. Hence, the farm continues for a long series of years poorly provided with stock, with implements, with manure, and with the necessary labor.—From this heavy drawback on the profits of his land, the farmer is kept long in debt; the burthen of which not only disheartens him, but prevents that enterprise and energy which are essential to success. This is one fruitful reason why American agriculture is in many places in so low a state. A close observer, in traveling through the country, is thus enabled often to decide from the appearances of the buildings and premises of each occupant, whether he is in or out of debt.

In England—where the enormous taxes of different kinds, imperiously compel the cultivator to farm well, or not farm at all—the indispensable necessity of a heavy capital to begin with, is fully understood. The man who merely *rents* a farm there must possess as much to stock it and commence operations, as the man who *buys* and pays for a farm of equal size in the best parts of western New-York. The result is, that he is enabled to do every thing in the best manner; he is not compelled to bring his goods prematurely to market, to supply his pressing wants; and by having ready money always at command, he can perform every operation at the very best season for product and economy, and make purchases, when necessary, at the most advantageous rate. The English farmer is thus able to pay an amount of tax, often more than the whole product of farms of equal extent in this country.

The importance of possessing the means of doing every thing at exactly the right season, cannot be too highly appreciated. One or two illustrations may set this in a clearer light. Two farmers had each a crop of ruta-bagas, of an acre each. The first, by hoeing his crop early, while the weeds were only an inch high, accomplished the task with two days work, and the young plants then grew vigorously and yielded a heavy return. The second, being prevented by a deficiency of help, had to defer his hoeing

one week, and then three days more, by rainy weather, making ten days in all. During this time, the weeds had sprung up six to ten inches high, so as to require, instead of two days, no less than six days to hoe them; and so much was the growth of the crop checked at this early stage, that the owner had 150 bushels less on his acre, than the farmer who took time by the forelock. Another instance occurred with an intelligent farmer of this State, who raised two fields of oats on land of similar quality. One field was sown very early and well put in, and yielded a good profit. The other was delayed twelve days, and then hurried; and although the crop was within two-thirds of the amount of the former, yet that difference was just the clear profit of the first crop; so that with the latter, the amount yielded only paid the expenses.

Admitting that the farm is already purchased and paid for, it becomes an object to know what else is needed, and at what cost, before cultivation is commenced. If the buildings and fences are what they should be, which is not often the case, little immediate outlay will be needed for them. But if not, then an estimate must be made of the intended improvements and the necessary sum allotted for them. These being all in order, the following items, requiring an expenditure of capital, will be required on a good farm of 100 acres of improved land, that being not far from the size of a large majority in this State. The estimate will of course vary considerably with circumstances, prices, &c.

1. Live Stock.

The amount will vary with the fertility and products of the land, its quality, and situation with regard to market. The following will approximate the average on good farms, taken at the spring of the year, or commencement of work:

3 horses, at $80	$240
1 yoke oxen	75
8 milch cows, at $15	120
10 steers, heifers and calves	70
20 pigs, at $3	60
150 sheep, at $2	300
Poultry, say	5
Total	$870

2. Implements.

2 plows, fitted for work	$20 00
1 small plow, do	6 00
1 cultivator, best kind	7 00
1 drill barrow	5 00
1 roller	5 00
1 harrow	10 00
1 fanning mill	20 00
1 straw cutter	15 00
1 root slicer	8 00
1 farm wagon, with hay rack, &c	70 00
1 ox-cart	50 00
1 horse-cart	45 00
1 double farm-harness	30 00
1 horse-cart harness	18 00
1 root-steamer, or boiler	20 00
1 shovel and one spade	2 50
3 steel-plate hoes	2 25
2 dung forks	2 25
3 hay forks	3 00
2 hand rakes	0 25
1 revolving horse-rake	8 00
2 grain cradles	8 00
2 scythes	4 00
1 wheelbarrow	4 00
1 pointed shovel	1 25
1 grain shovel, or scoop-shovel	1 25
1 pick	1 50
1 mall and wedges	2 50
2 axes	4 00
1 hammer	0 50
1 wood-saw	1 50
1 turnip-hook	0 75
1 hay-knife	3 00
2 apple-ladders, (for gathering,)	1 50
2 large baskets	1 25
2 hand baskets	0 50
1 tape-line, (for laying off land,)	2 00
2 sheep-shears	2 00
1 grindstone	3 00
1 steelyard, large, and one small	2 00
1 stable-lantern	0 50
1 currycomb, one brush	0 75
1 half-bushel measure	1 00
20 grain-bags	8 00
1 ox-chain	3 00
1 crowbar	2 00
1 sled and fixtures	30 00
Total	$437 00

Other articles might be included, as subsoil plow, sowing machine, &c. A thrashing machine is not named, as it is better to employ itinerant thrashers, and save capital. To the preceding amount ought to be added one-tenth the expense of fencing the farm, as fences need renewing at least once in ten years. Every farmer should also be supplied with a small set of carpenter's tools, which would cost about twelve dollars, for repairing implements in rainy weather, and other useful purposes. This set should include saw, hammer, augers, planes, adz, mallet, chisels, square, breast-bits, &c., and by the convenience and economy afforded, would soon repay their cost.

3. Seeds.

2½ bush. clover seed, for 10 acres	$15 00
2 " corn, " 6 "	1 00
30 " potatoes, " 2 "	7 00
3 lbs. ruta baga seed, " 1 "	1 50
2 " field beet " " ½ "	1 00
2 " carrot " " ½ "	1 00
30 bush. seed wheat, " 20 "	30 00
10 " oats, " 5 "	2 50
10 " barley, " 5 "	4 00
Total	$63 00

4. Labor.

Supposing the owner to labor with his own hands, as every owner should, so far as is consistent with a general superintendence of all parts, which would probably amount to one-half the time,—he would need besides through the season two men and one boy, and in the winter one man; during haying and harvest he would require two additional hands. The men, boarding themselves, could be had for fifteen dollars per month in summer, and twelve in winter; if boarded, the cost of their meals would make up the deficiency in wages to the same amount.—The expenditure needed then, would be,

2 hired men 8 months, 15 per month	$240 00
1 " boy " 6 "	48 00
Day labor in harvest	32 00
Total	$320 00

5. Maintenance of Animals.

Cattle and sheep would need hay till fresh pasture, and horses hay, and also a good supply of oats till after harvest. All would be benefited by a liberal feeding of roots, including swine. The amount of all these supplies needed, would be about

7 tons of hay	$42 00
200 bushels of oats	50 00
400 " roots	50 00
Total	$142 00

RECAPITULATION.

Live stock	$870 00
Implements	437 00
Seeds	63 00
Labor	320 00
Maintenance of Animals	142 00
Total	$1,832 00

The amount of capital needed the first year, in stocking and conducting satisfactorily the operations of one hundred acres of improved land, several items being doubtless omitted.

If this is a larger sum than the young farmer can command, let him purchase only fifty acres, and reserve the rest of the purchase money which would be needed for the 100 acres, to commence with on the smaller farm; and he will scarcely fail to make more, than on a larger, with every part subjected to an imperfect hurrying, and irregular management. He may calculate perhaps on the returns of his crops in autumn, at least to pay his hands. But he must remember that the first year of farming is attended with many expenses which do not usually occur afterwards; which his crops may not repay, besides supporting his family and paying his mechanic's and merchant's bills. The first year must always be regarded with uncertainty; and it is better to come out at the end, on a moderately sized farm, well tilled, and in fine order, with money in pocket, than on a larger one, in debt; and hired hands, a class of men not to be disappointed and who ought not to be, waiting for their pay. There are a far greater number of farmers embarrassed and crippled by placing their estimates of expenses too low, than of those who swing clear and float freely by a full previous counting of cost.

Size of Farms.—After what has just been said, the cultivator will perceive in part the advantages of moderately sized farms for men in moderate circumstances. The great disadvantage of a superficial, skimming culture, is obvious with a moment's attention. Take the corn crop as an illustration. There are a great many farmers to my certain knowledge, whose yearly product per acre does not exceed an average of twenty-five bushels. There are other farmers whom I also well know, who obtain *generally* not less than sixty bushels per acre, and often eighty to ninety-five. Now observe the difference in the profits of each. The first gets 250 bushels from ten acres. In doing this, he has to plow ten acres, harrow ten acres, mark out ten acres, find seed for ten acres, plant, cultivate, hoe, and cut up ten acres, besides paying the interest on ten acres, worth from three to five hundred dollars. The other farmer gets 250 bushels from four acres at the farthest; and he only plows, plants, cultivates, and hoes, to obtain the same amount, four acres, which from their fine tilth and freedom from grass and weeds, is much easier done, even for an equal surface. The same reasoning applies throughout the farm.—Be sure then, to cultivate no more than can be done in the best manner, whether it be ten, fifty, or five hundred acres. A friend who owned a four hundred acre farm, told me that he made less than his next neighbor, who had only seventy-five. Let the man who applies a certain amount of labor every year to his farm, reduce its dimensions until that labor accomplishes everything in the very best manner. He will doubtless find that the amount of land will thus become much smaller than he supposed, more so than most would be willing to reduce it; but on the other hand, the nett proceeds from it will augment to a greater degree than perhaps could possibly be believed.

But let me not be misunderstood. Large farms are by no means to be objected to, provided the owner has capital enough to cultivate every part as well as some of our best small ones are cultivated.

As an example of what may be obtained from a small piece of land, the following products of fifty acres are given, and are not more than I have known repeatedly to be taken from good land by several thorough farmers:

10	acres	wheat,	35 bush. per acre, at	$1.00,	$350
5	"	corn,	90 " "	.40,	180
2	"	potatoes,	300 " "	.20,	120
1	"	ruta-bagas,	800 " "	.10,	80
6	"	wint. apples,	250 " "	.25,	375
6	"	hay,	2½ tons "	6.00	90
10	"	pasture, worth			60
5	"	barley,	40 bush. "	.40	80
5	"	oats,	50 " "	.20	50

Total products of fifty acres of very fine land, $1,385

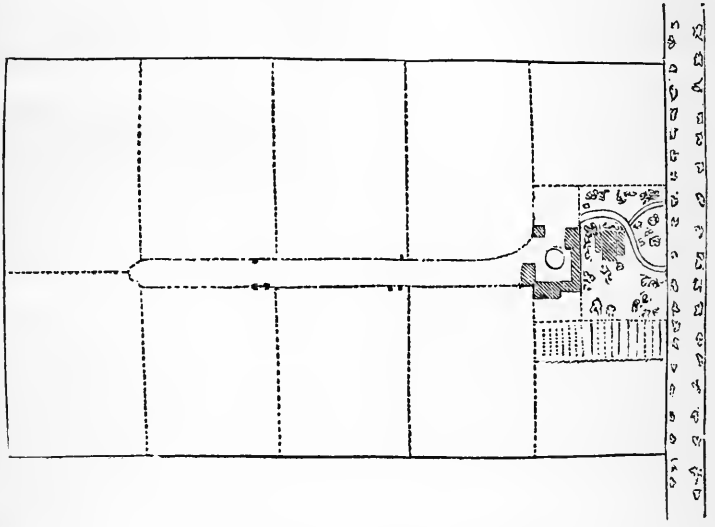
This aggregate yield is not greater than that obtained by some who might be named from a similar quantity of land. Good land could be brought to that state of fertility very easily at a total cost of one hundred dollars per acre, and then it would be incomparably cheaper than many large poor farms at nothing; for while the fifty acres could be tilled for three hundred and eighty-five dollars, leaving one thousand dollars nett profits, large poor farms hardly pay the work spent upon them. One proprietor of such a farm declared—"It takes me and my hired man all summer at hard work to get enough to pay him only."

Laying out Farms.—This department is very much neglected. The proper disposition of the different fields, for the sake of economy in fencing, for convenience of access, and for a full command of pasture and protection of crops at all times, has received comparatively little attention from our agricultural writers and from farmers.

Many suppose that this business is very quickly disposed of; that a very few minutes, or hours at most, will enable a man to plan the arrangement of his fields about right. But this is a great error. Even when a farm is of the simplest form, on a flat uniform piece of ground, many things are to be borne in mind in laying it out. In the first place, we all know that the *fencing* of a moderately sized farm costs many hundred dollars. It is very desirable to do it well, and use at the same time as little material as possible. To do this much will depend on the shape of the fields. A certain length of fence will enclose more land in the form of a *square*, than in any other practicable shape. Hence fields should approach this form as nearly

as possible. Again, the disposition of lanes is a matter of consequence, so as to avoid unnecessary length and fencing, and occupy the least quantity of ground.

But these rules may be materially affected by other considerations. For instance, it is very desirable that land of similar quality may be in the same enclosure. Some may be naturally too wet for any thing but meadow or pasture; some may be much *lighter*, and susceptible of plowing, while others are not; some may be naturally sterile, and need unusual manuring, with green crops. All these should, as far as practicable, be included each in its own separate boundary. The situation of surface-drains, forming the boundaries of fields, may influence their shape; facilities for irrigation may have an essential bearing; convenience for watering cattle is not to be forgotten. Where, in addition to all these considerations, the land is hilly, still more care and thought is required in the subdivision, which may possibly require years of experience; but where fixed fences are once made, it is hard to remove them; hence a previous thorough examination should be made. A farm road, much used for heavy loads, should be made hard and firm, and cannot be easily altered; it should consequently be exactly in the right place, and be dry, level and short—the shape of adjoining fields even conforming to these requisitions; but a road little used should not interfere with the outlines of fields.



A specimen of laying out a farm is given in the preceding plan. It is of the very simplest kind, or a right-angled parallelogram, on nearly level land—a form that often occurs. It lies on one side of a public road, which is lined with forest trees. The middle enclosure on the road contains the dwelling, the barn, and other outbuildings. It is planted with trees for shade, ornament, and domestic enjoyment—not set "all in a row," but in the graceful or picturesque style which distinguishes a beautiful natural landscape. On one side are the fruit, kitchen, and flower gardens—the lot containing them being oblong, to separate certain portions of the fruit garden for *pigs*—the sovereign remedy for the curculio; the orchard may occupy the lot adjoining. The remainder of the farm is divided into fields nearly square, each being entered from the lane by a good gate. These fields may be increased or lessened in size without altering the position of the lane. They should always be sufficiently numerous to admit a good rotation, and to separate at all times the pasture from the tillage land.

In laying out a farm with a very uneven surface, or irregular shape, it would be best to draw, first, a plan adapted to smooth ground, as the one just given; and then vary the size and shape of the fields, the distance of the lane from the centre, its straightness, &c., according to the circumstances of the case.

Fences.—The kind of fence used, and the material for its construction, must depend on circumstances and localities. A good fence is always to be preferred to an imperfect one; though it cost more, it will more than save that cost, and three times the amount in vexation besides, by keeping cattle, colts, and pigs out of fields of grain. A thriving farmer, whose whole land, except a small part with stone wall, is enclosed by common rail fence, with upright cedar stakes and connecting caps at the top, finds that it needs renewing once in six years. He accordingly divides his whole amount of fences into six parts, one of which is built new every year. All is thus kept systematically in good repair. Stone walls, if set a foot below the surface to prevent tumbling by frost, are the most durable fence. Hedges have not been sufficiently tried. The English hawthorn is not well adapted to our hotter and drier climate; and though sometimes doing well for a time, is not to be depended on. The buckthorn in New-England, and the Newcastle and Washington thorns in Pennsylvania and Delaware, have succeeded finely.

Gates.—Every field on the farm should be entered by a good self-shutting and self-fastening

gate. A proper inclination in hanging will secure the former requisite, and a good latch, properly constructed, the latter. Each field should be numbered, and the number painted on the gate-post. Let the farmer who has *bars* instead of gates, make a trial of their comparative convenience, by taking them out and replacing them without stopping, as often as he does in one year on his farm, say about six hundred times, and he cannot fail to be satisfied which is the cheapest for use.

Buildings.—These should be as near the centre of the farm as other considerations will admit. All the hay, grain, and straw, being conveyed from the fields to the barn, and most of it back again in manure, the distance of drawing should be as short as possible. This will, also, save much traveling of men and of cattle, to and from the different parts of the farm. The buildings should not, however, be too remote from the public road; and a good, dry, healthy spot should be chosen. The dwelling should be comfortable but not large—or it should, rather, be adapted to the extent of the lands. A large, costly house, with small farm and other buildings, is a bad indication of management. The censure of the old Roman should be avoided, who, having a small piece of land, built his house so large that he had less occasion to plow than to sweep.

The barn and out-buildings should be of ample extent. The barn should have space for hay, grain, and straw. It is a matter of great convenience to have the straw for littering stables, housed, and close at hand, and not out of doors, under a foot of snow. There should be plenty of stables and sheds for all domestic animals. This provision will not only save one-third of the fodder, but stock will thrive much better. Cows will give much more milk—sheep will yield more and better wool—and all will pass through the winter more safely. The wood-house near, or attached to the dwelling, should never be forgotten, so long as comfort in building fires, and economy in the use of fuel, are of any importance.

A small, cheap, moveable horse-power should belong to every establishment, to be used in churning, sawing wood, driving washing machine, turning grindstone, cutting straw, and slicing roots.

There should be a large root cellar under the barn, into which the cart may be *dumped* from the outside. One great objection to the culture of ruta-bagas and beets, in this country,—the difficulty of winter keeping,—would then vanish.

Both barn and house cellars should be well coated on the bottom and sides, with water-lime-mortar; which is a very cheap and effectual way to exclude both water and rats.

Choice of Implements.—Of those which are much used, the very best only should be procured. This will be attended with a gain every way. The work will be easier done and it will be better done. A laborer who, by the use of a good hoe for one month, can do one quarter more each day, saves, in the whole time, an entire week's labor.

Choice of Animals.—The best of all kinds should be selected, even if costing something more than others. Not "*fancy*" animals, but those good for use and profit. Cows should be productive of milk, and of a form adapted for beef; oxen, hardy, and fast-working; sheep, kept fine by never selling the best; swine, not the *largest* merely, but those fattening best on least food. A Berkshire, at 200 pounds, fattened on 10 bushels corn, is better than a "land pike" of 300 fattened on 50 bushels.

Having now taken some notice of the necessary items for commencing farming, it remains to glance a little at

Soils and their Management.

Soils are of various kinds, as heavy and light, wet and dry, fertile and sterile. They all require different management, in a greater or less degree.

Heavy soils are often stronger and more productive than light; but they require more labor for pulverization and tillage. They cannot be plowed when very wet, nor so well when very dry. Although containing greater or less portions of clay, they may be distinguished, as a class, from lighter soils, by the cloddy surface the fields present after plowing in dry weather; by their cracking in drouth; and by their adhesiveness after rains.

Sandy and gravelly loams, also contain clay, but in smaller quantity; so that they do not present the cloddiness and adhesiveness of heavy soils. Though possessing generally less strength than clay soils, they are far more easily tilled, and may be worked without difficulty in wet weather; they do not crack or bake in drouths. Indian corn, ruta-bagas, and some other crops, succeed best upon them. Sandy soils are very easily tilled, but are generally not strong enough. When made rich, they are fine for some succulent crops.

Peaty soils are generally light and free, containing large quantities of decayed vegetable matter. They are made by draining low and swampy grounds. They are fine for Indian corn, broom corn, barley, potatoes, and turnips. They are great absorbers, and great radiators of heat; hence they become warm in sunshine, and cold on clear nights. For this reason they are peculiarly liable to frosts. Crops planted upon them must, consequently, be put in late—after spring frosts are over. Corn should be of early varieties, that it may not only be planted late, but ripen early.

Each of these kinds of soil may be variously improved. Most of heavy soils are much improved by draining; open drains to carry off the surface water, and covered drains, that which settles beneath. An acquaintance covered a low, wet, clayey field with a net work of underdrains, and from a production of almost nothing but grass, it yielded the first year forty bushels of wheat per acre—enough to pay the expense; and admitted of much easier tillage afterwards. Heavy soils are also made lighter and freer by manuring; by plowing under coatings of straw, rotten chips, and swamp muck; and in some rare cases, by carting on sand—though this is usually too expensive for practice. Subsoil plowing is very beneficial, both in wet seasons and in drouth; the deep, loose bed of earth it makes, receiving the water in heavy rains, and throwing it off to the soil above, when needed. But a frequent repetition of the operation is needed, as the subsoil gradually settles again.

Sandy soils are improved by manuring, by the application of lime, and by frequently turning in green crops. Leached ashes have been found highly beneficial in many places. Where the subsoil is clayey, which is often the case, and especially if marly clay—great advantage is derived from shoveling it up and spreading it on

the surface. A neighbor had twenty bushels of wheat per acre on land thus treated, while the rest of the field yielded only five.

MANURES.—These are first among the first of requisites in successful farm management. They are the strong moving power in agricultural operations. They are as the great steam engine which drives the vessel onward. Good and clean cultivation is, indeed, all-important; but it will avail little without a fertile soil; and this fertility must be created, or kept up, by a copious application of manures. For these contribute directly, or assist indirectly, to the supply of nearly all the nourishment which plants receive; it is these, which, produced chiefly from the decay of dead vegetable and animal matter, combine most powerfully to give new life and vigor; and thus the apparently putrid mass, is the very material which is converted into the most beautiful forms of nature; and plants and brilliant flowers spring up from the decay of old forms, and thus a continued succession of destruction and renovation is carried on through an unlimited series of ages.

Manures possess different degrees of power, partly from their inherent richness, and partly from the rapidity with which they throw off their fertilizing ingredients, in assisting the growth of plants. These are given off by solution in water, and in the form of gas; the one as liquid manure, which, running down, is absorbed by the fine roots; and the other as air, escaping mostly into the atmosphere, and lost.

The great art, then, of saving and manufacturing manure, consists in retaining and applying to the best advantage, these soluble and gaseous portions. Probably more than one-half of all the materials which exist in the country, are lost, totally lost, by not attending to the drainage of stables and farm yards. This could be retained by a copious application of straw; by littering with saw-dust, where saw-mills are near; and more especially by the frequent coating of yards and stables with dried peat and swamp muck, of which many parts of our State furnish inexhaustible supplies. I say *dried* peat or muck, because if it is already saturated with water, of which it will often take in five-sixths of its own weight, it cannot absorb the liquid portions of the manure. But if it will absorb five-sixths in water, it will, when dried, absorb five-sixths in liquid manure, and both together form a very enriching material. The practice of many farmers, shows how little they are aware of the hundreds they are every year losing by suffering this most valuable of their farm products to escape. Indeed, there are not a few who carefully, and very ingeniously, as they suppose, place their barns and cattle yards in such a manner on the sides of hills, that all the drainage from them may pass off out of the way into the neighboring streams; and some one mentions a farmer, who, with preëminent shrewdness, built his hog pen directly across a stream, that he might at once get the cleanings washed away, and prevent their accumulation. He of course succeeded in his wish; but he might, with almost equal propriety, have built his granary across the stream, so as to shovel the wheat into the water when it increased on his hands.

The loss of manure by the escape of gas is often very great. The proof of this was finely exhibited by Humphrey Davy, in an experiment, performed by filling a large retort from a heap of fermenting manure, placing the beak among the roots of some grass. Nothing but vapor left the vessel, yet in a few days the grass exhibited greater luxuriance round the beak of the retort than any of the surrounding portions. Hence the superiority of unfermented manure—the rich portions are not yet lost. And hence, too, the importance of preventing this loss by an immediate application and plowing into the soil, and also by mixing it in composts with muck, peat, swamp mud, and even common earth in a dry state,—and of preventing its escape from stables and yards, by a daily strewing with dried peat, lime or plaster.

The superiority of unfermented manure has just been mentioned, which is by many doubted. But the very facts on which these doubts rest, only prove its efficacy. For, they say, "I have always found fresh manure to be attended with little effect the first year, while it yet remains fresh; but afterwards, when fermentation and decay had taken place, the benefit was great and striking." But here is the proof at hand, that not until the rich, soluble and gaseous parts had well penetrated and been absorbed by the soil, was their powerful and invigorating influence exerted upon the growing plants. Fresh manure is generally in a state not readily mixed with soils; it is thrown into large lumps over the surface, some of which are plowed in and others not, but none of them prove of immediate use to the crops. But on the other hand, fermented manure, from its ready pulverization, admits of an easy admixture. Let fresh manure be thoroughly ground down and worked into the soil by repeated harrowings, and two or three plowings, and its influence will be like magic.

Swamp muck has often been spoken of as manure. But those who expect great and striking results from its application, will be disappointed, as the writer has been. Even with ashes, it is much less powerful than stable manure, not only because it possesses less inherent richness, but because it has less soluble parts, and consequently imparts its strength more slowly to growing plants. But this quality only makes it the more enduring. By decoction in water, vegetable mold loses a small portion of its weight by solution; but if the remaining insoluble portion is exposed to air and moisture a few months, another part may be again dissolved. Thus, peat, muck and all decayed vegetable fibre, becomes a slow but lasting source of nourishment to plants.

But it is, when shoveled out and dried, to be mixed with farm-yard manure, as a recipient for its evanescent parts, that peat or muck becomes preëminently valuable. Some parts of the State abound with inexhaustible supplies in almost every neighborhood; many land owners have from twenty to a hundred thousand cubic yards on their farms, lying untouched, while half-starved crops are growing in the adjacent fields. There are whole counties so well supplied with it, that if judiciously applied, it would doubtless double their aggregate products.

All neat farming, all profitable farming, and all satisfactory farming, must be attended with a careful saving of manures. The people of Flanders have long been distinguished for the neatness and excellence of their farms, which they have studied to make like gardens. The care with which they collect all refuse materials which may be converted into manure and increase their composts, is one of the chief reasons of the cleanliness of their towns and resi-

dences. And were this subject fully appreciated and attended with a corresponding practice generally, it would doubtless soon increase by millions the agricultural products of the State.

But there is another subject of scarcely less magnitude. This is a systematic

ROTATION OF CROPS.—If manuring is the steam engine which propels the vessel, rotation is the rudder which *guides* it in its progress.—Unlike manuring, rotation does not increase the labor of culture; it only directs the labor in the most effective manner, by the exercise of judgment and thought.

The limits of this paper do not admit of many remarks on the principles of rotation. The following courses, however, have been found among some of the best adapted to our State:

I..1st *year*—Corn and roots well manured;
2d *year*—Wheat, sown with clover seed, 15 lbs. per acre;
3d *year*—Clover, one or more years, according to fertility and amount of manure at hand.

II..1st *year*—Corn and roots, with all the manure;
2d *year*—Barley and peas;
3d *year*—Wheat, sown with clover;
4th *year*—Clover, one or more years.

III..1st *year*—Corn and roots, with all the manure;
2d *year*—Barley;
3d *year*—Wheat, sown with clover;
4th *year*—Pasture;
5th *year*—Meadow;
6th *year*—Fallow;
7th *year*—Wheat;
8th *year*—Oats, sown with clover;
9th *year*—Pasture, or meadow.

The number of fields must correspond with the number of the changes in each course; the first needing three fields to carry it out, the second four, the third nine. As each field contains a crop each, in the several successive stages of the course, the whole number of fields collectively comprise the entire series of crops every year. Thus in the last above given, there are two fields of wheat growing at once, three of meadow and pasture, one of corn and roots, one of barley, one of oats, and one in summer fallow.

OPERATIONS IN THE ORDER OF TIME.—The vital consequence of doing every thing at the right season, is known to every good farmer.—To prevent confusion and embarrassment, and keep all things clearly and plainly before the farmer at the right time, he should have a small book to carry in his pocket, having every item of work for each week, or each half month, laid down before his eyes. This can be done to the best advantage to suit every particular locality and difference of climate, by marking each successive week in the season at the top of its respective page. Then as each operation severally occurs, let him place it under its proper heading; or, if out of season, let him place it back at the right time. Any proposed improvements can be noted down on the right page. Interesting experiments are often suggested in the course of reading or observation, but forgotten when the time comes to try them. By recording them in such a book under the right week, they are brought at once before the mind. Such an arrangement as this will prevent a great deal of the confusion and vexation too often attendant on multifarious cares, and assist very essentially in conducting all the farm work with clock-work regularity and satisfaction.

In reviewing the various items which are most immediately essential to good farm management, some of the most obvious will be—capital enough to buy the farm and to stock it well; to select a size compatible with these requisites; to lay it out in the best manner; to provide it well with fences, gates, and buildings; to select the best animals and the best implements to be had reasonably; to bring the soil into good condition, by draining, manuring, and good culture; to have every part under a good rotation of crops; and every operation arranged, so as all to be conducted systematically, without clashing and confusion. An attention to all these points would place agriculture on a very different footing from its present condition in many places and with most farmers. The business then, instead of being repulsive, as it so frequently is, to our young men, would be attended with real enjoyment and pleasure.

But in all improvements, in all enterprises, the great truth must not be forgotten, that success is not to be expected without diligence and industry. We must sow in spring, and cultivate well in summer, if we would reap an abundant harvest in autumn. When we see young farmers commence in life without a strict attention to business, which they neglect for mere pleasure, well may we in imagination see future crops lost by careless tillage—broken fences, unhinged gates, and fields filled with weeds—tools destroyed by heedlessness, property wasted by recklessness, and disorder and confusion triumphant; and unpaid debts, duns, and executions, already hanging over the premises. But, on the other hand, to see cheerful-faced, ready-handed industry, directed by reason and intelligence, and order, energy, and economy, guiding the operations of the farm—with smooth, clean fields, and neat trim fences—rich, verdant pastures, and fine cattle enjoying them, and broad waving meadows and golden harvests, and waste and extravagance driven into exile, we need not fear the success of such a farmer—debts cannot stare him in the face, nor duns enter his threshold.

It is such enterprise as this, that must place our country on a substantial basis. Agriculture in a highly improved state, must be the means, which next to the righteousness which truly exalts a nation, will contribute to its enduring prosperity. All trades and commerce depend on this great art as their foundation. The cultivation of the soil and of plants was the earliest occupation of man; it has in all ages been his chief means of subsistence; it still continues to furnish employment to the great majority of the human race. It is truly the great art of peace, as during wars and commotions it has languished and declined, but risen again in strength and vigor when men have lived at peace with each other—it has then flourished and spread, converted the wilderness into life and beauty, and refreshed and adorned nature with embellished culture. For its calm and tranquil pleasures—for its peaceful and healthful labors—away from the fretful and feverish life of crowded cities,—"in the free air and beneath the bright sun of heaven,"—many, who have spent the morning and noon of their lives in the anxious cares of commercial life, have long sighed for a scene of peace and quietude for the evening of their days.

ON THE IMPORTANCE OF DRAINING LAND.

We remember well the time when the idea of fertility and heavy products was so intimately and thoroughly blended with that of *moisture*, that wherever we saw a piece of land that was constantly *moist*, so that no water laid on its surface, we set down *that spot* as one that would not fail to bring a heavy crop—especially of grass; and we have our doubts whether there was not a time when this was the common impression. Inquiry, reflection and experience are, however, now doing for Agriculture what they have sooner done for other pursuits; and now, fortunately, the *mind is brought to work at every turn*, and empiricism and prejudice are made to give way before investigation and proof. Now the Farmer is taught by the exercise of his reason, and, even without knowing it, by the principles of agricultural chemistry, that a *settled, abiding moisture* in land, resulting from some obstruction to the escape of water, either rain or spring water, is incompatible with that degree of *warmth* which is one of the indispensable conditions to the development and growth of vegetables. Hence, as the Farmer who walks or rides over his estate, and sees a sunken or a low spot, which in the driest weather shows signs of *constant* dampness, indicated by coarse aquatic grasses, or otherwise, he says to himself, 'There is a portion of my capital lying dead and inert. I must therefore contrive so to *drain it* that the water will not *settle* upon or in it, and thus give it life and activity. Then I shall have removed the only obstacle which prevents it from yielding a heavier crop either of *grain* or grass, than any other equal portion of my estate:'—for the Farmer ought to lay it down as a rule, that even where he proposes to lay down his land in grass, it should yet be so well drained as to be well adapted to the growth of *grain*. Land so laid dry, will always give, with equal richness, a better crop of cleaner and more valuable *hay*, than that which is too wet to produce grain. Let him who wants to see heavy crops of clean, nutritious timothy hay, go to the naturally dry, hilly lands, such as George Patterson's, Gov. Howard's, or N. Bosley's, on the Gunpowder, in Maryland. True, there are many fields that are well adapted to the growth, and produce *heavy crops*, of tobacco or grain, that would not yield, and at all events not more than one crop, of timothy, or herd's grass, as it is called in different parts of the country; but that is owing, not to the absence of moisture, but to some other condition of the land—to too much of one and too little of another kind of soil, and to other circumstances, not to the want of moisture. Moisture, it is undeniable, is essential to the growth of all vegetables, according to the laws of vegetable physiology, but not fixed, pent-up moisture. Its departure, like its coming, should be free and natural. If we appear to dwell too much on this subject (of draining), it is because it is impossible to pass along through the country without being struck with the quantity of land, on almost every estate, the very best land on it, which is made sick and unproductive of all wholesome growths, by circumstances that *prevent the escape of redundant moisture;* and it is among the foremost of our wishes, to see the minds of land-holders possessed of the conviction that it is idle to be sighing and scheming for more land, or repining at the inadequacy of their income, while they have already so many acres that lie waste and unproductive—paying interest but yielding no dividend, for want of draining, grubbing, cleaning and manuring.

At a late meeting of the Scotch Highland Society, at Dumfries, an interesting discussion took place on Draining as "among the foremost" of the means for agricultural improvement. The particular testimony to which we would invite the attention of the reader is that of Mr. Elliot:

Prof. Johnston said—I am quite sure that the general statements which Mr. Elliot has made must have produced an impression upon the meeting. At the same time I know the farmers so well, that I am sure nothing will so much satisfy them, or the landlords either, as showing that the proposed improvement will put money in their pockets (hear, hear). Now Mr. Elliot has drained largely, and I know successfully (applause): you will excuse me, therefore, if I ask what are the results of his own draining? He is one of the most enterprising drainers in Dumfriesshire, and is, therefore, a noble example. I should like him to let the strangers here know what are the results during the eight years which he has been employed in draining? I would ask first, what have been the general results of draining on the whole farm?—how much has it increased the produce?

Mr. Elliot said—I have a statement which shows the improvement. Before, my land was partly wet and partly dry; one-half, nearly, has not been drained; but the principal improvement on the whole has been by draining. The result I will read to you:

PRODUCE OF THE OAT CROP ON THE FARM.

1st year,	1837	4·4	after one sown.
2d "	1838	5·6	"
3d "	1839	6·5	"
4th "	1840	6·8	"
5th "	1841	8·4	"
6th "	1842	7·6	"
7th "	1843	8·5	"
8th "	1844	8 3	"

BARLEY CROP.

1st year	8·2	after one sown; a small quantity this year sown on a piece of the best land.
2d "	5·4	after one.
3d "	6·2	"
4th "	10·2	"
5th "	10·1	"
6th "	11·7	"
7th "	10·5	"
8th "	11·8	"

Thus showing that I realized by draining an increase of more than double the original produce (Applause).

Professor Johnston.—It appears from Mr. Elliot's statement that he has doubled the produce of oats and barley in eight years. Now I know he can give us farther information. The second question I would ask is this: he has stated that if the whole farm was drained, it would have produced a greater increase. Now, can Mr. Elliot give us the detailed result of one part of the farm—what it was worth when he began, and what it is worth now?

Mr. Elliot.—One moor I drained which every one who knew it declared to be perfectly useless. It was not worth 2s. an acre. There were ninety-one acres of it; and one gentleman present who observed it told me that it never could be improved. I drained it, however, at an expense of nearly £600. A great part of it was covered with water-lilies, rushes, whins, heather, and gall-roots; but the first year, after liming and fallowing, it yielded 3,500 bushels, nearly 40 bushels to the acre (*Applause*). The second crop was equal. This year I have a crop of oats, after turnips, upon 12 acres of it, yielding 46 bushels to the acre; of potatoes I had a heavy crop, and of turnips also a good one (*Applause*). Another moor of 43 acres I drained at an expense of nearly £300. The first crop, after fallowing and lime, gave 42 bushels an acre. This was upon land that was previously not worth 2s. an acre (*Loud applause.*)

In answer to a question from the Chairman, Mr. Elliot said his land was situated at an elevation of about two hundred feet above the level of the sea.

Professor Johnston explained, in answer to a question sent in to him, that four and three-tenths and so on, occurring in Mr. Elliot's speech, meant that one seed gave four and three-tenths—that where he had only four once, he now got eight seeds off the same land.

By the bye, does it occur to the farmer, that when by *draining*, he doubles the produce of an acre, he doubles the value of his land? that it is far better than getting an additional acre of the same value—because, it takes only *half the labor* to cultivate one acre that it does to cultivate two, and yet he arrives at the same result as to the quantity of produce—in other words, reaps an equal reward, at half the expense? An acre of naturally fertile land rendered unproductive by superfluous moisture, and the crop of which is doubled by draining, is more profitable than an acre the produce of which is doubled by manuring—because, although the process of draining in the first instance, may be more expensive than that of manuring an acre of poor dry land, yet the manured land will be much sooner exhausted and reduced again to unproductiveness, than that sort of land which usually requires draining. Besides, it is absolutely disreputable for a farmer to have on his estate at every turn, these valuable spots—sometimes one acre—sometimes more, sometimes less—which ask only to be drained to give him the most valuable return for his labor; but which in the condition they are left, throw up worthless or unwholesome grasses, exhale malaria, generate rot among his sheep, and fevers in his family. A friend of ours once observed, "Sir, when I go to see a gentleman farmer, if he does not invite me to ride over his estate and look at his crops, I always suspect it is because it is full of gullies and bogs, and naked and miry spots!"

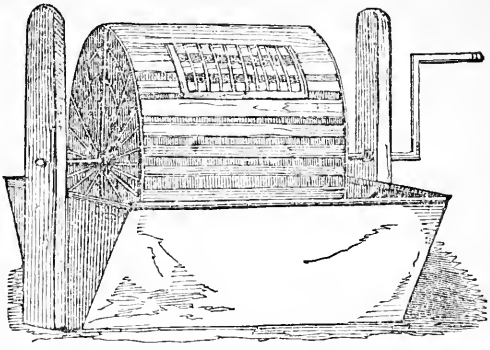
True, it may be answered that draining is very expensive; and so it is, on a large scale and under many circumstances; but this, with many, is a mere pretext for procrastination and want of enterprise. It might often be effected, as by Mr. SOMERS, a plain farmer below Nottingham, in Maryland, by cutting a common ditch, and in the bottom of it laying two poles, side by side, covering these with cedar brush carefully laid down, and then with sods and dirt, and plowing and sowing over the whole. The increased crop in a single year would pay the expense, besides leaving the land, as in his case, worth $20 or $30 an acre for ever after, instead of being a *quagmire*. Who has not remarked that indolence has a very inventive genius of its own when it seeks to excuse itself for its inactivity and love of repose?

POTATO WASHER.

WE are not aware that the machine or utensil, described below, is generally known, though we are sure it ought to be in general use where any considerable number of potatoes are raised, more especially where they are cultivated for feeding stock. The first we ever saw was brought from Scotland, and the only one except one that we got him to have made after it, and was in use, by Mr. BEVAN, manager for the late estimable R. CATON, Esq., of "*Brookland-Wood*," near Baltimore: a gentleman of uncommon amiability and various knowledge—one who possessed a thousand times more of a spirit to be useful to the country and his fellow men, than many who derided his enthusiasm, without emulating the generous impulses in which it was founded and the useful purposes to which it would have prompted him.

This potato washer is one of the most labor saving contrivances we have seen in operation. True, it seems to be a small affair, but every thing that saves a minute is important in a country like ours, where, above all others, labor is high and *"time is money."*

The annexed sketch of a machine for washing potatoes, which is used in Nottinghamshire, may be acceptable to some of your readers. It is easily made by any village workman, and will be found very effectual. It is simply a churn-like cylinder, with open bars placed at such a distance as to prevent any of the potatoes from falling through, except very small ones, the lower part of which as it revolves, passes through a trough of water.



It may be made to be easily unshipped, like a churn, or fixed more permanently, as in the sketch. Where many potatoes are used, or where it is requisite to wash them for starch-making, it will be found a very valuable acquisition.—*M. J. B.* [We have long used a washer similar to that here figured—differing from it, indeed, but in one particular; that one, however, of considerable importance. The arms here represented as containing the sockets in which the axle of the cylindrical frame revolves, are in our machine not vertical and straight, but arched, and terminating in extremities overhanging the ground, considerably beyond the cistern to which they are attached; the cylinder, too, revolves not in sockets pierced *in* these arms, but in Ys at the side of them; and after—by its revolution—the potatoes in it have been cleaned, chains from the extremities of the arms are hooked into eyes on its axle, and as the rotation proceeds, these, winding up on the axle, lift the cylinder out of the water, and bring it to a position overhanging a box or barrow which has been placed beside the cistern. The trap-door being opened, the potatoes fall into this barrow and are easily removed.]

THE INFLUENCE OF PASTURE ON SHEEP REARED ON IT.

BY MR. WILLIAM HOGG, STOBOHOPE, PEEBLESSHIRE.

Sheep, as they exist in this country, have a twofold character—a general character, or what belongs to them as a species, and a particular character, or that temperament of constitution which they derive from the pasture on which they are bred. The qualities essential to them as a species are, producing wool each year after being one year old, shedding two incisor teeth, cloven-footed, wild; for domestication is an artificial state, effected only after considerable intimacy, and tasting of human food—this reconcites sheep to human company and human kindness, and disposes the creature to look to man for help in every emergency. These inherent peculiarities belong to sheep as a species. Before tracing their connection with the pasture, it will be necessary to state that pasture may justly be considered as of two divisions—dry, firm, lea pasture, often less or more intermixed with heath. This soil produces the finer grasses, though not in great abundance; the animal which it rears is small sized, of a compact form, hardy, excretions of all kinds small, constitution sound, considerable flow of animal spirits, not easily overcome with privations, and, as the system in all its parts is, as it were, crowded together, it is subject to inflammatory diseases, whether raised by external injury or by the suppression of its natural evacuations. Another description of pastures are such as are spread out on an easy, downy surface. Here flourish all the strong coarser grasses, with a good part of those found in the former division; but they are here rough in the stem, and hold far more fluidity—all the plants peculiar to a damp, deep soil arrive here at perfection, and a soft, *lathy* quality pervades the whole. The animal here feeds to excess—viscera increase to a great size and weight—the carcass is large, loose, and incompact—staples of the wool generally long, inclining rather to coarseness, if pains be not taken to keep the fleece pure—not much animation—and, for the most part, in their fifth year, swell out to a great belly. The constitution does not now become invariably unsound, it rather becomes unwieldy, and burthensome for the animal to search for and gather its food; evacuations at all times profuse, and that natural purgation common to all sheep in spring is here apt to be continued well into summer, which not a

little delays the animal's mending. The diseases peculiar to such a constitution and such a pasture are of a plethoric description. If the spirits are broken by any misfortune, ill-usage, [fright by dogs] or a severe winter, the rot, with all its enfeebling symptoms, appears. Should this disease not manifest itself, yet the creature falls into an unprosperous, unthriving condition, having slight signs of sundry diseases though the exclusive symptoms of none. It, however, turns useless and dies. From these facts it must not be surmised that I suggest this as the common fate of entire stocks bred on soft pastures. Though the constitution is far from being unsound, yet it is quite inferior to those reared on the first division: it is not so strong and hardy. The soft constitution is burthened with infirmities and disabilities which the former is altogether unconnected with, and an interruption of thriving, which ill-usage or ill seasons bring on individual sheep of this constitution, generally terminates in the rot, or ailments similar to it.—Again, almost each distinct pasture gives a tinge to the fleece; this tincture is generally attributed to the color of the upper stratum of the soils: and, when we consider how assiduously thriving sheep amuse themselves on disruptions or openings of the stratum, this cannot be doubted; yet there is an imbuing quality in the herbage which communicates a tinge to wool independent of that inserted into it by friction; but whether this is produced by the quality of its food after being eaten, or is imparted to the wool as the animal traverses its pasture in search of food, I can scarcely determine. But pasture exercises an almost uncontrollable power over the shape. If it does not interfere too much with the breed, the pasture will adjust the size to what it can itself support; but how it determines the external shape remains as yet unaccounted for. In some cases the shape is unexceptionable, that is, the figure, motion, and mien of the stock indicate strength, spirits, and health; in others, it is ill-proportioned or defective in those points which ensure animation and activity.—The most common as well as the most hurtful defects are, low and thin in the fore quarters, coarse and lumpish in the posteriors, narrow or sharp-backed—its gait oblique and ambling, splay-footed, &c. Though the last two are conspicuous among individuals, they can scarcely be said to be peculiar to a stock in general, but the obstinacy with which any of these defects resist a change for the better indicates they are communicated by the soil, are interwoven with the constitution, and, if strenuous and uninterrupted means are used for their removal, they may, in a small measure, disappear, or the distinguishing peculiarities of the deformity not be so strongly marked. But, rather than relinquish the animal altogether, if vigorous exertions are still made for their utter suppression, the constitution not unfrequently yields with the struggle—it falls into an unprosperous, sickly state, and, finally, ends in being an unprofitable, useless creature. Indeed, man, for no end whatever, regularly and constantly interferes with the propagation of sheep, though accession of fresh blood be necessary at times, for keeping the animals healthy, recruiting the spirits, increasing animation, &c.; yet an often transmission of *new blood* [crossing with a different breed] into the progeny prevents the spirits from acquiring a permanent and steady flow or the body from settling into a fixed and useful proportion of strength. From an actual survey of the position, altitude, and qualities of such an extent of hill-pasture as is generally set off as a sheep-farm, one accustomed to the rearing of sheep stocks, and to notice the connection which exists between the animal and its pasture, may discover with tolerable certainty whether the constitution will be hardy or sickly—whether of a large or small bone—whether yield a scanty or abundant fleece; and, from these peculiarities, may be enabled to say, with an accuracy which may be depended on, and which will be found in general to be correct, what are the most prevalent diseases to which the stock is liable; but the properties in the soil which so forcibly confer the external figure have never yet, that I know, been discovered. Wherever that plastic power resides, I am convinced that the way and manner which the sheep accustom themselves to, in pasturing their allotted range, has not a little influence in forming the exterior shape; and it is certain that the method of pasturing is regulated by the soil, so that still the qualities of the pasture lie at the foundation of all peculiarities, whether natural or acquired; but yet an uneasy manner of collecting the food, if continued in for a length of time, may come in to the aid of those occult qualities in the soil which give the shape, and enable them to act with greater and more certain vigor. It may be thought that, if the figure of each individual in the stock is unexceptionable in its first application to the pasture, there will be no difficulty in perpetuating this shape almost to any length of time; the reverse, however, is certain. The pasture may accord with the proper figure—may support it in its most important points; but if an adverse property reside in the pasture, *it will imperceptibly alter the original form, by imposing on each successive crop of lambs that mould and manner which it is its own exclusive property to give.**

There is a train of circumstances which never fail to alter the true shape, not only of the subject on which they immediately act, but also on their progeny. Suppose an individual sheep, or say stock of sheep, are reduced very low in habit by the sufferings of a severe winter: First season they somewhat shrink from the true figure; but suppose, as is often the case, that for two or three seasons the same privations continue, the departure from the true figure is evidently on the increase, is transmitted to the issue, and the deformity becomes in a sense habitual, though not in so absolute a degree as that which the soil imposes. In this case, if good seasons and prudent management coöperate, a restoration of the right shape is possible; but to establish a true and fashionable form on a stock whose plastic influence seems to confirm a defect in the shape is impossible. The change of stocks from the Heath to the Cheviot breed has not a little altered the disposition, look, and manner of sheep; but when all traces of the former are completely obliterated, and the peculiarities of the latter startlingly confirmed, what reprehensible points the pasture was the cause of in the old breed are still found to be blemishes in the new. From the above notices, it may be inferred that the proper figure and shape of some stocks can with far greater easiness be brought to a just proportion of parts, and kept at them

* So, too, we have maintained as to grain, tobacco, fruit, &c.—Nature will not be forced; soil and climate will force things connected to them to alter their nature to suit them while *they* remain unchanged. [*Ed. Farm. Lib.*

as a right standard, than others where the qualities in the soil operate to the production and continuance of defects. This is found in fact to be the case. Some stocks require little attention: others, if the manager make strenuous and incessant endeavors to establish a useful figure, may, perhaps, enfeeble the whole system by too frequent accessions of new blood; for, to continue sheep profitable, healthy, and beautiful, the line should not be too often disturbed with intromissions from other families, however pure.

To write ever so explicitly on this subject can convey no perfect notion to another person's mind of the dissimilarity which exists between sheep stocks reared on different pastures; one single look over them would make the idea more distinct, and more certain of the inequality, than any words can convey; but the fact that each pasture impresses its peculiar shape, air, and manner, need not be doubted, and this unlikeness exists after every safe method is taken to bring them to a uniformity.

Jour. of Highland and Agr. Soc. of Scotland.

MASSACHUSETTS SAVINGS INSTITUTIONS.

THERE are in Massachusetts forty-one institutions for savings. The returns of these institutions are made up to the 30th of September, 1848, and show the following aggregates:

Number of Depositers	69,894
Amount of deposits	$11,970,447 64
Public funds	1,372,622 89
Loans on public funds	25,600 00
Bank stock	2,025,721 91
Loans on bank stock	173,740 00
Deposits in banks, bearing interest	91,862 44
Railroad stock	89,527 99
Loans on railroad stock	309,925 00
Invested in real estate	92,935 10
Loans in mortgage of real estate	4,171,483 67
Loans to county or town	1,424,086 56
Loans on personal security	2,410,171 68
Cash on hand	152,964 41
Rate and amount of ordinary dividend for last year	461,774 88
Average annual per centage of dividend last five years	5 66
Annual expenses of the institutions	36,404 96

How numerous and frequent are the sources of instruction to men who once acquire the *habit of thinking!*—a habit far more important and more rare than most people apprehend.

These "Savings Institutions" in Massachusetts, in which are deposited $11,970,447, by very nearly 70,000 people, are over and above the regular *banking* establishments, both of which are *scattered all over* the State, so that any industrious and ingenious man can borrow the means of "setting up" any new business, which for the most part consists in manufacturing something for the supply of the Southern man, who has at home much greater facilities—that is *natural* facilities—for manufacturing them for himself—*except* that he—the Southern man—is taught from his cradle to hate banks, and manufactories, and combinations of skill and capital. Hence he is thrown for ever more and more in the power of those whose sagacity teaches them to favor the combination of individual skill, and strength, and money. Hence these numerous banks, and savings-banks, and factories, all over New England. Hence concentration, thickening of population, increase of wealth and power—hence it is that when in New England you see a plough at work in the field, if you cast your regards over the horizon, within view, you can see the steeple of a church, a neat school-house, and a village where people are at work at the loom and the anvil, ready to demand the products of the plough, the harrow, the orchard, the garden, and the dairy; and the farmer makes his exchanges without loss, by good roads, and he consumes more of the produce of the loom and the anvil, while the weaver and the smith consume more of the products of the plough and the harrow, because all get their supplies and make payments, with vast economy of time and money. Oh that Southern farmers would but *think* for themselves, and not permit demagogues to think for them!

PARASITICAL PLANTS.

I HAVE heard a curious idea advanced, that all mucilaginous seeds must undergo the process of passing through the stomach of birds before they will vegetate. This was particularly asserted with regard to the seeds of the mistletoe.

The first introduction, and the subsequent growth of this parasitical plant, are wrapt at present in much mystery. Many persons suppose that birds are unintentional planters of the mistletoe, by rubbing or cleaning their beaks, after they have been partaking of its mucilaginous seeds, against the branch of a tree.

Various attempts have been made to propagate the mistletoe, by depositing the seed between the forks of trees, and by inserting it in the bark; but they have hitherto failed. The seeds also of the ivy seldom grow, though planted with the greatest care, even under walls; yet, if dropped by birds upon, or even in the crevices of walls, they will grow spontaneously and thrive luxuriantly; and this is one of the circumstances which have led to the supposition that the seeds of the mistletoe and ivy must undergo some process, favorable to their germination, in passing through the stomach of birds.

Mr. Knight, the intelligent florist in the King's Road, informed me that, having been requested by a lady to endeavor to preserve a favorite mulberry-tree, which for many years had flourished on her lawn, but which, with the exception of one very large branch, was either dead or decaying, he waited till the sap had ascended, and then barked the branch completely round near its junction with the trunk of the tree. Having filled three sacks with mould, he tied them round that part of the branch which had been barked, and placed above them one or two old leaky watering-pots which were kept constantly full of water, which gradually distilled from them, and rendered the mould in the sacks sufficiently moist for his purpose. Towards the end of the year he examined the sacks, and found them filled with numerous small fibrous roots, which the sap, having no longer the bark for its conductor into the main roots of the tree, had thus expended itself in throwing out. A hole having been prepared near the spot, the branch was sawn off below the sacks, and planted with them, the branch being propped securely. The next summer it flourished and bore fruit, and is still in a thriving state.

Hearing this fact, I was led to examine the small round mossy substance frequently attached to the branches of the dog-rose in our hedges, which I had often admired, but been unable to account for. I found that, in consequence of the bark on the branch on which it is fixed being removed by some insect, the sap in receding throws out roots; these, from exposure to the air, produce the mossy ball in question, which becomes the nest or hybernaculum of the insect.* This idea might be followed up practically in this country, as I have lately heard it is in China; and the more uncertain method of grafting or budding to increase our stock of plants might be abandoned.

WILD-FOWL.

THE Cape geese, which are kept in the large ponds in Richmond Park, used to have their nests on the island in one of those ponds. In consequence, however, of their eggs having been frequently destroyed by the rats, they took to building in some oak pollards, near the water, from whence they conveyed their young in safety. I have questioned the keepers as to their mode of doing this. Their opinion is, that the old birds get the young under their wings, and then descend the tree. It is more probable, however, that they carry them one by one in their mouths. I knew an instance of a wild duck, who had its nest in a poplar-tree, which overhung a piece of water, in Staffordshire, and who thus contrived to convey its young with safety to the water.

The history of wild ducks is curious. In consequence of the drainage of the Lincolnshire fens, the quantity which visit them is much diminished, and many of the decoys are abandoned. In 1765, an extraordinary flood prevailed, when most of the Lincolnshire fens were inundated. The decoy at Heckington, near Sleaford, was that year visited by incredible quantities of ducks—the average number taken during the season being 400 dozen, or 4800 a week. They appear

* If this mossy substance be examined, the larvæ of an insect will be found belonging to the genus *cynips*. Another species produces the gall-nut; and the birch-tree is subject to a similar disease.

to quit this country in the spring, and to return about the time of harvest, although some breed in low and retired situations, and occasionally in meadows. These birds, however, would seem to have different habits from those which migrate. If the eggs of a wild duck are placed under a common duck, the young, when hatched, immediately exhibit the perfectly wild nature of their origin, and hide themselves with wonderful cunning. If old ones are caught and pinioned, they are, I believe, never known to breed. In the *tidal* waters of the estuaries of the Lincolnshire coast, they are shot in hard weather by men who approach them, lying flat in small boats called "*gunning shouts*," carrying very large duck-guns. The charge is a pound or a pound and a half of shot. One man was known to kill £200 worth of ducks in one season.

FRIENDSHIP OF ANIMALS.

"'Tis often seen
Adoption strives with nature."—SHAKSPEARE.

ANIMALS which are unable to associate with their own species will sometimes form most strange attachments. I had last year a solitary pigeon, which being unable to procure a mate, attached itself to an old barn-door fowl, whose side it seldom left at night, roosting by him in the hen-house. The cock seemed sensible of the attachment of the pigeon, and never molested it, or drove it from him. I had also a tame hedgehog, which nestled before the fire on the stomach of an old lazy terrier dog, who was much attached to it, and the best understanding existed between them. I have also seen a horse and a pig associate together, for want of any other companions; and Gilbert White mentions a curious fact of a horse and a solitary hen spending much of their time together in an orchard, where they saw no creature but each other. The fowl would approach the quadruped with notes of complacency, rubbing itself gently against his legs; while the horse would look down with satisfaction, and move with the greatest caution and circumspection, lest he should trample on his diminutive companion.

At Aston Hall, in Warwickshire, I remember to have seen a cat and a large fierce bloodhound, who were always together, the cat following the dog about the yard, and never seeming tired of his society. They fed together, and slept in the same kennel.*

A gentleman residing in Northumberland assured me that he had a tame fox, which was so much attached to his harriers, and they to him, that they lived together, and that the fox always went out hunting with the pack. This fox was never tied up, and was as tame, playful, and harmless as any dog could be. He hunted with the pack for four years, and was at last killed by an accident.

But a most singular instance of attachment between two animals, whose natures and habits were most opposite, was related to me by a person on whose veracity I can place the greatest reliance. He had resided for nine years in the American States, where he superintended the execution of some extensive works for the American government. One of these works consisted in the erection of a beacon in a swamp in one of the rivers, where he caught a young alligator. This animal he made so perfectly tame, that it followed him about the house like a dog, scrambling up the stairs after him, and showing much affection and docility. Its great favorite, however, was a cat, and the friendship was mutual. When the cat was reposing herself before the fire, (this was at New York,) the alligator would lay himself down, place his head upon the cat, and in this attitude go to sleep. If the cat was absent, the alligator was restless; but he always appeared happy when the cat was near him. The only instance in which he showed any ferocity was in attacking a fox, which was tied up in the yard. Probably, however, the fox resented some playful advances which the other had made, and thus called forth the anger of the alligator. In attacking the fox, he did not make use of his mouth, but beat him with so much severity with his tail that, had not the chain which confined the fox broken, he would probably have killed him. The alligator was fed on raw flesh, and sometimes with milk, for which he showed a great fondness. In cold weather he was shut up in a box, with wool in it; but, having been forgotten one frosty night, he was found dead in the morning. This is not, I believe, a solitary instance of amphibia becoming tame, and showing a fondness for those who have been kind to them. Blumenbach mentions

* The Godolphin Arabian, the great root of the bred-horse stock of England, formed a strong attachment to a cat, so that both portraits appear on the same print.—EDS. P. L. & A.

that crocodiles have been tamed; and two instances have occurred under my own observation of toads knowing their benefactors, and coming to meet them with considerable alacrity.

Colonel Montagu, in the Supplement to his Ornithological Dictionary, relates the following singular instance of an attachment which took place between a Chinese goose and a pointer. The dog had killed the male bird, and had been most severely punished for the misdemeanor, and finally the dead body of his victim was tied to his neck. The solitary goose became extremely distressed for the loss of her partner and only companion; and probably having been attracted to the dog's kennel by sight of her dead mate, she seemed determined to persecute the dog by her constant attendance and continual vociferations; but, after a little time, a strict friendship took place between these incongruous animals. They fed out of the same trough, lived under the same roof, and in the same straw-bed kept each other warm; and, when the dog was taken to the field, the lamentations of the goose were incessant.

Some animals of the same species form also strong attachments for each other. This was shown in the case of two Hanoverian horses, who had long served together during the Peninsular war, in the German brigade of artillery. They had assisted in drawing the same gun, and had been inseparable companions in many battles. One of them was at last killed; and, after the engagement, the survivor was picqueted as usual, and his food brought to him. He refused, however, to eat, and was constantly turning round his head to look for his companion, sometimes neighing as if to call him. All the care that was bestowed upon him was of no avail. He was surrounded by other horses, but he did not notice them; and he shortly afterwards died, not having once tasted food from the time his former associate was killed. A gentleman, who witnessed the circumstance, assured me that nothing could be more affecting than the whole demeanor of this poor horse.

MANUAL OF MANNERS.

THE DEMEANOR.

One of the maxims of Goethe was, "Respect for self governs our morality—respect for others, our behavior." Though possessing the brightest mental endowments, one is apt to be overlooked in society, if the proprieties of the demeanor are not attended to. It is not meant, however, that the external deportment should be studied in preference to the improvement of the mind; but that both should be cultivated together. On this point it may be sufficient to say, that, while a genteel address and polite air are absolutely essential to the demeanor, to secure at once admiration and esteem; it is the improvement of the mind which should adorn the deportment.

The ladies, owing to their natural desire to please, aided by their agreeable manner and courteous address, have always an amiable and attractive appearance. Women possess more refinement, tact, and delicacy, and are certainly gifted with a nicer discrimination than the stronger sex; they have a finer perception of the correct, and are quicker in detecting the weak points in the character and deportment. An easy, unrestrained demeanor, so far from being an encroachment upon nature, as we may sometimes hear remarked, is nothing more than what may be called "free nature's grace."

It should always be kept in mind, that every person has a right to courteous treatment. This we claim for ourselves, and should be willing to concede to others, as their due. Democritus, who was known as the laughing philosopher, recommended to every one "to have honey within and oil without:" meaning, doubtless, to have a good temper in the disposition, and good manners in the life—an excellent advice, and which, if acted upon, would prove permanently conducive to one's tranquillity and comfort.

One of the first attributes of demeanor is a modest deportment, which adds lustre to the brightest accomplishments. Without modesty, beauty fails to charm. It is indeed the brightest gem possessed by woman, and an essential part of the character of a well-bred man. It may be said to form a safeguard to the other virtues; for no man would offer insult to a woman, if he did not find encouragement in her own free demeanor.

Presumption, equally with rudeness, is strenuously to be guarded against. An arrogant look never gains esteem; and the most unassuming persons in society are generally those whose merit is the greatest. Avoid every indication of vanity and self-conceit; and, in the presence of others, never betray any expression of weariness or indifference, for to do so is a proof of vulgarity.

On the Continent, the proper cultivation of the demeanor, as a distinct branch of education, is one of the first things taught to a child. In this country, the economy of the manners is not paid so much attention to as its importance to society deserves.

While on the subject of the demeanor, we shall say a word or two regarding affectation. This is a deviation from, at the same time that it is an imitation of nature. It is the effect of bad taste, and of mistaken notions of one's own qualities. The other vices have each a particular object, but affectation pervades and renders disagreeable the whole conduct and behavior. Beauty itself loses its attraction when disfigured by affectation. Even to copy from the best models is wrong, because the imitation can never be so good as the original. Counterfeit coin is not so valuable as the real, and, when discovered, it cannot pass current.

In religion, affectation, or, as it is fitly called, hypocrisy, is reprehensible in the highest degree. However grave be their deportment, of all affected persons, those who, without any real merit, make too great pretension to piety, are certainly the most culpable. The mask serves to conceal innumerable faults; and, as has been well remarked, a false devotion too often usurps the place of the true. The conduct of people, which must be taken as an evidence of their pretensions, ought at all times to be conformable to their profession. "When God alone is all we are concerned for, we are not solicitous about mere human approbation."

Vanity is inexcusable; it not only corrupts the manners, but it tends also to debase the morals. Ridicule cannot make it more odious than it is. It has only one good point, and that is, that it serves to console its possessor with the thought that he deserves better than he receives.

Affectation in old age is peculiarly disagreeable; yet many cannot alter their habits with their years, or suit their conduct to their change of circumstances. It is humbling to see persons with gray hairs affect youth and gaiety. They only render themselves ridiculous by attempting to dazzle by unsuitable pretensions, when their season is past. Many carry this feeling, or rather this failing, so far that they will even deny their age, when the wrinkles on their forehead betray it but too plainly.

If you wish to possess the good opinion of your fellow men, the way to secure it is to be actually what you pretend to be, or rather to appear always precisely what you are. Never depart from the native dignity of your character, which you can only maintain irreproachable by being careful not to imitate the vices, or adopt the follies of others. The best way, in all cases, you will find to be to adhere to truth, and to abide by the talents and appliances which have been bestowed upon you by Providence.

Amongst strangers maintain an easy reserve, and be not too free even with friends. Be polite to all, but familiar with none; and on every occasion grant to others the same indulgence which, in the same circumstances, you would claim for yourself.

OUTWARD APPEARANCE.

The neglect of the outward appearance indicates either a little mind, or a disregard of the opinion of your neighbors. One should always be neat and clean in person and in dress, because this is an evidence of respectability. No man who has any regard for himself, or any respect for the society in which he moves, will be slovenly in his appearance or careless in his attire. It is true, there is a danger of being too particular; but every one is entitled to follow his own taste as to dress, provided he dresses suitably—that is, according to his age, circumstances, and station in society. Foppery ought, in every respect, to be guarded against.

It is ridiculous to see the absurd figure which some thoughtless persons make of themselves by being too gay in their apparel. All unnecessary ornament and decoration of the person, in men particularly, should be carefully avoided. A superfluous display of rings, chains, and other articles of jewelry, is no proof of gentility or of wealth. In most instances it is a sure sign of vulgar breeding or vanity; as is also the practice, much more honored in the breach than the observance, of using scents and perfumes to an immoderate degree. What is fashionable is not always genteel, just as what is genteel is not always fashionable; and one may be in the mode without any vain show in appearance or over-nicety in dress.

The young of either sex, but particularly the female, ought to regard their external deportment and appearance as to a certain extent essential to character. To dress simply and without ostentation, is a mark of modesty; and it will be sufficient to some ladies merely to hint, that too much finery often draws attention to features which, in themselves are perhaps, not particularly attractive. But, in endeavoring to avoid every thing like display, young ladies especially should be careful not to fall into the opposite extreme—that of prudery. There is more sincerity, if there is less nicety, in the conduct of a really virtuous woman than there is in that of a prude; and some degree of freedom, so far from being incompatible with the strictest virtue, is one of its principal privileges.

THE WHOLE DUTY OF WOMAN.

COMPLACENCY.

Timorous as the tender fawn, pliant as the bending osier, gentle as the young turtle, and affable as courtesy itself, is the daughter of complacency.

She maketh friends wherever she goeth; she is loved by all the children of men.

Her behavior winneth the stranger, and endeareth her to those of her acquaintance.

Do her steps lead to the house of mourning, she cometh not in dancing; neither doth the lightness of her heart disgust the wedded to calamity.

She weepeth with those that weep; she laugheth with those who laugh; she singeth in the house of gladness, and rejoiceth in the joy of her neighbors.

She giveth not her advice to the stranger, nor openeth her lips among a crowd of visitors till after the rest have spoken.

She fashioneth her behavior to the model of others; wherefore all must approve the resemblance of themselves.

In the strait betwixt two, she is silent; she divulgeth not herself, that either may know to condemn or approve.

Art thou deceived, she will mildly endeavor to set thee right; but if thou art froward to be instructed, she will permit thee to enjoy thy opinion undisturbed: so shalt thou praise her when thou findest out thy error for having so modestly left thee in thy deception.

She is the sister of moderation; she denieth none the privilege of thinking for themselves.

She urgeth not belief where a doubt is remaining, nor denieth a scruple the power of conviction.

Dost thou admire her steps; wouldst thou reap the advantages thereof; yet be cautious lest she lead thee astray.

Follow not a multitude till they lead thee into evil, nor fear to draw back when thy sister goeth wrong, though she be offended at thy singularity.

Be not over courteous, lest thy modesty suffer; fear not being accounted unfashionably virtuous, lest thou afterwards reproach thyself.

Better is the reviling of the world to the innocent, than the reflections of self-reproach to the guilty.

Complacency will endear thee to the world, but virtue to thyself and thy Creator.

The love of many bringeth gladness to the heart; but happiness is only the companion of the upright.

ELEGANCE.

As the diamond is an ornament to beauty, so is elegance to the behavior of a woman.

Art thou modest—art thou chaste—is thy reputation unsullied—is thy fame spotless as the new-fallen snow—yet elegance will make thee still more worthy admiration.

As the crow or the raven, which devours carrion on the hills of the north, differs from the singing bird of the Canaries, so differeth the elegant woman from her that is wanting therein.

As the elegance of dress adds grace to beauty itself, so delicacy in behavior is the ornament of the most beautiful mind.

Discover not the knowledge of things it is not expected thou shouldst understand; for, as the experience of a matron ill becometh the lips of a virgin, so a pretended ignorance is often better than a show of real knowledge.

Undistinguished levity giveth hourly offence, and the form of solemnity becomes unseemly when it lasteth too long.

Is there a word that will offend; is there a tale thy companion chooseth not to hear; avoid it in thy discourse; so shall she honor thy prudence and applaud thy good nature.

Art thou lettered, let not the difficulty of thy speech puzzle the ignorant, lest, instead of admiring thy knowledge, they condemn thee for pride and affectation.

Yet let thy words be choice as the matter of thy speech, nor pervert the elegance of thy phrase to suit the gross apprehension of the weak and injudicious.

Perspicuity will never force thee to be indelicate, or to forget thou shouldst support the elegance of a woman.

Let thy actions be proportioned to thy speech; so shalt thou gain respect; for whoso setteth a watch over the breath of her, lips will preserve the work of her hands free from blame.

FRUGALITY.

Give nothing foolishly away.

Whoso scattereth abroad, will find herself the loser; who throweth her substance away, shall lift up her hands empty in the day of necessity.

The hand which lavishly distributeth its goods will at length close its fingers in emptiness.

Profusion lasteth not for ever; the daughters of riot will become the children of poverty.

Who streweth her money in the streets is not generous; who giveth it vainly away is as guilty of waste.

Hast thou enough, preserve it for thine own use; hast thou too much, bestow it, that those who merit may not want bread.

What thou bestowest on the deserving, is not the voluntary gift of thine hands, but a debt thou owest, and art bound in justice to pay.

The meritorious are entitled to thy superfluities: if thou keepest it from them, thou committest an act of injustice, and wrongest thy neighbor of his right.

If thou givest it to the undeserving stranger, thou givest away the property of another; it is no charity.

Sayest thou these things are mine, I may use them as I list:

Canst thou employ them to thy comfort, thy honor, or thy advantage, thou hast then no superfluity; if otherwise, they are not thine: they are put into thine hands for the use of others, and they will be required of thee.

Be frugal, therefore, in that which thou employest for the use of those who need, as in that which thou keepest for thyself.

Waste not the substance of the deserving poor, nor wrong him of his inheritance.

His merit is a right, and as just as thy immediate possession.

Who hath riches that are a burden to herself, she is not frugal.

Doth she waste them by hoarding them in secret; doth she cast them away in riot and profuseness; she cheateth herself, and abuseth her trust: for the miser and the prodigal defraud both the world and themselves.

ROSES.

In cultivating roses, nothing delights in rich soil more than this handsome flower. They should always be planted in a composition of stiff loam, rotten dung, night soil, and leaf-mould. Where roses have grown strong after three or four years' standing, they may be taken up, the ground well renewed, the roots close pruned, as well as their shoots very much thinned, and then planted in the same situation—they will then produce as fine blooms as when first transplanted from the nursery. This should always be done in the early part of November. Roses bloom well the first year after being transplanted, if carefully attended to. They should, when transplanted, have a strong stake attached to each standard to preserve them from the wind moving them, and then well mulched round. During the winter, the ensuing spring and summer, they should be plentifully supplied with liquid manure.

In pruning roses, the following observations are useful. With the exception of Teas and Chinas, December and January are considered the best months for pruning; many sorts, such as the Hybrid Chinas, Hybrid Bourbons, with some of the strongest growing Noisettes and Bourbons, require very little pruning; about every third year they should be pruned in close, so as to make them produce new wood, and to prevent the plants getting too old and ugly in appearance. The Persian Yellow requires merely to have just the top of the shoots taken off, it being found to flower only on the last year's wood. Another excellent plan for Standard Hybrid Chinas, many of the Pillar roses, and Standard Climbers, is to prune them in quite close, just after they have done flowering: they will then produce new shoots the same summer, and flower abundantly the next season. February and March are considered the best months for pruning Teas, Chinas, and Bourbons.

For protecting roses when planted out on their own roots, such as Teas, Chinas, and Bourbons, dry Moss, Fern, or small Spruce Fir boughs, may be stuck round the plants, which will very much protect them from sharp frosts; also, the crown of the roots should be covered with rotten manure early in December, which should be dug in the following spring.

MULTITUDE OF BEINGS IN THE UNIVERSE.

On our globe there are supported at least 800,000,000 of human beings; but it is capable of supporting twenty times that number, or sixteen thousand millions, if all its desolate wastes were cultivated and peopled. Besides man, there are numerous orders of other sensitive beings; there are at least 500 species of quadrupeds, 4000 species of birds, 3000 species of fishes, 700 species of reptiles, 50,000 species of insects, besides thousands which the microscope alone can enable us to perceive—at least sixty thousand species in all. If every species contain about 500,000,000 of individuals, then there will be no less than 30,000,000,000,000, or thirty billions of individuals belonging to all the different classes of sensitive existence on the surface of our globe.

The Plough, the Loom, and the Anvil.

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PROGRESS OF PUBLIC OPINION AT THE SOUTH AND WEST.

From almost every portion of the South and West, and by almost every mail, we obtain evidence of the growing popularity of the doctrine that if the farmer and planter would grow rich, they must endeavor to induce the owners of looms and anvils to come and take their places by the sides of their ploughs and harrows. Men are everywhere learning to see that unless they consume on, or near the land the products of the land, their farms and plantations must be exhausted, and they must themselves become impoverished. Everywhere they are opening their eyes to the fact that they waste annually more labor than would build mills and furnaces by aid of which they could convert their food and their cotton, or wool, into cloth, or their food, their coal and their ore into iron. Everywhere they are opening their eyes to the fact that when cloth and iron can be paid for in potatoes, and turnips, and hay, and milk, and veal, and other things of which the earth yields largely, the product of rich lands, they are cheap, because obtained in return for little labor, whatever may be the nominal price; whereas when they must be paid for in wheat or cotton, of which the earth yields by bushels, or pounds, they are dear, because obtained in return for much labor. Everywhere they are awakening to the great fact that "population makes the food come from the rich soils," and that if they would cultivate such soils they must make a market for those commodities of which the earth yields by tons, and that are too bulky for transportation. Of the evidences of this gradual change in the state of public opinion that have come to our notice through the public press and our personal correspondence, there is none that has struck us more forcibly than that contained in the recent message of the Governor of Missouri; and we do not know that we can better occupy a few of our pages than in giving place to this able view of this great question.

THE ADVICE OF A WESTERN MAN TO WESTERN MEN,

And of one whose party predilections would lead him to the adoption of the doctrines of the Treasury Report—and therefore it is entitled to careful consideration.

"This subject of internal improvement is one of vast importance to our country; but the subject of establishing manufactories is another of equal importance; and although the two are in their nature very unlike each other, yet the encouragement of either would produce a similar effect upon the country; that is, improve the prices of the productions of the soil, and diminish the prices of manufactured articles. The operation of each is better illustrated by an example.

"From this place, 20,000 bushels of wheat and upwards—the growth of this year—has been or will be shipped. The average price of this wheat in this place, and probably for the whole length of the Missouri river, has been about fifty cents per bushel. In St. Louis, an average price for the same wheat has been about eighty cents. This is a difference of thirty cents; and twenty cents of this is probably for freight. The tax for freight, on the 29,000 bushels of wheat shipped from this place for this year, will then be $4,000. From every district of ten miles, including both sides of the Missouri river, we may safely calculate that an equal amount of wheat of the present crop will be shipped. This would make for the Missouri river, say 600,000 bushels, and the freight on this amount would be $120,000. Now, if the river was well improved, at least half

this amount paid for freight would be saved to the wheat grower, say in round numbers the sum of $60,000 in shipping the present year's crop; and the next is expected to be much larger. This sum, properly expended, would put the Missouri river in a very safe navigable condition. And this is but one article of export, nothing being said of the reduction of freights on the great number of imports. And what is here said of the Missouri river is applicable to the other rivers, and to railroads and canals, in proportion to the demand for transportation on them. This is the improvement side of the question.

"The great anxiety in our State to improve rivers and construct railroads is the result of a strong desire to open good ways for the conveyance of our raw material to the manufacturing districts of country, to be exchanged for their fabrics. If, instead of improving rivers, constructing railroads, and digging canals, the amount of money necessary to make these improvements was expended in erecting manufactories through the country, then, in a short time, a large amount, say one-half of our population, would be taken from the cultivation of wheat and employed in spinning wool and cotton, and hemp and flax, and in working up the iron, lead, copper, and other metals of the country, and in making glass, stone, and earthen ware, and the one thousand other articles demanded by the wants of the community. If half the people were taken from the wheat field, the growth of wheat would be diminished one half, and the demand for that product would be increased, and the price doubled; and with little or no charge for freight, because the factory should be in the neighborhood of the wheat grower. And in this state of affairs, while the farmer would be getting a higher price for his wheat, he would obtain his manufactured articles at lower prices. His wheat would bring him more, because he would sell it without paying freight; and he would buy his manufactured articles cheaper, because they would come free of similar charges.

"It seems, then, that the improvement of our rivers, the construction of railroads, digging canals, and the erection of manufactories, would each affect the prices of products in the same manner, but perhaps not in the same ratio. It is important, then, to inquire which course of policy should be encouraged first. About 12,000,000 of dollars are invested in the Lowell factories. These would probably make double as many fabrics as our State would consume, and it might take twice the above sum to improve our rivers, and construct the contemplated roads, and the necessary canals. It might, then, be well to give every possible encouragement to manufactories, as the first and most profitable step to be now taken. But the encouragement of these, as well as our agricultural pursuits, would soon demand the adoption of a system of internal improvements. Our surplus fabrics, as well as our surplus products, might soon demand other markets. But our first move should be to rear the factories.

"DIVISION OF PURSUITS.

"In a previous message, the necessity of diversifying our pursuits, with the view of enhancing the value of all labor, was earnestly urged. This matter may not strike the public mind so forcibly now as it might have done a few years back; because, for the present, many of the productions of the soil are in fair demand and produce comparatively good prices; but this was not the case a few years back, nor need we expect it to continue so for many years to come, unless we increase the variety of our pursuits and the demand for our products at home. The causes of the present increase in prices may be but temporary. One is the failure of crops in Europe. This may cease with the return of better seasons. The other is the repeal of the high tariff. This may be re-enacted before another year passes.

"These are, then, but temporary causes, and we need something more permanent to create a demand and enhance the prices of our products. This would be more certainly effected by a proper division of labor than by any other cause.

"At this time, wheat and corn, beef and pork, hemp and tobacco, are our staples: and to these we may add a few horses and mules. But nearly our whole population is engaged in agriculture, and almost every man raises as much wheat, corn, beef and pork, as his necessities require; and many as much as would supply a dozen families; and those who do not raise a supply are apt to be unthrifty farmers, with but little means of buying from others: and hence, there is frequently no demand, or else a very dull market for the surplus articles produced.

"It is plain to the senses of every one, that if by any accident or unusual occurrence—a bad season—a destructive hail-storm—a visit from noxious insects—or any other cause, only half crops are produced to feed our whole population, the demand would be greater and the price doubled. If one-half of our population should cease to work, the same result as to demand and prices would follow. The idleness of one-half of our population would operate on the other—the working half—as a famine in Europe does upon the people of our Union. The idleness and the famine would each increase the demand and enhance the value of food. But each of these causes would of necessity give but a tem

porary value. The idleness in our State, and the famine in Europe, if continued, would each be followed by an exhaustion of the means to purchase, and both classes would sink from the condition of purchasers to that of beggars. But if half of our population, instead of ceasing to work, should only cease to cultivate the soil, and should engage in some other equally profitable employment, then, the whole population, having still to be fed by the labor of one-half, the same increased demand for the products of the soil, and an equal or greater enhancement of prices would follow; and this increased demand and enhancement of prices, being based on a proper division of pursuits, the means of paying would always be certain, lasting, and increasing. And, this change of pursuits effected, the other half of our population might also expect better profits from their labor than they can now reap by cultivating the soil. If all this be true, then it becomes important to inquire how we shall divide our pursuits. If we can encourage manufactories, we shall accomplish this object to a great extent, and, probably, in no other way so successfully.

"But this matter can be better illustrated by examining the manner in which our present system of affairs actually operates. Say a number of our citizens want a quantity of domestic shirtings and sheetings. To get them, their first operation is to raise a quantity of wheat. This is shipped to the South and exchanged for cotton; and this cotton is shipped to Lowell, and there hands are employed to make it into sheetings and shirtings. These hands must be fed, and if the usual exchange of products which ought to exist in every country, be carried out in this transaction, then our citizens, at the time of sending their cotton to Lowell to be made into cloth, should also send a quantity of meal and flour, and pork, and beef, and butter, and lard, to feed the manufacturers, and to pay, in part, for the labor. The shirtings and sheetings completed, they are shipped back to our citizens, and delivered to them on the payment of the expense of shipping the cotton to Lowell, the expense of shipping food to the same place to feed the hands, the expense of shipping the fabrics back to our citizens, the value of the labor bestowed on the fabrics, and the profits of the owner of the factory. This is the best phase in which the operation of exchanging our products for those of the eastern manufactories can be placed, because in any other there are many intervening charges by other persons not mentioned here. Now it is evident that the shipping of the cotton to Lowell, the shipping of the provisions to feed the hands, and shipping the shirtings and sheetings back, are all expenses that might be saved by having this work done at home. And in addition, we could get hands cheaper here, and feed them cheaper than in Lowell, while performing the labor.

"But this matter can be made still more striking by another illustration, even more simple and plain in its nature than the preceding. For our wheat, in this part of our State, a fair average price we may say is fifty cents per bushel. For plain shirtings a fair price with us is ten cents per yard. At these rates a bushel of wheat will buy, in our market, five yards of such shirtings. This same wheat is worth in Boston, an average price of one dollar and twenty-five cents per bushel. The same shirtings in the Boston market are worth five cents per yard. Then the bushel of wheat there, would buy twenty-five, instead of only five yards of such shirtings, being a difference of twenty yards in the value of the bushel of wheat here and the value there. This twenty yards, then, in every twenty-five, is what we lose by shipping our cotton to Lowell, to have it manufactured for us, and our provisions to the same point to feed the manufacturers on, instead of employing and feeding hands to do the work at home. The example here given applies with equal force to other articles, and the only remedy for this evil, the only mode of saving this great loss, that can present itself to our minds, is to manufacture at home.

"MANUFACTORIES.

"If we manufacture at home, our heavy materials, our provisions, and the manufactures of hemp and tobacco, our horses and mules, would be shipped down stream to the South, and exchanged for cotton. This exchange would absorb a large portion of our surplus products of the soil. The cotton, a light article, might be brought up stream at proper seasons of the year for a very small cost. To manufacture it, would require a large portion of our population, and those having to be fed, would consume the balance of our surplus provisions; and thus the agricultural part of our population would be well provided for. With equal care, the manufacturing part should be encouraged; and they could not suffer, once fairly under headway, because we have all the means of manufacturing here cheap and abundant. We have good water-power, and plenty of fuel, and both are cheap and easily obtained. Real estate is abundant, at the lowest prices. Provisions are plenty, and, at double their present value, would be much cheaper than they are in places where manufactories have succeeded well. The fabrics produced, at half the prices many of them are now selling at in various parts of our State, would still be much higher than the same fabrics at Lowell. Our provisions then would cost the manufacturer less and his fabrics would sell for more than in other places: and still our

farmer would sell his provisions higher and buy his shirtings and sheetings and other articles lower than he now does.

"If these are facts, they are of deep interest to our population, and deserve to be well considered by your body.

"The encouragement of manufactories would also widen the field of agricultural pursuits. It would encourage wool-growing, to which business no country is better adapted than ours; and it would extend the hemp-growing business: and by manufacturing those articles, we should reap from them more than double the profit. It would encourage the growth of all our staples, to be exchanged for cotton, for the use of our factories, and all pursuits, and give new life and vigor to our population, and increase their wealth and comfort.

"If it be so essential to the interests of our country to encourage manufactories, then it becomes a matter of deep interest to the Legislature to ascertain the best mode of giving that encouragement.

"It is true that the two political parties into which our country has been divided, have differed as to the best mode of encouraging manufactories, one party being for a high tariff to protect them, while the other claimed that they had protection enough under a low tariff; but in these differences, it should always be remembered that whatever may be the party division as to the best mode of accomplishing the object, yet the simple fact of making these things—of manufacturing the necessaries or luxuries of life—is neither whig nor democratic policy, exclusively, any more than making corn, wheat, hemp, or tobacco: but making them is and ought to be the policy of the whole country—of every political party.

"But the question before us now is one in regard to the best manner of encouraging manufactories in our State. The effect and operation of a high tariff upon them was spoken of in my message to the last legislature, and then an effort was made to show that a high tariff would retard the establishment of manufactories in our State, and whether successfully or not, the position then assumed has not been controverted."

What was the argument of the Governor in his previous message, we do not know; but sure we are that if he had examined the question carefully, he would have arrived at a different conclusion. The natural place for the loom is by the side of the cotton and the food, and that for the furnace is by the side of the food and the ore; and there they would long since have been but for the existence of great disturbing causes, which it is the object of this journal to point out, and of the protective system to remedy, and *thus* bring about gradually that state of things which is predicted by the Secretary of the Treasury in his last report—perfect freedom of trade.

That officer tells us distinctly that "the belief is erroneous" that the manufacturers, if now protected by a tariff adequate to enable them to continue their operations in despite of the unceasing fluctuations abroad, and thus to place the loom and the anvil by the side of the plough, will continue to desire protection. He asserts distinctly that as "they increase in number, skill, capital, and products, they will cease to desire to perpetuate high tariffs." "When," he adds, "they attain this condition, and their fabrics exceed the home demand, they will desire free trade, to open to them the foreign markets. In England," as he further says, "this is now the case, and there manufacturers are the great advocates of free trade, as our manufacturers in time will be, and ultimately unite with all other classes in desiring the abandonment of all tariffs and custom-houses, and the repeal of all restrictions on commerce."

It is perfectly obvious from this admission of the Secretary, that the road to ultimate perfect freedom of trade lies through the adoption of a decidedly protective tariff—one that will enable men to adopt the course indicated by the Governor of Missouri, combining their efforts with a view to make the exertions of all more productive, and thus obtain by the labor of half a dozen hours a larger amount of food and clothing than they now obtain for that of a dozen. That they should be enabled to do so, it is indispensable that the nation adopt that policy which will tend to prevent the necessity for exhausting poor soils, and then flying from the neighborhood of rich ones, as

is now being done in every part of the Union, but most especially in Virginia and South Carolina. Men are everywhere running away from each other, every man seeking to roll his own log, although all see that two can roll a log that a thousand, each acting separately, could neither roll nor lift. On this subject of combination of action, the Ex-Governor appears to have very correct views. He tells the people of the State that

"The best plan is, in every section of our country where one is demanded by the wants of the community, for the people to combine their means, as they would in the construction of a railroad or any other improvement. To be profitable, a manufactory of almost any kind should be constructed on a large scale, and that would require a large capital—such an amount as would seldom be found in the possession of one man, and such an amount as it would not be desirable for one man to possess.

"If this be so, then factories ought to be established by companies or associations of persons. And this being so, it becomes important to ascertain the best mode of organizing and governing these companies or associations, so as to reap the advantages to result from a combination of their means, without subjecting ourselves to the injuries which such bodies often inflict upon a community."

His views in regard to the legislative action required to facilitate combination, are in some respects very sound, although in others not so much so. He is decidedly in favor of general laws for the purpose, thereby avoiding special legislation, and there he is very right; but he is doubtful about permitting associations without imposing upon the associates an amount of liability that would, in its effects, tend to prevent association. Very little reflection is needed to see that this is injudicious. He says that they should combine as they do for the making of railroads, and that they may do so, all that is needed is that they should be so permitted to combine. The makers of railroads are never hampered with responsibilities such as fetter persons who trade in money, or who make cloth, and the reason is, that the roadmaker is everywhere looked upon as a friend whose aid is to be invited, whereas the making of cotton or iron are too frequently regarded in a different light, and yet the latter are greater friends to the farmer than the former. The roadmaker enables the farmer *to go* to market. The cloth or iron maker *brings the market to his door*, and enables him to sell that portion of his labor that is not needed on his farm—that of his sons and daughters, and that of his wagon and horses—his timber, and many other things that could not be sold by aid of the best roads in the world.

It is full time that the planters and farmers of the South and West should acquire the habit of association, and that they may do so, it is essential that they should free themselves from all those restrictions on the exercise of the right of association that we have imported from abroad—from countries in which the few alone were permitted to associate for the formation of joint-stock companies, that they might monopolize the benefits that were to be derived from combination of action. Throughout Europe there is a tendency to the abolition of those restrictions. In England, so recently as the last century, no joint-stock company, with transferable shares, was lawful, even although all the parties were liable. Step by step, with growing civilization, we see a change, and the day is not far distant when it will come to be recognised both there and here, that all men have a right to associate for trading, or manufacturing, or roadmaking, or money-lending, on such terms as they may think proper to agree upon, provided only that *perfect publicity* be given to their proceedings, so that every man who trades with them may know *the terms on which they trade.*

In no part of the world do corporations so much abound as throughout New England, and therefore it is that the losses by corporations are there so small. There are there *no monopolies*. Men make banks when and where they please; and if they find there are too many, some of them wind up their

business: and they do so almost as unhesitatingly as in other States the shoemaker closes his shop and removes elsewhere, when it is found that shoemakers have become too numerous. The consequence of this is, that they have the best banking system, and the soundest currency in the world; and the sole reason therefor is that there *the trade in money is most free.*

What has been best said on the habit of association, and its advantages, may be found in Mr. Carey's work, "The Past, the Present, and the Future," page 229, which we will take an early opportunity to insert, for it is one of the subjects most necessary to be studied, and yet is it the one which is the least studied and understood by the *practical farmer.*

MR. WILDER'S AGRICULTURAL REMARKS.

Among the best signs of the times, is the institution of meetings of the members of the legislature, and others, at the seats of State Governments, during the sessions of Assembly, to discuss agricultural questions. These discussions will be quite appropriate, and no less useful, should they embrace the obligations of the general government to provide for agricultural, and civil, as well as for military instruction—and if, moreover, they should bring under consideration the obligation of that same government so to shape its policy as to bear beneficially on the interests of the plough—for without the products of the farmer, what would become of all the other more special interests for the care of which departments of government are created, and secretaries appointed, and immense sums of money expended in various forms?

In their meetings at Albany, the question has been started, how far they should sanction the recommendation of the Governor for a School of Agriculture; and as usual, instead of uniting first to demand that from the government, they are likely to be diverted from the main object, by disputes about details. Let each State, we should say, first compel Congress to reduce the appropriations for the army and the navy, and give the amount for agricultural education in each State. Why dispute, on a question like this, about how much chemistry has done for agriculture?

Let them take up the course of instruction at West Point, only substituting the plough and the spade for the cannon and the sword, and leaving *all the rest as it is*, and we undertake to say that teachers so instructed, only applying chemistry and mechanical philosophy to the analysis and composition of plants and grasses, instead of rockets and gunpowder—to the structure of wagons and threshing-machines, instead of gun-carriages,—yes, we undertake to say that if the government will fill the country with teachers so instructed, they would add as much to the agricultural as they are now doing to the blood-shedding capabilities of the country; and that they would win more true glory for this Republic by preventing war, than is to be won by an unbroken series of the most brilliant victories won in fields of blood. But of what avail is one poor feeble voice like ours in the cause of humanity and truth?—when not a press, nor an agricultural society in the land, will unite in the demand, except that of Maryland?

Of the meetings referred to, after such men as Wilder and Teschemacher, and Gray, Walker, French, Brooks, Read, &c., become enlisted and prevailed on to "give in their experience," there ceases to be any occasion to dwell on their utility.

In a chance number of a Boston paper, we find the following. We say a chance number, because according to the wisdom of our rulers in Post-office matters, while the meanest hebdomadal in the land has the privilege of exchanging *freely* with every newspaper in it, of whatever size, no periodical is allowed to receive one, although every mail might bring it matter germane to its own, with statistical and other items worthy of more extended circulation. Ah! we are a wise—a wonderful people!

From the Boston Daily Evening Transcript.

We subjoin the remarks of the Hon. Marshall P. Wilder, promised yesterday, at the last Legislative Agricultural meeting at the State House:

The President introduced the discussion, by saying the subject was one paramount in importance to any other that concerns the cultivator of the soil. It is the great preliminary movement on which the farmer founds his expectations of a bountiful harvest, the sheet-anchor of his hopes. Although he might plough deep and well, yet, without some correct knowledge of the substances he uses to fertilize the seed he buries in the earth, his success is

almost as uncertain as the mariner's who would plough old ocean without chart or compass.

A soil of inexhaustible fertility, he said, was an imaginary idea; and although mother earth would yield kindly to the full extent of her ability, yet the time would come, sooner or later, when even the rich prairie lands of the West would demand a return of the fertilizing elements which have been abstracted by vegetation. It is a matter, then, of vast importance, to learn how these materials can be procured at the cheapest possible price, and in a form to be applied with the greatest economy.

Mr. Wilder proceeded to state that he was no chemist, and made no pretensions to farming, except as it is connected with gardening and the horticultural art.

He had made some experiments with manures, some of which he would relate. He did not wish to be understood that he undervalued stable or barn-yard manure, but such as was purchased from the stables of the city, by the cord, when deprived of straw or decomposed, was in reality only half or three-fourths of a cord. To obtain a real solid cord of manure, equal in quality, and at less price, had with him been a great desideratum, and he believed he had succeeded, by making a compost of meadow-muck, crushed bones, and leached ashes, in the following proportions:

One cord of meadow-muck, having been exposed to the action of air and frost at least one year	$1 50
Twelve bushels leached ashes	1 20
Six bushels crushed bones	1 50
Labor	30
Total cost per cord	4 50

The bones and ashes were mixed together while the latter were in a damp state; and when fermentation had taken place, these were incorporated with the meadow-muck. In this condition the mass should remain until heat is generated again, when it will be fit for use.

He had found this compost equal to any stable manure for root crops, grass land, gardening purposes generally, and for fruit trees. For the last two years, he had mixed his stable manure with the compost, and also had added to it one-eighth part in bulk of fine refuse charcoal from the depots of venders. This can be purchased at five dollars the cord, delivered, and does not much increase the cost above named.

Mr. Wilder said, that since Liebig first promulgated his opinion as to the wonderful influence of charcoal in rooting cuttings of plants, and as a component part of soils, experiments have been making verifying its importance. He also informs us, that the volatile gas which arises from our stables and manure heaps, and descends in the rain and snow, and which we call *ammonia*, is the great fertilizer of the earth. To secure this subtile element, Mr. W. had added charcoal to his compost heaps, and as he thought with great advantage. It is very durable, if not indestructible; a substance of great porosity, and we are told, he said, by chemists, that it will absorb 90 per cent. of its bulk of *ammonia;* but its beneficial effects are supposed to arise from its power of retaining this volatile gas, and yielding it up only as it is washed out by rains, or as the vital force of the root searches for food. He did not consider it a fertilizer in itself, but that it was a medium of administering nourishment, having used it with good success for greenhouse plants for many years.

Mr. Wilder said the compost (with the charcoal and stable manure combined) was the best he had ever used as a general manure. On fruit trees its effects were remarkable.

In the spring of 1847, he planted a square in the nursery with imported

trees from England, this compost having been spread and ploughed in. These trees were from four to five feet in height, and although it is not usual for trees to make a large growth the first year, they acquired branches of three to four feet, and were so handsome as to command $1.25 each for a row of fifty trees, without any selection.

In June last, which is very late to set out trees, he prepared another square on rather poor land, and planted trees just received from England, upon it. The soil had been thrown up to the frost the previous winter, and the compost here was applied in the trenches, near the roots. Mr. Wilder exhibited two shoots, which had grown from those trees since they were set out in June. The shoots were four feet in length, and the wood hard and well ripened.

It is stated that on old beds, where charcoal had been burned ten years before, the corn and wheat to this day are uniformly better than on the adjoining lands, being more vigorous, of a darker green color, and producing larger crops. A farmer remarks, "I sowed fine charcoal over my grass land in strips; these strips have increased one-half in product, and without any apparent diminution for five years."

Mr. Wilder mentioned several instances showing the beneficial effects arising from the use of fine charcoal, one of which, in the State of New York, was an extraordinary product of wheat crop.

Says an English gardener, "My compost consists of nothing but loam and charcoal, without a particle of manure of any sort; and I never saw the plant that did not delight in it, and every plant under my care has some charcoal used about it."

As a deodorant or disinfector, Mr. Wilder related the following experiment which appears in a late English paper:

Two fluids, and charcoal from peat, were prepared especially by different chemists for the purpose of depriving night-soil, stable and pig-stye manures of their offensive smell—the fluids both proved ineffectual, but the charcoal not only entirely and instantly neutralized and destroyed the offensive odor, in each of these substances, but also deodorized the fluids themselves.

Mr. Teschemacher said that the vast and almost inexhaustible subject of manures had always united itself in his mind with three great considerations:

1. On the nature of the crops to be raised.
2. On the nature of the soil from which these crops were to be obtained.
3. And the most important one—the nature and application of the manure itself. He should be obliged to condense into a brief form what he had to say on all these heads. Every one knew, if clover was wanted, a large quantity of lime was wanted; for tobacco, potash or soda.

In England, after many years' cultivation of wheat, all the cow-yard manure that could be heaped on the ground, would not raise any more until bone dust was added; and with this many acres, hitherto considered barren, had given excellent crops. The size and quality of turnips had been found to be much benefited by the use of the soluble phosphate of lime.

One question then is, what does the crop we require abstract from the soil during its growth and maturity? This question is answered by the various analyses of the crops which are now found in every agricultural treatise. But another and much more important question now arises: it is this:

What part of the ingredient puts more bone and muscle into the animals which feed on them, and can we by particular measures increase in these crops the quantity of their ingredients? The first part of this question has been answered by Liebig's last treatise. We knew before Liebig was born

that the bones of animals were chiefly formed of the phosphate of lime, but we did not know that the phosphates of other alkalies formed considerable part of the muscle; this he has satisfactorily proved. In the lime district of Switzerland the cattle are much larger than where lime is scarce in the soil—and the great test of the quality of a crop is by its nutritious action on the animal, more than by its appearance or even weight; now it is evident that by offering as food to these crops a manure abundantly supplied with these ingredients, *combined with others insuring a luxuriant growth*, we enable them to obtain a maximum thereof. My experience shows in the same weight of grain a difference of thirty per cent. in their ingredients, dependent on the difference of the manure; hence the consideration in the nature of the crops is of much interest. On the nature of the soil—All soils are composed chiefly of sand (silica), clay (alumina), lime, magnesia, some organic matters as sources of carbonic acid, and a few oxides of the metals.

Sand (silica) is chiefly of use to strengthen and stiffen the stems; for this purpose it must be dissolved by an alkali, (potash or soda.) This is usually found in clay, which as an ingredient of the soil or of the compost heap, is invaluable, although it never enters into the organization of the plant.

When the chemist analyzes a mineral containing alumina, it is almost impossible for him to wash it free from the alkaline substances which he has used in his analysis—it grasps and retains these with the most invincible obstinacy, as clay in its natural state is always combined with small portions of silica and potash or soda.

The President has spoken highly of charcoal, but by no means too much so, as an absorbent of the useful part of manure—ammonia. I have experimented several years with this substance, in various ways, and can amply confirm all he has said. Clay, however, I think if possible more retentive than charcoal, certainly more so as regards potash and soda, and may be had where charcoal is hardly to be procured. Clay, then, well pulverized by frost, is a most valuable addition to the compost heap; and a soil containing a fair proportion of clay may, by manuring, be rendered the most permanently rich of any.

A light soil allows the valuable salts of the manure easily leached through by heavy rains, and one with too much clay does not permit them to mix freely, so that the roots of the crops can get access to their nourishment.

The farmer, who studies the nature of his soil, will, while manuring liberally, be able to manure much more economically, than one who knows nothing on the subject. It is probable that the great differences of opinion which exist in the use of lime and plaster have arisen chiefly from ignorance on this subject.

I have not time to dwell on the third part of this subject, but will state that in the Isle of Thanet, on the river Thames, where much seed wheat is grown, and where seeds of vegetables and herbs are grown to a large extent, the compost heaps are formed as follows: three or four inches of pretty good loam and turf, then six or eight inches of sea-weed brought up from the beach in the immediate vicinity, then six or eight inches of farm-yard manure, then loam, and so on, until the heap is several feet high. This is left twelve months to decompose—the grains raised are beautiful, large, plump, and heavy—now here the ingredients are clayey loam to absorb—sea-weed contains soda and a good proportion of the phosphates—the barnyard manure besides its soluble salts contains ammonia, and the solid parts are by fermentation converted into charcoal and humus, which absorb the ammonia and preserve it for the use of the crop. Here then is not only every ingredient the plant requires, but also the storehouse of alumina and charcoal, from which it extracts its food as wanted.

I remember a discussion on the subject of whether manure was better used in a green state or after it had been kept for a year or more and had become a black saponaceous mass. The question appeared to be settled in favor of this latter state, and this agrees with my own experience. If a manure heap be fermented under a good cover, it is converted into a black carbonaceous mass, containing nearly all the ammonia condensed in its pores, and is a most powerful manure.

But, gentlemen, I will not continue this subject. I am still a learner, and shall be happy to acquire knowledge from gentlemen present.

Lieut. Governor Reed, Hon. Mr. Brooks, of Princeton, Hon. Mr. Leonard, of Norton, Hon. J. C. Gray, Messrs. Buckminster, of "The Ploughman," Bartlett, of "The Cultivator," and other gentlemen, took part in the discussion.

The same subject of manures is to be resumed next Tuesday evening.

IRON BUSINESS IN VIRGINIA.

"We noticed a few days since, and with gratification, too, a statement in the 'Lexington Valley Star,' of the prosperous condition of the iron establishments in the county of Botetourt, Va. We were gratified, that these manufacturers were able to sustain themselves against the ruinous free trade policy of our government, even though those of our own State could not. But it seems the statement was erroneous, in some respects, at least, for the 'Fincastle Whig,' in correcting it, says, 'we feel satisfied that there is not a business-man in the country, but is convinced of the fact, that every man engaged in the iron business in Botetourt for the last twelve months has lost money by the operation. Out of the five furnaces enumerated by the 'Star,' in the county of Botetourt, as being in a *prosperous condition—two*, if not *three*, under the blighting effects of the *British Tariff* of 1846, have been compelled to stop business—and in some cases, their proprietors, formerly independent, are now bankrupt. So much for the operation of the *Free Trade Tariff* in the county of Botetourt. We have no doubt the same is true, not only in relation to other counties in Virginia, but throughout the whole Union.'"

What is the comment of a genuine "Common Sense" on the above? Must not those who worked in those furnaces be converted from being customers to being rivals of the farmer?—and must not the farmer, instead of finding his market on the spot, and saving his time, and keeping his manure on the farm—must he not go to making corn and wheat, that must be sent at great expense to distant markets, there to meet the competition of men who live on *pumpernicle*, and who are bought and sold with the farms to which they belong, as so many cattle and sheep?—for such is the condition of millions in Russia, our great rival in the corn markets of Europe.

DEPOPULATION OF THE SOUTH.

"An unusually large number of movers have passed through this village within the past two or three weeks. On one day of last week, upwards of thirty wagons and other vehicles belonging to emigrants, mostly from Georgia and South Carolina, passed through on their way, most of them bound to Texas and Arkansas."—*Greensborough (Ala.) Beacon.*

Everywhere throughout the South, men are thus seen flying from each other, and from rich soils. The address of Governor Seabrook to the Agricultural Society of South Carolina, recently received, and which we propose, on a future occasion, to notice at full length, describes as existing throughout that State, an amount of rich and unoccupied lands that perfectly astonishes us; yet her people are seeking the West, to repeat upon poor soils, at the heads of streams, the work of exhaustion. To clear the rich lands of the river bottoms, and to drain the swamps, combination of action is indispensable, and that can never be obtained until the loom and the anvil are brought to take their places by the side of the plough and the harrow.

WHAT MAY BE DONE WITH EASTERN SHORE OF MARYLAND LAND,

FROM WHICH PEOPLE ARE RUNNING AWAY TO THE WEST, OR INTO THE LARGE TOWNS.

Martin Goldsborough's Statement—with Notes by the Editor of "The Plough, the Loom, and the Anvil."

Lot No. 1. On the plot, 1 acre, 1 perch, from which I cleaned up 50 bush. 10 lbs., which is 40 bush. 8 lbs. per acre.

Land, white oak soil.(*a*) Improved in 1835, kept in grass for 7 years, then in wheat until 1847, when I had a good growth of clover. I grazed it off, broke the land in July, which was done as shallow as I could: say 1½ to 3 inches deep, then prepared with treble ploughs.(*b*) Seeded and put in with the same ploughs on the 17th or 18th of October, 1847.

S. Chamberlain's Plot.

	A. R. P.	bush. lbs.
Lot No. 2 is made up of	1 1 20	Product 44
Lot No. 3 is made up of	2 1 20	" 70
Lot No. 4 is made up of	1 3 00	" 64 24
	5 2 00	178 24

Giving 32 40 to the acre.

Ground, white oak soil, prepared as above, seeded as above; and on lots 3, 4, had a light dressing of manure.

Lot No. 5 contains 5 acres 18 perches; product 150½ bush., which is about 30 bush. per acre.

Land, part loam, part white oak, prepared as in No. 1. Seeded in three different lots, 17 bush. of wheat—*Closs wheat.*

1 acre of corn produced 75 bush.

Land, loam, 3 years in succession in wheat, the 4th year in corn, and gave the above. Planted 4 ft. 4 in. by about 3 ft. The ground had a dressing of marsh-mud and sand, and farm-yard manure—about 90 loads of the former and 45 of the latter per acre. Broken in May, and planted on the 20th. There was 172 missing hills on the acre, and many hills with but one stalk.

I will make oath to these statements if required.

Talbot County, Md. MARTIN GOLDSBOROUGH.(*c*)

(*a*) It were much to be wished that this "white oak soil,"—a common designation in Maryland—could be more exactly described. It is not enough to say that its primitive growth was white-oak. It ought to be, and doubtless will be, analyzed carefully, and the results published, by the State Agricultural Chemist. The soil of what is emphatically called "The Swamp," on West River, is a white-oak soil, which, after rain, runs together in a hard compact mass, causing it to be called *pewtery*. It seems to be unmixed with sand, and when dry rubs into an impalpable smooth powder, like wheat flour. The original growth of that land is celebrated over the country as the finest description of white-oak ship timber—the next best timber after live-oak. Can Mr. Goldsborough's "white-oak soil" be of the same description? Both are, we presume, flat countries. The swamp certainly is, and underlaid with a thick stratum of a yellower or brownish clay, almost as hard as stone.

(*b*) There is coming into fashion in Maryland, an implement arranged with two, three, and we believe even four or five little ploughs, arranged a little in advance of each other, and at an angle across the land, so that the one in the rear runs just clear of the land thrown by the one in advance. They run, of course, very shallow, and are getting to be very popular for seeding grain in fallow land. Perhaps after some time, when a few more thousand of the "Plough, the Loom, and the Anvil" get into circulation, as it now circulates, not locally, but over the whole Union, the makers of agricultural implements will wake up to a sense of the benefit they might derive from advertising on the cover

of this journal, and sending for insertion in it, gratuitously, all descriptions and cuts illustrative of *new* agricultural inventions. We have only to add that this is a matter that concerns them more than us. One word more: the nearer the loom and the anvil come to the plough, the better both for him at the plough, and for *him who makes it.*

(*c*) We hope never to see a Maryland farmer called upon or allowed to "make oath" to the truth of a positive statement—for with the farmers of that State, we hope never to see any man dare come in competition, who would not be believed by his neighbors as implicitly on his simple word as on his "affidavit:" the very form of which is, in some States, carefully conned over and prescribed, to tie down competitors for dollar premiums, in the strictest terms that suspicion could devise against a known habit of lying and fraud.

In still further proof of what land will *fetch*, in more senses than one, on the Eastern Shore, we take, without leave, the following extract from a letter received some weeks since from a valued friend in Talbot County. Though the letter was a friendly one, designed only for our own eye, the facts are of public interest, and he must excuse us, as we omit names. What he says of sea-weed, or sea-ware, sometimes improperly called kelp, (which is altogether a different substance,) reminds us of some experiments detailed to us, many years since, by a most respectable farmer, and which we will relate when we have room.

"What do you think of land selling within four miles of here for $60 an acre? I know an instance of it, and the purchaser is a hard-fisted, working farmer, who has made a small fortune by hard knocks, having come in, as the sailors call it, at the 'hawse-hole.' The farm is not rich, but for beauty of situation cannot be surpassed. ———— bought a good farm three miles below St. Michael's, a few days ago, at $40 an acre. It is considered a good purchase, but situated on the waters of Choptank, where there is no sea-weed, which we consider as indispensable as the Virginians do a mint-patch.

"I killed, a few days ago, 38 hogs, which averaged 215 lbs., raised in the way you most approve, on principles of the 'largest liberty,' and none exceeding 18 months old, and many about 12 months. Three raised in a stye weighed from 300 to 380 lbs. (15 months old). How the Yankees can make them weigh, at 16 and 18 months old, from 500 to 600 lbs. I cannot imagine. Next year I shall make an improvement on my stye, by giving the pigs access to a marsh in warm weather, which I think will conduce to their health.

"I made an experiment this year of a compost made of king-crabs, which abound in these waters. I do not know whether you are acquainted with this interesting testaceous animal, but think you must have it on the Patuxent. I mixed them with rough straw, soil, &c., and the appearance of the manure is rich,—the crabs, shells and all, decomposed. I made also 294 loads of prime manure *under my sheep*, to say nothing of my main summer compost, in which I penned my cattle from May until November, on the usual materials, sea-weed, woods leaves, straw, &c., and *lubricated* with 1300 skates. An experiment I made with guano on wheat was not successful.

"I wonder you have not drawn some matter from Humboldt's New Spain. In the 2d volume is a beautiful essay on the agriculture of that country. There the origin and progress of the potato is discussed, and its failure, from cutting the seed, predicted. He wrote in about 1803 or '4."

Notes on Pigs.—The great weight at which the Yankee *pigs* arrive at an early age, is no doubt the result, in a great measure, of *peculiarity in the breed*, and then again difference in the manner of rearing.

In New England, every meal the hog eats *costs money*, and the Yankee has the sagacity to *count the cost* of every thing. The hog there never goes at large, whereas, at the South, he goes rooting and grunting where he listeth—oftentimes turning up his master's meadows, sometimes luxuriating in his corn-field, and sometimes feasting even on the dainties of the garden. But why not, says the reader, get these New England pigs in the South? Because "circumstances alters cases," and besides, it *has been* done, again and

again. The fat, short-legged, simple-hearted pig of New England, that waits to be fed, and, unlike his countryman, knows not, nor ever dreams how to weather difficulties, would perish in the sunny South, where the rule is "Root, hog, or die." There the hog is remarkable for his industry and enterprise. How long would it take a fat New England pig to run a mile in time of a North-wester, to pick up a shower of chestnuts or acorns in one direction, and as far in another to the persimmon trees? "It's an ill wind that blows nobody any good," but no wind can blow good to hogs that can't go in search of what the wind throws upon the ground. The New England hog, from the day he is littered to the day he breathes his last, is kept stuffed with as much as he can eat. His is not a life of vicissitude and romance—of starvation and satiety. It is one monotonous alternation of *sleeping and eating*, and as, in New England, where the loom and the anvil are everywhere near to the plough, *every thing* can be sold and turned into money, the Yankee knows he must have a breed that will yield the greatest weight of fat pork in the shortest possible time—for he can estimate the money value of every pint of buttermilk he eats, and of every apple. Get the same breed in Maryland, and treat them in the same way—keep them *always* pampered—let them never wake but to eat, and keep them always clean, and you can have them weigh as much, and in as short time, as the Yankee pigs, of which here are some memoranda. For instance, Mr. Bingham, of Cambridgeport, killed four pigs of one litter, one year and one day old, which weighed

306, 318, 394, and 398. Total, 1470.

Mr. Amos Wood, of Boston, bought a sow that then weighed 596 lbs., one year afterwards she weighed 1106, having gained 510 lbs. in 365 days. Her food was varied every day, and once every week she had a salt fish, and the water it was boiled in. At Easton, (not Maryland, but) Bristol, Mass., Mr. Cyrus Lathrop killed a pig which at twenty months old weighed 742 lbs. He measured 9 inches through the ribs, was 5 feet round the neck, 7 round the body, and was 6 feet 2 inches long. He was unpromising *as a pig*, but *took a start* in April, and gained in one year 665 lbs.! Let us hope that, as money is so hard to be raised for agricultural uses, that societies will give away no more premiums for fat hogs unless it be "with a proviso!" that they shall exceed some of these old familiar cases, of which, while our hand is in, we will give a few more. Thirty years ago, there were slaughtered in Boston, on the day they had been but one year in this world, eating and drinking, ten brothers and sisters, which weighed *three thousand seven hundred and sixty-three pounds*, or an average of 376. They were purchased at five weeks old, by an innkeeper, and fattened in his stable-yard. They were fattened on the wash and refuse of the tavern kitchen, until November, when they got, besides, until they "bit the dust," about ninety bushels of corn meal!

A Note upon a Note.—The reader will do well not to infer from the above, that common "pot liquor," in which hog meat has been boiled, and from which it chiefly derives its substance, is good for *hogs*. In relation to the very case just stated, we once received the following:

"Mr. Editor:—In compliance with your urgent request, I proceed to state the substance of my remarks, in conversation with you, concerning the effects of certain kinds of feed on the constitutions of the hog and the cow.

"And, first of the hog: I have observed that the common pot liquor, from the boiling of pork or bacon, to be injurious to confined hogs, and of no benefit (if not an injury) to those running at large. In my opinion, it produces a disposition to mange. I think that the large hogs, fed in Boston, by Mr. Patterson, with kitchen swill, must have had but little pork in its composition.

"And next of the cow. I was informed, by an old gentleman who practised the veterinary art in Baltimore, for several years before his death, that he believed that most of the complaints of the cows in Baltimore, originated from feeding on slops, composed in part of the boilings of beef and pork. I bought some Baltimore cows one Fall, and found them much weaker and more difficult to winter, for their appearance, than any I ever fed; and it is my opinion, that this disposition was produced by feeding on such slops as I have above described. And I am of the opinion, that it is contrary to nature and injurious to the health and constitution of any animal to feed on its own kind. The best feed I have ever given to hogs is milk; and it is, at the same time, the worst for dogs. Rich pot liquor will fatten dogs, and

kill hogs. If these observations are considered worthy a place in your paper, you may insert them. A Rough Farmer.

"*St. Domingo Farm, May* 21, 1819."

In the Baltimore market, thirty years ago, there were two hogs exhibited by John Harburger, of Lancaster County, Pa., that weighed 1743 pounds. One girted 6 feet 3, and one was 9 feet 1 inch long, from the root of the tail to the end of the snout. One was 18, the other 14 months old. The last six months prior to their being weighed, they had been fed entirely on *milk and corn*. What better could they ask? The above was their *live weight*. What the difference is between gross weight and weight when cleaned, with other particulars interesting to be known to every practical farmer, but which not one farmer out of an hundred can tell, off-hand, may be learned from the following, with which, for the present, we conclude our swinish notes. The information was given thirty years ago, to the Senior Editor of "The Plough, the Loom, and the Anvil," by a "*Statistical Philosopher*" of Princess Anne, Somerset County, Maryland; and for fat turkies, good oysters, good apple-toddy, fox hunting, and card playing, (we mean fifty years ago, in old Col. W*****'s time,) a man might go further and be in a worse place than Somerset County—for "peach" you would go still lower down into the Old Dominion—down into friend Wise's bailiwick.

I have inspected the memoranda of a practical economist for a series of years, and from a variety of experiments have formed the following table of ten hogs, fatted chiefly on corn.

Days of fatting	45
Weight, when put up	1257
" when killed	1728
" when cleaned	1366
Weight of hams, shoulders, and middlings	909
" of hams and shoulders	752
" of leaf, fat	138
" of feet, heads, and backs	319
" of hams, shoulders, and middlings, when smoked	733
" of hams and shoulders, when do.	607

Hence it appears that the gain in fatting is nearly one pound per day.

In relation to the entire hog the			
	loss in cleaning	20	per centum.
	hams, shoulders, and middlings	67	
	hams and shoulders	55	
	leaf, fat	10	
	loss in smoking	20	

SHEEP-KILLING DOGS.

"Alone, in wanton mischief he pursues
Alone in reeking blood his jaws imbrues;
Chasing amain, his frighten'd victims round,
Till death in wild confusion strews the ground;
Then, wearied out, to kennel sneaks away,
And licks his guilty paws till break of day."

The Ohio State Board of Agriculture held its annual meeting at Columbus on the 6th of December, and evinced a very laudable sensibility to the importance of their duties: nor could that be better done than by the re-election of Mr. Allen Trimble as President. They determined to hold a State Fair in the month of September next—the place not yet agreed upon, recommended the patronage of agricultural papers, and the "Ohio Cultivator" in particular; also that the proprietors of newspapers would devote a portion of their journals to agriculture. It is just this which will at last destroy the attempt by appropriate journals, devoted exclusively to the subject, to establish an agricultural literature for the country. In the first place, farmers care so much less for knowledge of principles and progress in their own business, than they do for *party* politics, that where twenty party papers do well at from $3 to $10 a year, even Bateman, with all his

industry, can hardly keep his "Cultivator" going at $1; yet these half-supported, half-starved agricultural journals, furnish the materials for the agricultural department of the party papers. What ought to be thought of the man who calls himself a man and a father, who is rearing his sons to be cultivators of the soil, and who yet hesitates to lay aside $5 a year for agricultural journals designed to instruct them in the very business by which they are to gain a livelihood, and *respectability* by some knowledge of the principles of their profession! We ask every farmer who is a father to put the question to himself! But of all this we had no design to say one word; so we return to the proceedings of the State Convention, only to note, for the present, some of its most important resolutions, as follows:

"Resolved, That the President of this Board be authorized to offer a premium of *Fifty Dollars* for the best essay on the character, composition, and improvement of Soils in Ohio.

"Also a premium of Fifty Dollars for the best essay on the relation that the agricultural, manufacturing, and mechanical interests sustain to each other. The essays to be furnished on or before the day of the next annual meeting of the Board.

"Resolved, That Messrs. Springer, Medary, and Sullivant, be appointed a committee to report to the next meeting of the Board, a select list of fruits best suited for cultivation in the northern, central, and southern portions of this State, with such remarks on the subject of pomology as the committee may deem proper.

"Resolved, That this Board ask the Legislature at its present session to pass a law requiring the township assessors to ascertain as correctly as possible the amount of each kind of grain and other farm produce raised in each township annually, together with the number of acres of land occupied with each kind of crop.

"Resolved, That inasmuch as great damage is annually done by dogs,* in the destruction of sheep; and consequently many of our agriculturists suffer great loss or are deterred from engaging in this branch of agriculture therefore, this Board memorialize the Legislature, at their present session, to pass a law imposing a *tax on dogs*, of such sum as they may deem necessary, to protect the interests of the wool-growers of Ohio.

"Resolved, That the President of this Board be requested to procure some suitable person to deliver an Address at the State Fair to be held next September."

Now supposing the loss in other States to be in proportion, and taking the census of 1840 for the number of sheep, and the annual loss by dogs is $600,000, or the interest on a capital of $6,000,000; but it seems that Ohio has, since 1840, increased her flocks of sheep from 2,028,401 to 3,677,171: at that rate, by the next census she will have 4,000,000 of sheep. Surely the owners of that amount of property ought to be able to contend against the owners of sheep-killing dogs, in a contest for influence even with the most rabid hunters after popularity and office on the part of law-makers!

GROWTH OF AGRICULTURAL WEALTH IN OHIO.

		Horses and Mules.	Cattle.	Sheep.	Hogs.
In 1838	. . . .	430,527	1,217,874	2,028,401	2,079,746
In 1848,	Horses, 492,509 / Mules, 2,098	494,607	983,822	3,677,171	1,879,689

The apparent diminution in cattle and hogs is explained by the following note from the "Ohio Cultivator," from which these returns are taken. The enumeration was probably made after the sheep of the last lambing season were six months old, so that we have nearly the whole number of them; but very much less than the actual number of horses, cattle, and hogs.

Note.—The foregoing table does not include horses and cattle under two years old, mules under one and a half years old, and sheep and hogs under six months old, on the first day of June last.

Total value of Horses, $16,856,841. Total value of Mules, $78,955. Total value of Cattle, $9,729,920. Total value of Sheep, $1,988,316. Total value of Hogs, $2,341,106.

* In 1846, the estimate was $80,000, as the value of sheep killed by dogs in Ohio that year. One farmer had fifty killed in one night.

CULTIVATION OF COTTON IN INDIA.

In former articles we have endeavored to extract some principles as applicable to the successful culture of American Cotton. The chemical constituents of the soil did not, upon the whole, appear to be of greater importance than its physical state. A high degree of summer temperature seemed essential, with, at the same time, considerable though not excessive moisture. The practices of agriculture seemed indeed to be varied chiefly in reference to the more or less moist state of the atmosphere. The quantity of cotton required by our manufacturers being so immense, it is not extraordinary that they should wish to be supplied from a variety of sources. India has generally been looked to as the country most likely to supply a greatly increased quantity in a short space of time; chiefly because it already produces largely not only for the consumption of its millions of inhabitants, but also for export both to this country and to China. But the quality of Indian Cotton not being generally approved of by our spinners, it has been thought that careful culture might improve its nature, and also that where one species was so extensively cultivated, another might be successfully introduced, especially into a country which is so frequently described as including every variety of soil and climate.

It would be extraordinary if no attempts had been made to attain so desirable an object as the production of an article greatly in demand in Europe, and which would appear to be of benefit to the country producing it as an article of export. On inquiry, indeed, we find that a vast number of experiments have been made by the East India Company for a long series of years, indeed from the year 1788 to the present period, and in spite of failures enough to have deterred most other governments from persevering in what appeared a hopeless undertaking. These experiments commenced with inquiries, and were followed up with the distribution of seeds to cultivators, and the establishment of government farms: the despatch of planters from America for growing the cotton in India, as well as of machines for cleaning it, and of presses for packing it. These were followed by a repetition of the same measures at successive times, and in new localities; and, if we except some very recent ones, all without any great effects having been permanently produced. The efforts of the government have been aided by the co-operation of Agricultural Societies, as well as of individuals in different parts of India, and all with no better success, and this in a country where the same efforts have established the manufacture of indigo and of sugar, and improved the preparation of silk, and the collection of opium.

India is so vast a country, and its different parts vary so much from each other, that it will be difficult to make any observations which are equally applicable to all; we shall therefore divide our inquiries into these experiments, and our observations on them into certain great divisions of the country, where there is some general similarity of soil and of climate, without paying any great attention to a chronological series. First of all we shall notice the province of Bengal, not that it is peculiarly a cotton country, or that its cotton is of a superior quality, though Dacca, one of its districts, was long celebrated for its muslins. We must premise, however, that the province of Bengal has nothing to do with what is commonly called Bengal cotton, which is produced, we believe, entirely in the distant and dry northwest provinces, and exported from Calcutta, the capital of Bengal. But we select Bengal because it affords the requisite temperature, is near the sea, and is conspicuous for moisture of climate. Numerous experiments, more-

over, on the culture of cotton, have been made, by individuals, by the Agricultural Society of India, and by two of the American planters, within its limits. A notice of its climate may prove interesting to horticulturists, as the Botanic Garden of Calcutta, from which so many plants are received in this country, is situated in and is under the influence of the climate of Bengal.*

The province of Bengal, now divided into several districts, lies between 21° and 27° of N. latitude, and is about 350 miles in length, with an average breadth of about 300 miles. It is throughout a flat champaign country, bounded to the S. by the Bay of Bengal, and the dense forests, intersected by numerous rivers, called the Sunderbunds. The northern frontier, which runs westward from Assam, is formed by a belt of from 10 to 20 miles in breadth, of a tall grass and tree jungle, which runs along the foot of the lower Himalayas. On the east it is bounded by the Cossya hills and other low ranges in Tipperah and Chittagong, while the west is confined by the low hills which stretch from Rajmahl towards Birbhoom and the Jungle Mehals. This wide expanse of plain is intersected by the mighty Ganges, the wide-spreading Burrampooter, and by numerous other navigable streams, which, however, often change their course, washing away an estate in one place, covering another with sand, and leaving some intermediate part a stagnant marsh. These rivers, moreover, overflow their banks about the month of August, and inundate the country to a great extent. In autumn they drain off, but as the agriculturist wishes to retain a supply of moisture, embankments are made to retain the water even over extensive fields. Besides these, there are numerous tanks and jeels, *i. e.* "shallow lakes or deep morasses," so that every thing tends to increase the moisture of the climate. But the effects of a raging sun with drought are occasionally felt, when "the earth is iron and the sky brass."

The seasons are divided, as over a great part of India, into three: that is, the hot, the rainy, and the cold. The hot weather begins with March, and steadily increases until the rains come on, early in June. But occasional storms, with rain, occur, which relieve the intensity of the heat. During the first two months of the rains, the falls are incessant, but during the two following months intermissions are frequent. On an average, 60 inches of rain are said to fall in Calcutta, but Prinsep gives 59·83 as the average for three years. If the rains cease early in September, intense heat is experienced, men become sickly, and plants languish. As the weather becomes colder, the moisture which is evaporated during the day is deposited during the night, and fogs obscure the sun till late in the morning. The cold being

* Calcutta, the capital of Bengal, in lat. 22° 23′ N., and long. 88° 28′ E., and situated only a little above the level of the tides, has a mean temperature of about 78°.

Jan.	Feb.	March.	April.	May.	June.
66·2	69·8	80·0	85·4	85·7	83·7
July.	**August.**	**Sept.**	**Oct.**	**Nov.**	**Dec.**
81·8	82·0	82·8	79·2	74·2	66·6

The thermometer ranges from about 45° to 75° in the cold season, when a dry wind blows from the N.E. in the day; but at night there is dampness with cold. In the hot season, or from the beginning of March to the middle of June, the temperature rises gradually from 80° to about 90°—95° in the shade, and reaches to 100°—110° in the open air. Though no rain falls, the wind blowing from the S.W. is loaded with moisture in its course over the Bay of Bengal. In the rainy season the temperature is high and equable, but the Orchid-house-like climate is oppressive, from the combination of heat with moisture, and still more exhausting when, towards the latter half, the wind veers to the S.E.

combined with moisture is felt as severe but not invigorating, and though the thermometer does not fall to the freezing point, ice is obtained by exposing shallow vessels to the effects of the free radiation which takes place in the more open parts. In the more eastern districts showers are more frequent during the dry months of the year, but the moisture of the climate is still greater, and increased by the exuberant vegetation and clumps of trees in even the cultivated parts, while on the frontiers this is still more the case: the dense forests and jungle of grass, often 20 feet high, not only add aqueous vapor to that already in the atmosphere, but prevent the free evaporation of water from the undrained surface.

In such a climate we may expect that wild animals will abound and insect life be rife. The farmer, indeed, complains that tigers and leopards carry off his cattle, wild hogs crunch his sugar-cane, and birds destroy his seed when sown, and his grain when in the ear. But from the peculiarity of climate he can easily obtain two crops off the same field, one being rice or other cereal, the other some one of the numerous millets, pulses, or oil-seeds. He also cultivates the sugar-cane, indigo, mulberry, tobacco, safflower, &c.; but prides himself especially on his clumps of mangoes and of bamboos, or his plantations of cocoa-nut, areca, or wild date, the last valuable only as yielding sugar, while the bassia affords saccharine matter in its flowers for an intoxicating liquor, and a valuable oil in its seeds. In such a climate the culture of a plant like American cotton, which requires heat and moisture, does not appear to be impracticable.

EFFECTS OF FREE TRADE IN CANADA.

The aggregate value of manufactures exported from Great Britain to all the British North American Colonies, for seven years, is as follows:

1840	£2,847,963	1844	£3,044,225
1841	2,947,061	1845	3,550,614
1842	2,333,525	1846	3,308,059
1843	1,751,211		

During these years there has been a constant stream of population to these provinces, yet their power of consumption does not increase. With the exception of a few small woollen factories, they have scarcely any thing like manufactures. They have the most perfect freedom of trade with England, and yet their consumption, per head, appears to have been less than in 1840. They return to the land nothing of what they take from the land, and they grow poorer instead of richer. Therefore it is that the farmers of Canada are now seen transferring themselves to the Western States, that they may enjoy at least that amount of protection which is afforded by the tariff of 1846, insufficient as it is to exercise that attractive power which would draw the loom and the anvil to take their true and natural places in the vicinity of the plough and the harrow.

The *increase* in our consumption of bar, pig, and railroad iron, without taking into consideration the value added by subsequent processes, between 1843 and 1847, was equal to the *whole consumption of British manufactures* in all her North American possessions. Would it be possible to produce a stronger fact to illustrate the effect that is produced by the approximation of the consumer and the producer?

Were these colonies free, their first step would be that of having a tariff of protection. They have free trade, by which they are ruined. We had protection, by which we were becoming rich, but our farmers and planters did not appreciate the fact that protection is, and always must be, *a farmer's and planter's measure.*

THE AGRICULTURAL SCHOOL-BOOK.

SECTION I.—CATECHISM OF AGRICULTURAL CHEMISTRY AND GEOLOGY.

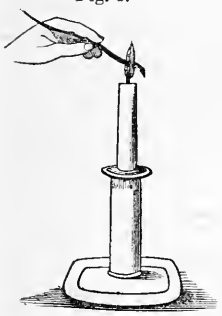
FIRST LESSON.

1. AGRICULTURE is the art of cultivating the soil.

2. The object of the farmer in cultivating the soil is, to raise the largest crops, at the smallest cost, and with the least injury to the land.

3. For the intelligent cultivation of a farm, a knowledge of the nature of the crops raised upon it, of the soil upon which they grow, and of the manures applied, is absolutely requisite.

Fig. 1.



I.—OF THE NATURE OF THE CROPS RAISED.

1. All vegetable substances consist of two parts, one which burns away in the fire, called the organic part, and one which does not burn away, called the inorganic part.

Here the teacher will burn a bit of straw or wood in the candle, (fig. 1,) and show that one part burns away, and that another *very small* part—the ash—does not burn away.

2. In all vegetable substances the organic part is very much the greater. It forms from 90 to 99 out of every 100 lbs. of their weight.

II.—THE ELEMENTARY SUBSTANCES FOUND IN THE ORGANIC PART OF PLANTS.

1. The organic part of plants consists of four elementary bodies, known by the names of carbon, hydrogen, oxygen, and nitrogen.

2. Carbon is a solid substance usually of a black color, which has no taste or smell, and burns more or less readily in the fire. Wood-charcoal, lamp-black, coke, black-lead, and the diamond, are varieties of carbon.

The teacher will here exhibit a piece of charcoal, and show how it burns in the fire, or in the flame of a candle. He may also draw the attention of his pupils to the remarkable difference in appearance between charcoal and the diamond, though essentially the same.

3. Hydrogen is a kind of air or gas which burns in the air as coal gas does, but in which a candle will not burn, nor an animal live, and which, after being mixed with common air, explodes when it is brought near the flame of a candle. It is also the lightest of all known substances.

Fig 2.

Here the teacher will take a goblet or champagne glass, will put into it some pieces of zinc or iron filings, and pour over them a small quantity of oil of vitriol (sulphuric acid) diluted with twice its bulk of water, and then cover the glass for a few minutes. On putting in a lighted taper, an explosion will take place. He will then repeat the same experiment in a phial, into the cork of which he has introduced a tube, (say a bit of the stem of a clay pipe—fig. 3.) After a short time, when the hydrogen gas produced has driven out all the common air from the bottle, a light may be applied to the jet, when the gas will take fire and burn. The cork and jet may now be taken out of the bottle, and a lighted taper be introduced into it, when the taper will be extinguished, while the gas itself will take fire and burn at the mouth of the bottle.

Fig. 3.

Lastly, if the teacher possess a small balloon, he may fill it with the gas by attaching it to the mouth of the bottle, and may thus show that the gas is so light that it will carry heavy bodies up with it through the air.

4. Oxygen is also a kind of air or gas. A candle burns in it with great brilliancy; animals also live in it; and it is heavier than hydrogen gas or common air. It forms one-fifth of the bulk of the air we breathe.

Fig. 4.

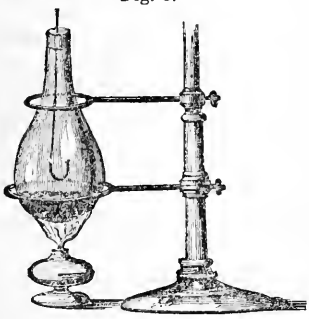
The teacher will here exhibit a bottle of oxygen gas, (fig. 4,) and show how rapidly and brilliantly a lighted taper burns when introduced into it. The least troublesome mode of preparing oxygen gas is to rub together, in a mortar, equal weights of oxide of copper and chlorate of potash, to put the mixture into a common Florence flask, and to apply the lamp as in fig. 5.

Oxide of copper is prepared by heating a piece of sheet copper to redness in the fire, allowing it to cool, and then striking it with a hammer, when scales of oxide of copper fall off. The oxide employed in the preparation of the gas may be washed out of the flask, and employed again for any number of times.

When prepared in this way, the properties of the gas may be shown in the flask by introducing a lighted taper or a bit of red-hot charcoal at the end of a wire. Or if the teacher wish to collect a bottle of gas, he may do so by fitting a bent tube and cork into the mouth of the flask, (see fig. 11.) and collecting it over water, in the same way as when a retort is used. See fig. 7.

A very elegant method of preparing the gas is to put a few grains of *red oxide of mercury* into the bottom of a test tube, and to apply the heat of a lamp. Oxygen will be given off—as can be shown by putting into the tube a half-kindled match, and showing how rapidly it burns up—while metallic mercury will distil off in brilliant minute globules. This experiment the teacher may use to illustrate the meaning of the word *oxide*. (See page under Oxide of Iron.)

Fig. 5.

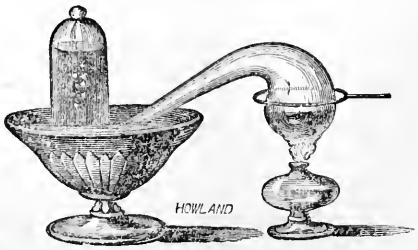


5. Nitrogen is also a kind of air differing from both the other two. *Like* hydrogen, a taper will not burn nor will an animal live in it; but *unlike* hydrogen, it will itself not burn, and therefore does not take fire when brought near the flame of a candle. It is a little lighter than atmospheric air, of which it forms four-fifths of the bulk.

The teacher will here exhibit a bottle of this gas, and show that a lighted taper is extinguished when introduced into it, (fig. 6.)

Fig. 6.

Fig. 7.



The easiest mode of preparing nitrogen is by mixing together a quantity of sal-ammoniac with half its weight of saltpetre, both in fine powder, and heating them in a retort over a lamp. The gas which comes off is collected over water. See fig. 7

6. The greater number of vegetable substances contain but three of these elementary bodies, viz. carbon, hydrogen, and oxygen.

7. Among the more common substances which contain only these three, we may enumerate starch, gum, sugar, the fibre of wood, oils, and fats.

QUESTIONS.

AGRICULTURE.

1. What is agriculture?

2. What is the object of the farmer in cultivating the soil?

3. What ought the farmer especially to know that he may work intelligently?

THE NATURE OF VEGETABLES.

1. Of what parts do all vegetables consist?

2. Which of these two parts is the greater in quantity?

ELEMENTARY SUBSTANCES CONTAINED IN THE ORGANIC PARTS OF PLANTS.

1. Of what elementary bodies does the organic part of plants consist?

2. What is carbon?

3. What is hydrogen?

4. What is oxygen?

5. What is nitrogen?

6. Do all vegetable substances contain these four elementary bodies?

7. Name the more common substances which contain only these three elements.

SECOND LESSON.

III.—OF THE SUBSTANCES FOUND IN THE INORGANIC PARTS OF PLANTS.

1. The inorganic part of the plant contains from eight to ten different substances, namely, potash, soda, lime, magnesia, oxide of iron, oxide of manganese, silica, chlorine, sulphuric acid, or oil of vitriol, and phosphoric acid.

Here the teacher may exhibit to his pupils,—potash in the form of the common *pearl-ash* of the shops; soda, in that of the *common soda* of the shops; lime and magnesia, in the forms of *quick-lime* and *calcined magnesia*; oxide of iron in the form of *rust* of iron; silica, in the form of a piece of flint, rock, crystal, or quartz; a bottle of *chlorine gas*, one of sulphuric acid, (oil of vitriol,) and one containing a little phosphoric acid, or burnt bones, in which phosphoric acid is present. By placing these substances before the eyes of his pupils occasionally, and allowing them to look at, handle, and taste them, they will soon become familiar with their names, and with their several qualities.

2. The common potash of the shops is a white powder, which has a peculiar taste called an *alkaline* taste, and which becomes moist and at last runs to a liquid when exposed for a length of time to the air. It is obtained by washing wood ashes (the ashes left by wood when it is burned) with water, and afterwards boiling the liquid to dryness.

The teacher will here allow his pupils to taste the potash, that they may become familiar with the meaning of the word *alkaline* as applied to taste. (See page 550, note to Sulphuric Acid.)

3. The common soda of the shops is a glassy or crystallized substance, which has also an alkaline taste, but which, unlike potash, becomes dry and powdery by being exposed to the air. It is manufactured from sea salt.

The teacher will show a crystal of the common soda of the shops, and explain the meaning of the word *crystallized*.

The common potash and soda of the shops are called by chemists *carbonate* of potash and *carbonate* of soda respectively.

4. Lime or *quick*-lime is a white earthy substance, which is obtained by burning common limestone in the lime-kiln. It has a slightly burning taste, and becomes hot and *slakes* when water is poured upon it.

The teacher will exhibit a piece of quick-lime, will allow his pupils to taste it, and will pour water upon it, that it may fall to powder. They will thus become familiar with the word *slake*.

5. Magnesia is the white powder sold in the shops under the name of *calcined* magnesia. It has scarcely any taste, and is extracted from sea water and from those varieties of limestone rock called *magnesian* limestones.

6. Iron is a hard bluish-gray *metal*, which is manufactured in large quantities in our iron-works, and is used for a great variety of useful purposes.

The teacher will here explain the word *metal*, by showing that such common metals as iron, copper, lead, silver, and gold, have a lustre and weight not possessed by wood, stones, and other substances to which the name of metals is not applied, and that they can be beat out under the hammer, or are *malleable*.

7. When polished iron is exposed to the air, it gradually becomes covered with rust. This rust consists of the metal iron, and of the gas oxygen, which the iron has attracted from the air, and hence it is called an *oxide* of iron.

The teacher will explain more fully, that, when metals combine with oxygen, they form *new* substances, to which the name of oxides is given, and illustrate this by a reference to the *red oxide* of mercury, which, by the heat of the lamp, he had resolved or *decomposed* into oxygen gas and metallic mercury. (See note to Oxygen Gas.)

8. Oxide of manganese is a substance very like oxide of iron, which occurs in soils and plants usually in very small quantity.

9. Silica is the name given by chemists to the substance of flint, of rock crystal, of quartz, and of common sandstone.

10. Chlorine is a kind of air which has a greenish-yellow color, and a strong suffocating smell. A taper burns in it with a dull smoky flame. It exists in common salt in large quantity.

The teacher will exhibit a bottle of this gas, and may advert to the remarkable fact that this very noxious gas forms more than half the weight of the very wholesome substance, common salt—100 lbs. of common salt containing 60 lbs. of chlorine.

This gas is readily prepared by pouring muriatic acid on black oxide of manganese in a common flask, (fig. 5,) and applying a gentle heat. If the flask be of colorless glass, the smell and color of the gas and its effects on a burning taper may be shown, as in the case of oxygen in the flask itself in which the gas is prepared. Like oxygen also, it may be collected over water, which in this case should be warm, by fitting a bent tube into the mouth of the flask.

11. Sulphuric acid, or oil of vitriol, is a very sour, burning liquid, which becomes hot when mixed with water. It is manufactured from burning sulphur, (brimstone,) and it exists in common gypsum, (plaster of Paris,) in alum, and Glauber and Epsom salts.

The teacher will here exhibit the oil of vitriol, and show its *oily* character by pouring it from one vessel into another—that it becomes hot when mixed with cold water, and that a bit of straw when put into it is charred or *burned* black.

He will also explain the meaning of the term *acid* or *sour*. Besides being more or less sour to the taste, he may show that acid substances redden vegetable blue colors, such as decoctions of violets, of red cabbage, of a blue substance sold in the shops under the name of litmus; while alkaline substances, such as hartshorn, (ammonia,) common soda, pearl-ash, or quick-lime, restore the blue color again after an acid has reddened them.

12. Phosphoric acid is also a very sour substance, which is formed by burning phosphorus in the air. It exists in large quantity in the bones of animals.

Fig. 8.

If the teacher possess any phosphorus, he may here show how it burns with *white fumes* in the air, and may collect these white fumes—which are phosphoric acid—by holding over them a cold glass or metal plate, or he may simply burn the phosphorus in a little cup under a large glass, (fig. 8.) A still simpler way of making his pupils acquainted with phosphorus and phosphoric acid, is to take a common lucifer match, of the variety that kindles without explosion, and to rub the end of it on the sand-paper so gently as not to kindle it. If it be now brought near the nose, the smell of phosphorus will be perceived. If it be again rubbed so as to take fire, it will burn with a white flame, and will, for a short time, give a white smoke. *This white smoke is phosphoric acid.* A hundred pounds of phosphorus, when burned, form 227½ pounds of phosphoric acid.

13. The ashes of all our usually cultivated plants contain, in various proportions, all the substances just described.

14. Some plants have more ash than others. Thus 100 lbs. of hay may leave 9 or 10 lbs. of ash, while 100 lbs. of wheat leave less than 2 lbs. of ash.

15. These substances exist in different proportions in the ash of different plants; the ash of wheat, for example, contains more phosphoric acid than that of hay, while that of hay contains more lime than that of wheat.

QUESTIONS.

1. Of what substances does the inorganic part of the plant consist?
2. What is potash?
3. What is soda?
4. What is lime?
5. What is magnesia?
6. What is iron?
7. What is oxide of iron?
8. What is oxide of manganese?
9. What is silica?
10. What is chlorine?
11. What is sulphuric acid or oil of vitriol?
12. What is phosphoric acid?
13. Are all these substances to be found in the inorganic parts of plants?
14. Do all plants leave the same quantity of ash when burned?
15. Does the ash of different plants contain all these substances in the same proportion?

THIRD LESSON.

OF THE INORGANIC FOOD OF PLANTS.

1. All plants require constant supplies of food in order that they may live and grow.

2. Plants obtain their food partly from the air and partly from the soil.

3. Plants take in their food by their leaves from the air, and by their roots from the soil.

4. Plants require two kinds of food, organic food to support their organic part, and inorganic food to support their inorganic part.

5. The organic food of plants is obtained partly from the air and partly from the soil.

6. The inorganic food of plants is wholly obtained from the soil in which they grow.

Fig. 9.

7. The organic food of plants, taken from the air, is chiefly in the form of carbonic acid gas.

8. Carbonic acid gas is a kind of air which has no color, but has a peculiar smell. Burning bodies are extinguished by it, and animals die in it. It is heavier than common air, renders lime-water milky, and is taken up by its own bulk of cold water. It is the cause of the boiling up of soda water, and the frothing of beer, and forms nearly half the weight of all limestone rocks.

Here the teacher will prepare carbonic acid gas, by pouring dilute muriatic acid (spirit of salt) upon bits of limestone or of the common soda of the shops, in a tall covered goblet, (fig. 2,) or in a bottle, (fig. 11.) He will show that a burning taper is extinguished by this gas; but that it does not, like hydrogen, take fire itself; that it is so heavy that it may be poured from one

Fig. 10.

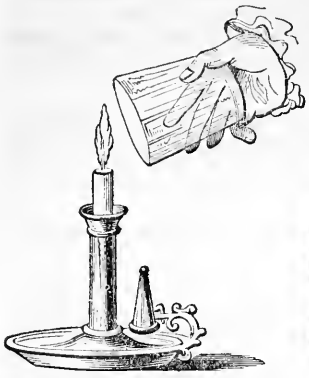


Fig. 11.

glass to another, (fig. 9;) that, when poured from a large tumbler glass, a common candle may be put out by it, (fig. 10;) and that when passed through clear lime-water, (fig. 11,) it makes it milky—forming *carbonate of lime.*

Lime-water is made by putting a little quick-lime into a bottle, filling up with water, shaking, and then allowing the whole to settle.

9. The proportion of carbonic acid gas in the composition of atmospheric air is very small, the latter being composed almost entirely of a mixture of oxygen and nitrogen gases. Five gallons of air contain about four of nitrogen and one of oxygen, but in 5000 gallons there are only two gallons of carbonic acid gas.

10. Plants drink in a very large quantity of carbonic acid gas from the air.

11. Plants spread out their broad thin leaves in great number through the air, and are thus able to suck in the carbonic acid from a large quantity of air at the same time.

12. This suction is performed by means of a great number of very small openings or mouths which are spread everywhere, especially over the under surface of the leaf.

13. The leaves take in the carbonic acid only in the day-time, at night they give it off.

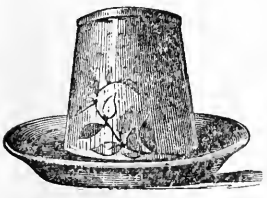
14. Carbonic acid consists of carbon, or charcoal, and oxygen. Six lbs. of carbon and 16 lbs. of oxygen form 22 lbs. of carbonic acid.

15. The composition of carbonic acid gas is ascertained by burning charcoal in oxygen gas, when the carbonic acid gas will be formed.

The teacher will show this experiment by introducing a piece of red-hot charcoal into a bottle of oxygen gas, (or into a flask full of it, prepared as in fig. 5,) until the charcoal is extinguished, when, upon putting a lighted taper into the bottle, he will find carbonic acid has been formed, for the taper will be extinguished.

16. Plants retain the carbon only, and return the oxygen to the air.

Fig. 12.



17. By putting a few green leaves under a large glass full of fresh spring water, and setting them out in the sunshine, small bubbles of oxygen gas will be seen to rise from the leaves, and collect in the upper part of the glass, (fig. 12.)

It may be useful to the teacher to know that a *few* drops of sulphuric or muriatic acid will promote the production of these bubbles of oxygen gas. The oxygen is supposed to be derived from carbonic acid contained in the water; of which the leaf takes up the carbon, and sets free the oxygen. Hence, if pure boiled water be used, no oxygen will be separated by the leaves. But when bubbles have ceased to appear in spring water, in consequence of the carbonic acid being all decomposed, if a few drops of sulphuric acid be added, bubbles will again be given off, showing that they are not due altogether, or in all cases, to the presence of carbonic acid.

18. The leaves of plants also drink in watery vapor from the atmosphere.

19. The vapor absorbed by the plants serves to moisten the leaves and stems, and partly to form the substance of the plants themselves.

20. From the soil plants take in carbon in the form of carbonic acid, humic acid, and some other substances which exist in the black vegetable matter of the soil.

If the teacher wishes to form *humic acid*, he has only to dissolve a little common soda in water, to boil the solution upon finely powdered peat or rich dark soil, pour off the solution after it has stood to settle, and add weak spirit of salt to it. From it flakes will fall, which are humic acid. This humic acid consists of water and carbon only.

21. Plants derive nitrogen from the soil in the forms of ammonia and nitric acid.

QUESTIONS.

1. Do plants require food, as animals do?
2. Where do plants obtain their food?
3. How do plants take in their food?
4. Do plants require two distinct kinds of food?
5. Whence do they obtain their organic food?
6. Whence do they obtain their inorganic food?
7. In what form do plants take in their organic food from the air?
8. What is carbonic acid gas?
9. Does carbonic acid gas form a large part of the atmospheric air?
10. Do plants drink in much carbonic acid from the air?
11. How can plants drink in so large a quantity of this gas from the air if it contain so little?
12. How do they suck in the gas?
13. Do leaves suck in carbonic acid gas at all times?
14. What does carbonic acid consist of?
15. How do you prove the composition of carbonic acid?
16. Does the plant retain both the carbon and the oxygen contained in the carbonic acid that is absorbed by its leaves?
17. How do you show that the leaves give off the oxygen gas?
18. Do the leaves of plants drink in any thing else from the atmosphere?
19. What purpose does this vapor serve?
20. In what form do plants take in carbon from the soil?
21. In what forms do plants derive nitrogen from the soil?

In the preceding pages, we have commenced the publication of what is ultimately to be thrown together in a small volume, designed to make an "Agricultural School-Book," containing, however, much matter commendable to "children of a larger growth." After the establishment, in all countries, of schools for investigating and teaching the principles of Theology, of Medicine, of Law, and all that art and science can do to give greater efficacy to warlike operations, the world seems at last to be ready to tolerate the study of the various scientific facts and principles on which success in the great art of cultivating and preserving the productive powers of the earth, so essentially depends.

As far, then, as this slow but propitious direction of public sentiment may in any degree be encouraged by our humble means, we shall cheerfully apply them, and know not how we can better do so, for the present, than by placing *hand-books* on agriculture within the reach of every farmer's and planter's son, so cheap that all may possess, and so plain that all may comprehend them.

The Junior Editor of "The Plough, the Loom, and the Anvil,"—F. G. Skinner—has already, through the agency of Messrs. Carey & Hart, the publishers, offered one such work—"The Elements of Agriculture,"—translated from the French, and there published at the public expense, under the auspices of the Department for Public Instruction. It is hardly necessary to say that in this case, as in that, no pretension is made to original authorship: on the contrary, the strongest proof of the value of the work here presented is that this Catechism of Agricultural Chemistry is by James

F. W. Johnston, M. A., Chemist to the Agricultural Chemistry Society of Scotland, and has already passed through twenty editions in England, being here put forth only in a somewhat modified form, without alteration in any matter of substance, except by inserting some notices of nutritive substances not so much employed in England as in our own country. It was thought better, too, to follow the plan of the French work—"The Elements of Agriculture,"—by separating the questions from the matter to which they relate, and throwing them at the end of each lesson, so that the one and the other shall not be so immediately connected in the mind of the student as to make the whole rather an affair of simple memory than of real study and knowledge.

With this explanation, the work will be committed to the judgment of the reader, in the full persuasion that it may serve at least to awaken those who have at heart the character as well as the profits of agriculture, to the conviction that it too is a pursuit which calls for the exercise of intellect, and on which science may confer dignity as well as success.

RAILROAD IRON.

Most of the main lines of Railroads in this country have been engaged during the past year in re-laying their tracks with heavy rail. The following is given as the quantity of iron which has been contracted for in England, for this purpose:

	Tons.
Syracuse and Utica	2500
New York and New Haven	6000
Eastern	2000
Boston and Worcester	4000
Western	5000
Vermont Central	8000
Vermont and Massachusetts	4000
Rutland	8000
Old Colony	2000
Boston and Providence	1000
Stonington	1000
New Haven and Hartford	3000
Concord and Portsmouth	4000
Lawrence	2500
Boston and Lowell	1000
Utica and Schenectady	2000
Tonawanda	2000
Buffalo and Attica	4000
Ramapo	2000
Somerville	about 2000
Total number of tons,	66,000

Whatever amount of provisions, the products of the field, the orchard, the garden, and the dairy, was consumed by the operatives employed in digging and smelting the ore, and in manufacturing these 66,000 tons of iron, may be considered as that amount of such produce shipped from England to the United States. Under existing circumstances, probably not a dollar of such produce was made in the United States; for how, in ordinary times, can the cultivator of our soil compete with the slaves of European despots, who live on old black rye bread, called *pumpernicle?* Let us then abandon the *pumpernicle* policy, and let the farmer say that he who makes my iron must be a consumer of the produce of American ploughs. Have we not iron ore enough, and has not a Virginia member of the Legislature asserted that in that State there are 21,000 square miles underlaid with coal? Yet Virginia, to the last gasp, cries out "Free trade! Free trade!" which means vassalage to England and English looms and forges.

On Listening to Evil Reports.—The longer I live, the more I feel the importance of adhering to the rule which I have laid down for myself in relation to such matters:—"1. To hear as little as possible whatever is to the prejudice of others. 2. To believe nothing of the kind till I am absolutely forced to it. 3. Never to drink in the spirit of one who circulates an ill report. 4. Always to moderate, as far as I can, the unkindness which is expressed toward others. 5. Always to believe that, if the other side was heard, a very different account would be given of the matter."—*Carus's Life of Simeon.*

"THE PAST, THE PRESENT, AND THE FUTURE."

Of all benefactors, we look upon those as most entitled to our esteem, whose conversation and writings give us most food for agreeable and salutary intellectual digestion: and among works of this character, none performs that office better, in our humble judgment, than that of which the title stands at the head of these lines.

Political economy has been the chosen theme for men of the highest order of intellect, and yet for the most part they have, in the treatment of it, ended with making "confusion worse confounded." We say it with deference, and with an unaffected consciousness that the fault may, in our own case, be rather in the reader than the writer—yet we are apt, be it confessed, to conclude that when the writings of men of indisputable abilities, perplex instead of convincing, it is for the most part because the writer has not himself had a clear view of the *law* that belongs to his subject, and thus if he start on an erroneous principle, is himself dazzled in pursuit of an *ignis fatuus*, which he takes for a reality, and so bewilders without enlightening the reader who attempts to follow him.

The strong charm of Mr. Carey's book consists with us in his seeming to have first discovered the *law*—(for there is one which lies at the bottom of every question)—the natural, universal law, on which the politics of agriculture rest, and being satisfied of the truth of that, you can then, under all modification of circumstances, trace results with all the satisfaction and confidence with which a man proceeds even on ice when he *knows* he is treading on a safe foundation—and thus it is that political economy, hitherto forbidding from its abstruseness, or disgusting you with its contradictions, is made in these pages a captivating science. So strong is the natural relish for the truth in the mind of every candid inquirer, that all follow it with eagerness when they are sure they are on the right track.

Such, we confess, are the feelings which with us grow stronger on every recurrence to the pages of "The Past, the Present, and the Future." Another, and a powerful charm is, that the volume exhales throughout a spirit of benevolence, and inculcates a horror of war, as at once the seed and the fruit of tyranny and barbarism.*

That the work from which we have taken an entire chapter for this number has not been more prolific of commentary by our own Reviewers, we must ascribe, we suppose, to their higher powers of discrimination, and their juster appreciation of what better falls in with the popular taste. Nevertheless, it may be allowed us to find some satisfaction in the proofs we have seen, that however singular we may have been in offering our humble testimony to its rare merits, on the ground of original discovery, writers among the first in England and France have expressed a like opinion of its character and claims on the score of the originality and truth of its theory.

That we might not break the chapter, we have borrowed for it half the space usually assigned to the "Mother's Department," and if it had been placed there altogether, it would have been but another proof of the value we place upon that division of this journal, and of our desire on all occasions, to impress upon *her* the truth of the declaration that the Past does indeed say to woman—"If you would be a happy wife, mistress of your own home, and surrounded by your children, *love those who cultivate peace.*"

MAN AND HIS HELPMATE.

The savage derives his subsistence from the poorest soils. He roams abroad and shoots the deer: but leaves to his unhappy helpmate the task of carrying it home on her shoulders, and that of preparing it for his consumption. He helps himself, and when there is sufficient for both she may eat. When it is otherwise, she may starve. She is his slave, ever ready to prostitute herself to the stranger for a mouthful of food, a bead, or a nail.

* Voltaire thus expresses himself on the subject of war: "A hundred thousand mad animals, whose heads are covered with hats, advance to kill or to be killed by the like number of their fellow-mortals covered with turbans. By this strange procedure they want to know whether a tract of land to which none of them has any claim shall belong to a certain man whom they call Sultan, or to another whom they call Czar, neither of whom ever saw, or ever will see, the spot so furiously contended for; and very few of those creatures who thus mutually butcher each other, ever beheld the animal for whom they cut each other's throats! From time immemorial this has been the way of mankind almost all over the earth. What an excess of madness is this! and how deservedly might a Superior Being crush to atoms this earthly ball, the bloody nest of such ridiculous murderers!"

The man who cultivates the rich soils of the earth sees in woman the source of his greatest happiness. The companion of his hours of enjoyment, he turns instinctively to her for solace in the hours of affliction. He labors, that she may rest. He economizes, that she may enjoy the comforts and luxuries of life: while she regards him as the chosen partner of her existence, and the father of her children; and, as such, entitled to exclusive possession of her affections.

If we trace the history of woman in Athens we may see the gradual decline of her influence as incessant wars brought poverty and depopulation, and as the cultivation of the fertile soils was more and more abandoned, until we meet, on the one hand, the *Hetæræ*, constituting an important element of society: and, on the other, the female slave, engaged in the severest labors, and not unfrequently perishing for want of food: while abroad, women and children are involved with husbands and fathers in the atrocious punishments that follow resistance to the orders of a rapacious military aristocracy, eager to divide among themselves the plunder of subject cities.

If we look to Rome in the prosperous days when the fertile lands of Latium, cultivated by their free owners, gave food to numerous cities, we may see woman respected, and respecting herself. If we seek her in the days when population had declined, and cultivation had been abandoned to slaves, and when Italy had ceased to afford food for her greatly diminished numbers, we find her type in Messalina and Agrippina, Poppæa and Faustina.

In modern Italy, with the decay of population and of wealth, we see thousands of women, who have witnessed the massacre of their husbands and their sons, driven abroad to perish of starvation, or subjected to the last outrages by hordes of wandering barbarians, Franks or Germans, while in Lucrece Borgia, or Beatrice Cenci, we find the type of woman in the higher ranks of life. In the poorest parts of Italy, those in which land is least divided, may now be found the wealthiest women: while the wife of the poor serf slaves in the field to obtain a small allowance of the poorest food. Increasing inequality of condition and increasing crime are thus the invariable attendants of poverty and the abandonment of the fertile soils of the earth. If we desire other evidences of this, we may turn to France in the terrific days of the Merovingians.: and there we find the sex a slave to the worst passions of men, the subjects of female barbarians occupying thrones, who are known to history by the names of Fredegonda and Brunechild: women almost unmatched for crime.

Exhausted by wars of conquest under Charlemagne, we find France a prey to invasion from every side, by barbarians who respected neither age nor sex. The cultivation of the land was abandoned, and the people who escaped the sword perished of starvation. Poverty and depopulation gave birth to the barbarism of the feudal system, for which the world stands her debtor. With each step in its progress men were forced to resort to poorer soils: and with each we see the poorer freeman gradually losing control over his actions, and becoming daily more and more the slave of his lord. With each, we see the honor of his wife and daughter becoming less and less secure, until at length we find the *droit de jambage et de cuissage* universally asserted, and so generally exercised that the eldest born of the tenant is held more honorable than the others: it being probable that it was the child of the lord. Concubinage becomes universal, and bastardy ceases to cause any feeling of disgrace. Dissolute queens provide mistresses for their husbands, while princes, styled "the good," or "great," number their concubines by dozens, and *bâtards* and *grand bâtards* fill the high offices

of state, and monopolize the great dignities of the church: or distinguish themselves as *ecorcheurs*, or flayers of the unfortunate peasant, whose wife perishes of starvation while they accumulate vast fortunes and take rank among the good and great. Later queens find in the easy virtue of their maids of honor, security for the adhesion of their partisans: and *gentlemen* find in rape one of the inducements to the invasion of the unfortunate lands of Italy or Spain, Germany or the Netherlands. Cities and towns are sacked, and nobles and gentlemen gorge themselves with plunder, while women and children ask in vain for food. Titled prostitutes next direct the affairs of state, and women suffer at the stake for errors of opinion: while wives and daughters of the poor serfs labor in the field, seeking in vain from the miserable soils they cultivate the means of supporting life. Unceasing wars and universal poverty are accompanied by excessive inequality, and by the dissoluteness of manners that invariably attends the absence of all control on the part of the *many*, and the consciousness of the possession of unlimited power on the part of the *few*. Duchesses now publish to the world the histories of their amours, and princesses of the blood are honored by the notice of Montespans. Queens and kept mistresses are *compagnons du voyage*, and *Brinvilliers* furnishes poisons to enable amorous wives to change their husbands. Thus, by degrees, we reach the period when incest ceases to be a crime, and the representative of majesty takes his mistresses indifferently from among the daughters of others, or his own. The *parc aux cerfs*, or royal academy for prostitutes, maintained at the cost of millions collected by taxes on salt and all other of the necessaries of life, next occupies the time and mind of the sovereign: while a *du Barri* holds the helm of state. Arriving at the period of the Revolution, we see *poissardes* heading insurrections, while queens, princesses, and duchesses, are dragged to prison, preparatory to being made to feel the weight of the revolutionary axe; and indiscriminate murder: *noyades* and *fusillades:* sweeps off by thousands miserable men, whose wives and daughters, reduced perhaps from affluence, are forced to beg their bread from door to door, or seek a refuge from starvation in the horrors of public prostitution.

In nothing is the brutalizing effect of perpetual war more fully exhibited than in the total want of respect for female life or honor, that is shown in every portion of the history of France. The "*bons bouchers*" of Charles the Bold spare neither women nor children. The *Bourguignons* and *Armagnacs* spare none. The Turkish allies of France sweep off the women and children of Italy by thousands into captivity. On the other hand, Diana of Poictiers is more conspicuous in history than her royal and more youthful lover: and the head of the house of Bourbon is rarely mentioned but in company with his mistress, *la belle Gabrielle:* while thousands feel for the sorrows of the unhappy La Fayette, who would find it difficult to bestow a thought upon the unfortunate women of Milan, Mantua, or Naples, Ghent, or Bruges, whose husbands and sons are mowed down by thousands, while they themselves are made to endure the last indignities to which their sex is liable, and their daughters are forced to seek in prostitution the means of obtaining food. The history of that unfortunate country is one of perpetual poverty, and a record of total inability to resort for support to any but the poor soils: and the man who derives his subsistence from those soils is always a barbarian: and not the less so because he chances to wear a cocked hat and feathers. Extreme inequality in the condition of the different portions of the female sex, is one of the characteristics of barbarism: and in every portion of the history of France is exhibited the same inequality that is now shown in the poor girl who, unable to purchase fuel, sleeps in the day and works by night in the stable that she may derive from the proximity of animals

a supply of heat, on the one hand, and the vast fortune of the *Duchesse de Praslin*, on the other.*

If we look at the condition of the sex in the present day, we see the results of perpetual war, in the fact that women still labor in the field: in the aversion to marriage on the part of the men: and in the absolute necessity for the *dot*. An unportioned woman has no chance of marriage: while those who have portions see their husbands but for a moment, before forming a connection that is intended to last for life. *Marriages de convenance* are universal, and frequent adultery is the necessary consequence: while tens of thousands of women see no immorality in the formation of temporary unions. Foundling hospitals enable them to dispose of their offspring, to perish by hundreds in the hands of hireling nurses paid out of the proceeds of taxes imposed upon the honest and virtuous laborer, whose unremitted exertions are insufficient to enable him to procure a miserable subsistence for his wife and his children: and who lives on, a creature without hope, while mistresses and female stock-gamblers, titled and untitled, have boxes at the opera, and sport their gay equipages on the day of *Longchamps:* while queens and princesses have palaces that count almost by dozens, and young ladies, just married and become *enceinte*, publish the fact throughout the kingdom, to be received as cause for rejoicing by the poor man who sees his wife or daughter dying for want of food. Under such circumstances, it is not extraordinary that in meeting three young Parisians we should have reason to feel assured of the middle one being a bastard: that being the proportion of illegitimate to legitimate births.

In England the position of the sex has been widely different. More than any other portion of Europe has the soil of that country been exempt from the horrors of war, the effect of which is seen in the fact that the cottage of the laborer figures in every portion of the English landscape, affording the strongest evidence of the long existence of internal peace. The husbandman has been there exempt from the necessity of seeking protection within the walls of the town. There he has, more than in almost any part of Europe, been enabled to economize the machinery of exchange by living on the land that he cultivated, and thus has saved the cost of transporting himself to his work, and that of transporting the products of his labor to his place of residence: and, still more important, he has had a place upon which he might bestow those hours and half hours that in France are necessarily wasted. He has had A HOME of his own, and having the thing, he has made the word to express the idea.

In no part of Europe has the feeling of perfect individuality existed to the same extent as in England, and that it has there existed has been due to the fact that there, more than elsewhere, has internal peace existed, permitting man to place himself on the spot upon which his labors were to be applied. The home of the individual man required a mistress, and the choice of the man was influenced, necessarily, by the fact that she was to be his companion in his home, distant perhaps from the homes of other men, and that he was to be *dependent* upon her kindness and affection for the happiness of his life, and for the care of his children. Peace and the growth of wealth tended therefore to give to the weak woman power over the strong man: whereas war has, in all ages, tended to render her his victim.

With each step in the progress of wealth and population, we may see an improvement in the condition of woman, from the day when powerful barons

* "The *trousseau* of Mademoiselle Martignon, who is going to marry the Baron de Montmorenci, is to cost a hundred thousand crowns ($110,000). There are to be a hundred dozen of chemises; and so on, in proportion."—*French Newspaper.*

contested the rights of the heiress of Henry I., and the poor Saxon neif was sold to slavery in Ireland; and that when the daughter of Torquil Wolfganger presided over the revels of Front de Bœuf; to those in which the throne was filled by the masculine Elizabeth: but with the following century came a long period of internal war and waste, to be followed by one of extreme demoralization; that of the reigns of Nell Gwynn and the Duchesses of Portsmouth and Cleveland. Royal and noble bastards then abounded. From the Revolution of 1688, until we approach the close of the last century, wealth and population gradually increased, and the people were better fed, better clothed, and better lodged than in any former period: the effect of which may be seen in the improved condition of the sex. Many of the abominations which marked the early years of the century had passed away before the commencement of the great war. Kings ceased to have mistresses to aid in the management of the affairs of state, and fleet marriages became less common. With that war and its enormous waste we find, however, a new state of things. The *few* now become immensely rich, while the *many* become poor. The price of corn rises, and that of man falls. Landholders become too great to manage their own affairs, and they must have great tenants, with great farms. Cottages disappear, and almshouses become filled. Labor ceases to yield food, and women seek to have bastards that they may obtain allowances, *and thereby obtain husbands.* Indiscriminate intercourse becomes so common as in some degree to arrest the growth of population:* while thousands of children perish of neglect and want of food. Great club-houses, and houses of prostitution increase in a ratio corresponding to each other, and thus we find that each step in the progress of war and waste: necessarily accompanied with growing inequality: is attended with a deterioration of the condition of the sex.

With the long continued peace and the consequent growth of wealth, there has been a gradual improvement in the condition of the sex, in England, but *bondagers, i. e.* female field-laborers, still figure in the leases of Northumbrian landholders; half-starved women are yet conspicuous among the habitués of gin-shops: sales of wives with halters round their necks have not yet disappeared: women and girls still labor in coal mines, and sometimes in a state of perfect nudity: and adultery is not unfrequently the consequence of marriages in which property and not inclination is consulted. A state of society in which exists inequality to the extent to which it is found in England, is not favorable to female honor. Heavy taxes tend to produce poverty, and mischievous regulations bar men from finding employment, and hence marriage is far less universal than it ought to be. Taxes and regulations tend to produce a large class with money to spend and with no employment for time, and hence a disposition for gallantry that would not otherwise exist. The steady and regular application of time or talent is the best security for morals, and that is invariably seen most to exist where labor yields the largest reward. All men would marry, if all could do so with safety to themselves. In such a state of things, the exceptions are only sufficient to prove the rule. The universal possession of property is the best guarantee for the security of property, and the universal possession of wives and families is the best security for morals; for husbands and fathers are interested in the repression of every thing tending to promote immorality.

In Scotland, improvement would appear to be less certain. There, entails

* It was stated twelve or fifteen years since by a clergyman: we think the Rev. Mr. Cunningham: that the morals of his parish were improving; and the reason given for this belief was, that bastards had become more numerous, from which fact he inferred that indiscriminate intercourse had become less common.

increase in number. There, sheep have taken the place of men whose cottages have been burned, and who have been compelled to seek refuge within towns and cities: and with their homes the sex has been compelled to lose the pride of female honor. Glasgow presents a scene of wretchedness rarely equalled among civilized men, and houses of prostitution exist in the ratio of one to twenty-eight! Such are the results of the increasing power of land, and diminishing power of man.

Perpetual peace abroad and at home has given to the United States constantly increasing wealth, and every man has been thereby enabled to feel that he might marry without hesitation. All, therefore, do marry; and hence the rapid increase of population: and hence the general morality. Bastardy is rare. If we seek to find it, it must be among the people who cultivate the poorer soils. Thirty years since, it abounded among the Germans of Pennsylvania, who raised small crops from the heavy clay; and then women labored in the fields: but it has gradually diminished as population and wealth have grown, and as they have been enabled to combine the inferior lime with the superior clay, and have thus obtained a better soil. Receding gradually, it may yet be found in the counties more distant from the city, where a scattered population still obtain small crops from poor soils. It may be found in all those counties in which poor farmers sell all their hay, and buy no lime. In general, however, it exists to a very small extent; and the sex, respecting themselves in a higher degree, are respected, in a degree unknown to other portions of the globe. Dowry is rarely thought of.* *Marriages de convenance* scarcely exist. The marriage tie is held sacred,† and all because each man has, or can have, his own home, within which he is sole master, except so far as he defers its management to its mistress, whose control within doors is most complete; but there she stops.‡ Everywhere is manifested towards the sex: old and young: rich and poor: high and low: a degree of deference elsewhere unthought of.§ They travel unprotected for thousands of miles, fearing no intrusion, and encountering none of those discomforts to which they are exposed in every part of Europe.‖ With marriage, the task of providing for the family is assumed by the husband; and woman then is left to the performance of

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* "We buy our wives with our fortunes, or we sell ourselves to them for their dowries. The American chooses her, or rather offers himself to her for her beauty, her intelligence, and the qualities of her heart; it is the only dowry which he seeks. Thus, while we make of that which is most sacred a matter of business, these traders affect a delicacy, and an elevation of sentiment, which would have done honor to the most perfect models of chivalry."—*Chevalier.*

† "You may estimate the morality of any population, when you have ascertained that of the women; and one cannot contemplate American society without admiration for the respect which there encircles the tie of marriage. The same sentiment existed to a like degree among no nations of antiquity; and the existing societies of Europe, in their corruption, have not even a conception of such purity of morals.—*M. de Beaumont.*

"The marriage tie is more sacred among American *workmen* than among the *middle classes* of various countries of Europe."—*Chevalier.*

‡ "Not only does the American mechanic and farmer relieve, as much as possible, his wife from all severe labor, all disagreeable employments, but there is also, in relation to them, and to women in general, a disposition to oblige, that is unknown among us, even in men who pique themselves upon cultivation of mind and literary education."—*Chevalier.*

§ "One of the first peculiarities that must strike a foreigner in the United States is the deference paid universally to the sex, without regard to rank or station."—*Lyell.*

‖ "We have allowed the administration of the customs to adopt practices unworthy of a civilized nation. It is inexplicable that they should have imposed upon the French, who believe themselves the most polished nation of the earth, rules, in virtue of which their wives and daughters are personally examined and felt, in filthy holes and corners, by female furies. These scandalous brutalities of the agents of the treasury are inexcusable, for they produce nothing to the revenue."—*Chevalier.*

the duties of the household, and the care of her children: and everywhere the labor incident to the performance of those duties is lightened by improved machinery.* In no part of the Union, however, is she seen to the same advantage as in Massachusetts, where man derives from the cultivation of a naturally sterile soil returns to labor unknown to those who cultivate the prairies of the West: and where may be seen, congregating in thousands, female operatives among whom bastardy is unknown. The greatest of all the moral phenomena of the world is to be found in the city of Lowell, and the enlightened traveller will find in its examination abundant compensation for a failure of his visit to Niagara.†

With each step in our progress south, men cultivate poorer soils, and the power of combination diminishes; and with each such step the value of female labor, and the power of woman to provide for and defend herself, diminish, until we find her and her children becoming the property of another. That all may become free, and that woman everywhere may acquire power over her own actions, determining for herself who she will marry and who she will not; that she may everywhere obtain a home in which to devote herself to the performance of those duties for which she was intended, the happy wife becoming the mother of children educated to be useful to themselves, their parents, and society: it is essential that wealth should be permitted to increase. It does increase most rapidly where men cultivate the most fertile soils; and that those soils may be cultivated, combination of action is indispensable. The consumer *must* take his place by the side of the producer. With each step of increase in the density of population, the power of combination increases, the consumer and the producer being enabled more and more to place themselves by the side of each other. Population and wealth increase most rapidly where women are most chaste, and where they are most chaste they are most valued: whereas, where neither population nor wealth is permitted to increase, woman is, and must ever be, a slave and a prostitute; and man a barbarian, cultivating the poorest soils.

The PAST says to the sovereign of the PRESENT: "If you desire that woman should occupy the position for which she was intended by her Creator, cultivate peace."

To the landlord it says: "If you desire that your lands shall become valuable, avoid war, and permit wealth to increase, that woman may be chaste and population grow."

To the laborer it says: "If you desire that the honor of your wife and daughter be respected, labor to promote the maintenance of peace."

To woman it says: "If you would be a happy wife, mistress of your own home, and surrounded by your children, love those who cultivate peace."

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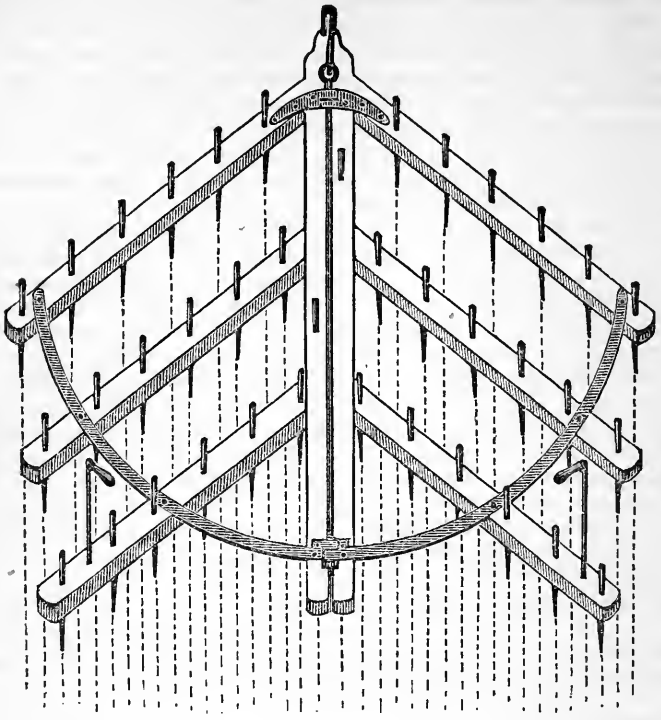
* "The inventive spirit of the people of New England, and of their descendants throughout the Union, is displayed in the production of machinery for economizing the time and labor of their wives."—*Chevalier.*

† "The factories at Lowell are not only on a great scale, but have been so managed as to yield high profits, a fact which should be impressed on the mind of every foreigner who visits them, lest after admiring the gentility of manner and address of the women, he should go away with the idea that he had been seeing a model mill, or a set of gentlemen and ladies playing at a factory for their amusement."—*Lyell.*

"Morning and evening, and at meal times, seeing them passing in the streets, well dressed, and again, seeing suspended on the walls of the factories, among the vases of flowers, and the shrubs which they cultivate, their scarfs, and their shawls, and the hoods of green silk with which they envelope their heads, to secure them from the heat and dust in walking, I said to myself, This is not Manchester."—*Chevalier.*



IMPROVED HARROW.

Mount Airy, December 31, 1848.

Messrs. Editors,—I hereby submit the following drawing and description of a harrow recently improved and constructed under my direction, for the use of the *Mount Airy Agricultural Institute Farm.* This harrow is constructed somewhat after the plan of the Geddes harrow, differing from it in the following particulars :—The teeth are inserted into three timbers instead of two in each half: the number of teeth are increased in the same ratio: the angle formed by the side pieces meeting the centre ones is much more obtuse than in Mr. Geddes's harrow, being 52°. It also has handles attached, which, with the teeth, are made of round iron. The claimed advantage of the additional side-timber is, that it admits of an addition of one-third to the number of teeth in the implement, without placing them so near as to cause them to clogg with rubbish, which naturally accumulates between them. By increasing the angle formed by the junction of the side and centre timbers, greater width is obtained in the implement with the same material, by which the same team will perform one-third more work in a given time. By the aid of the handles, the harrow may be relieved of any obstruction gathering between the teeth with much greater ease and facility. By attaching the draught-hook on the top of the frame, and opposite the two front timbers, the tendency of the harrow to draw up in front is effectually remedied. I consider the round teeth preferable to the square ones, for these reasons, viz.: they are less liable to clog, as they present no flat surface, and can be fitted into the timber with much less difficulty

and expense, and are also much less liable to split the timber when indiscreetly driven, all danger of which is avoided in the use of the round teeth, by driving them with a thin strip of leather on one side of the tooth, so placed as to cause the greatest stress longitudinally of the timber. The timbers are all of one size, being 3 inches wide by 2½ deep. The frame should be made of good oak: if white oak cannot be procured, red elm may be used with economy: in the absence of both, white ash may be used. The centre timbers are six feet long; the front side pieces are four feet; the middle side pieces are three feet nine inches; and the rear side pieces are three feet six inches in length. The teeth are so arranged that by once passing over the ground the whole surface is moved and pulverized. They run one and three-fourth inches apart from centre to centre. The teeth are made of inch round iron, eleven inches long, extending five and one-half inches below the timber, and are thirty-eight in number. The handles are made of ⅝ round iron, with a deep thread cut on the lower end, and screwed into the rear side pieces between the first and second teeth, as shown in the figure. They are bent at a right angle eighteen inches above the timber, on which is placed a wooden handle. The braces are of wrought iron, curved, as represented in the drawing, being secured to the timbers by half-inch iron bolts. The braces also serve as hinges, the draught-rod passing through them both, with a nut upon the rear ends. The convenience and utility of the handles will be obvious to all who have had experience with the use of this implement:—its triangular shape, with joint in the centre, renders it more convenient than any other arrangement for stony and stumpy grounds.

Most respectfully, your obedient servant, DENNIS JOHNSON,
Pupil Mount Airy Institute.

It would have been well to have given the *weight* of these harrows. To us they *look* rather heavy. The price is stated to be $15.

THORNAGE AGRICULTURAL STEAM COMPANY.

IN the year 1847, a number of gentlemen in the neighborhood of Thornage formed themselves into a company, under the above title, for applying steam-power to the threshing of corn, and for other purposes. On Monday last the first annual meeting was held to receive the report of the superintendent as to the working of the engine under his charge. The accounts, after deducting all expenses, showed a return of nearly twenty per cent., and the shareholders agreed to accept a dividend of ten per cent., and to form a fund with the surplus to meet contingencies. It is highly gratifying to those concerned in the enterprise, as well as to the public generally, to find, that this first attempt at introducing steam-power for agricultural purposes, into a vicinity where its benefits were not previously appreciated, has been attended with so much success. Lord Hastings, Mr. F. Astley, Mr. Sparham, Messrs. Boyd, Mr. J. Page, Mr. H. Burrell, Mr. Sheringham, Mr. Woodcock, and other eminent agriculturists, are shareholders of the company. It is only right to add, that it was owing to the indefatigable exertions of Mr. H. Burrell that this great agricultural benefit has been obtained.—*Norfolk Chronicle.*

For Ridding Gravel Walks of Grass.—I have found the following plan very effectual:—I have a water-tight chest on wheels, holding about 50 gallons; a large bucketful of salt is put into the box, and it is filled up three parts with boiling water, wheeled into the garden, and applied hot from a watering-can with a rose, giving a liberal dose; 24 hours will tell a tale. H.

[Yes; but what happens the next year, or the year after? Are not the weeds stronger than ever?]

PENNSYLVANIA ANTHRACITE COAL TRADE.

We are not without apprehension that the retired farmer, exclusively engaged in practical agriculture, and anxious only to augment his income by the increase of his crops, and his flocks and herds, will be apt to exclaim at the sight of the following tables—How do these statistics concern us, and had you not in lieu of them better give us what is commonly and properly called *practical matter?* But is it not proper that every gentleman in the country should be possessed of these condensed views of the progress and condition of great branches of national industry, the prosperity and the decline of which are so obviously and intimately connected with that of agriculture? Let the farmer remember that every bushel of coal, from the moment that the pick is struck into the mine, until it travels to the furnace and the factory, and until it is there converted into iron or cloth, begins and continues throughout the whole process, to consume and to represent *so much of the products of the plough!*—and that when coal, delved in our own mines, is substituted by that which comes from other countries, the coal heavers of these other countries consume the products of the ploughs of the poorest, the most enslaved, and the most degraded people on earth; while those who, in our own country, are thus driven from the coal mines, must either suffer for want of employment, or go back for relief to the West, and on cheap lands become *rival* producers of corn, wheat, and wool. The same we have proved to be the case where imported iron takes the place of our own. It is not, reader, that we feel called upon to plead the cause of the manufacturer, from any particular affection for, or anxiety about him, *per se*, but that we regard his presence, and his prosperity, as indispensable to the well-doing of the farmer and the planter. As for the fantasy of *free trade*, it may do well enough to amuse philosophers and closet politicians; but is not adapted to *the world as it is*—and if we would live in the world, we must live with the world. If ever there was a country under the sun, that could depend on, and that ought to develope its own resources, ours is that country: for while other nations are defective either in territorial limits or in climate, for the production of *many things essential* to national independence, what is it that we do not possess both the soil and the climate to produce?—coffee, perhaps, excepted, and that by no means an essential, though custom has made it comfortable to enjoy it. Is there *any species* of provisions that we cannot raise for ourselves?—any mineral or material for manufacture that we have not in abundance—iron—coal—timber—water-power—salt—sugar—wool—cotton—ample capacity and resources for wine, oil, silk, and even tea! Is not our situation, then, *essentially different* from that of *all* other nations, and ought not our policy to differ accordingly? As for England and her eternal cry of "free trade," about which she has ever kept the word of promise only to the ear, her whole course of legislation has been to make that little island the workshop of the world. Make commerce free, and England would be ruined—her capital would take wings and come to where the food and the materials for manufacture are cheapest, and then we, exempt from her enormous load of public debt and taxation, would succeed to her vast manufacturing and commercial power. Then we should have real, not bastard free trade; and that is what *we* are looking to. Can any proposition be plainer, than that it is the interest of the agriculturist to give all the encouragement he can to the manufacturers; for the more they flourish, the more able they will be to repay the planter and the farmer for their produce! And yet, for endeavoring in every form, as we shall continue to do, to illustrate the truth of this, we sometimes get (almost all of them, but not

many in the aggregate, from *Virginia*) letters, withdrawing subscriptions—of which we have no right, and do not pretend to complain.

From the Philadelphia Commercial List.

In accordance with our usual custom at the commencement of the new year, we present our subscribers with a Statement of the ANTHRACITE COAL TRADE for the past year. We have also prepared several tabular statements, showing the amount of coal sent to market annually, from the different coal regions, from the commencement of the trade in 1820, to the present period.

Having been employed to prepare a tabular statement of this trade for the purpose of being engraved on the new Map of Pennsylvania, we have carefully examined the records kept by the various companies, of the supplies forwarded by the different canals and railroads, in order to insure entire accuracy. It will be seen that some slight errors have been discovered and corrected, in our former statements, and we now present our tables as embracing the official returns of this trade, from its commencement to the present period.

The vast importance of the coal trade can readily be understood by referring to these tables, which show its astonishingly rapid increase. Only twenty-eight years since, and the total supply of coal sent to market was 365 tons, now it exceeds 3,100,000 tons, even in a year of great depression in various branches of manufactures, particularly iron, in the make of which a large quantity of coal is consumed.

Previous to 1820, the use of Anthracite Coal was unknown as fuel in this country, and it was considered an article of doubtful combustion; in fact, some of the early pioneers, in their endeavors to bring it into use, were treated as impostors. Now it is used extensively as fuel along our extended seaboard, from Maine to Louisiana, as well as in the interior.

The three principal coal fields of Pennsylvania are each about sixty-four miles in length by five miles in breadth, embracing an area of 325 square miles, or 208,000 acres each—forming an aggregate of 975 square miles, or 624,000 acres.

When we consider that Pennsylvania is the only State in the Union which possesses Anthracite Coal in any quantity, we may be permitted to ask, what would be the condition of her sister States, if she were suddenly annihilated, with her mountains of coal and iron? How melancholy would their condition be in regard to these indispensable requisites of civilized life, without which no nation can really be independent!

This trade gives employment to a vast number of persons in various ways. It has caused the construction of some of the best canals and railroads not only in the State, but in the world. It furnishes employment to laborers, in digging the canals and making the railroads; to mechanics and artisans, in constructing cars, and locomotives, and boats; besides the iron used for rails, as well as other materials. In the ground, coal is worth only 30 to 40 cents per ton—all the other expenses in procuring it are paid for labor. It furnishes employment to miners, boatmen on the canals, brakemen and laborers on the railroads, carters and others employed in its delivery, besides the large number of seamen engaged on board of vessels employed in transporting it to various places on the seaboard. In fact, the coal trade furnishes the best nursery for seamen in the United States, if we except the whale fisheries, and it is soon destined to exceed that important trade, which has hitherto prepared the best seamen in the world. In case of any sudden emergency in defending our extended seaboard, we should have a large body of active, bold, and intelligent men, trained for our public service and ready for any emergency.

The coal trade has more than trebled the coasting-trade of Philadelphia within twenty-five years. In 1822 there were cleared from this port 4 vessels, carrying 181 tons of coal; in 1825, 11 vessels, carrying 1123 tons; in 1840, 644 vessels, carrying 63,137 tons. In 1847, the total number of clearances from Richmond alone, comprised 2 ships, 36 barks, 661 brigs, 4771 schooners, 774 sloops, and 5200 boats and barges—total, 11,444 vessels, carrying 964,521 tons of coal.

In the construction of the various canals and railroads leading to the coal mines, upwards of FORTY-FIVE MILLIONS OF DOLLARS have been expended. But who will pretend to calculate the enhanced value of the land, where once the panther and the bear roamed!—the desert has been made to bud and blossom as the rose, and smiling villages and populous towns have sprung into existence as if by magic.

With such facts before us, and the importance of the coal trade to the Union, is it not surprising that our government has not afforded ample protection and encouragement to this trade? What operations can be more entitled to protection in a national point of view? We confess we cannot conceive any.

The following table shows the quantity of coal brought from each coal field, annually, from the commencement of the trade to the 1st of January, 1849:—

THE ANTHRACITE COAL TRADE.

TABLE *showing the quantity of Coal sent to Market annually, from its commencement, in* 1820, *to* 1848, *inclusive.*

PREPARED FROM OFFICIAL DOCUMENTS.

Years.	Total Lehigh. TONS.	Total Schuylkill. TONS.	Total Lackawanna. TONS.	Total Pine Grove. TONS.	Total Lykens Valley. TONS.	Total Shamokin. TONS.	Total Wyoming. TONS.	Total Supply. TONS.	Increase and Decrease. TONS.
1820	365	- -	- -	- -	- -	- -	- -	365	- -
1821	1,073	- -	- -	- -	- -	- -	- -	1,073	708 I.
1822	2,441	- -	- -	- -	- -	- -	- -	2,440	1,167 I.
1823	5,823	- -	- -	- -	- -	- -	- -	5,823	3,583 I.
1824	9,541	- -	- -	- -	- -	- -	- -	9,541	3,718 I.
1825	28,396	6,500	- -	- -	- -	- -	- -	34,896	25,355 I.
1826	31,280	16,767	- -	- -	- -	- -	- -	48,047	13,151 I.
1827	32,074	31,360	- -	- -	- -	- -	- -	63,434	15,387 I.
1828	30,232	47,284	- -	- -	- -	- -	- -	77,516	14,082 I.
1829	25,110	79,973	7,000	- -	- -	- -	- -	112,083	35,567 I.
1830	41,750	89,984	42,700	- -	- -	- -	- -	174,734	62,351 I.
1831	40,966	81,854	54,000	- -	- -	- -	- -	176,820	2,386 I.
1832	75,000	209,271	84,500	- -	- -	- -	- -	368,771	191,951 I.
1833	123,000	252,971	111,777	- -	- -	- -	- -	487,748	118,977 I.
1834	106,244	226,692	43,700	- -	- -	- -	- -	376,636	72,112 D.
1835	131,250	339,508	98,845	5,500	- -	- -	- -	575,103	198,467 I.
1836	146,522	432,045	104,500	9,978	5,439	- -	- -	698,484	123,381 I.
1837	225,937	523,152	115,387	16,726	6,430	- -	- -	887,632	189,148 I.
1838	214,211	433,875	76,321	16,665	6,005	4,104	- -	746,181	141,451 D
1839	222,042	442,608	122,300	19,227	5,372	11,930	- -	823,479	77,298 I.
1840	225,591	452,291	148,470	19,463	5,302	15,928	- -	867,045	43,566 I.
1841	*142,807	†585,542	192,270	15,306	6,176	22.154	- -	964,255	97,210 I.
1842	271,913	541,504	205,253	31,437	181	10,098	47,346	1,107,732	143,477 I.
1843	267,125	677,313	227,605	22.879	- -	9,870	57,740	1,262,532	154,800 I.
1844	376,363	840,379	251,005	27,719	- -	13,087	114,906	1,623,459	360,927 I.
1845	430,993	1,086,068	266,072	31,208	- -	10,135	178,401	2,002,877	379,418 I.
1846	522.518	1,236,581	318,400	55,346	- -	12,646	188,003	2,333,494	330,617 I.
1847	643,568	1,572,794	388,200	61,233	- -	14,904	289,898	2,970,597	637,103 I.
1848	680,193	- -	434,267	56,938	2,000	- -	- -	- -	- -

From the above statement it will be seen that the total quantity of coal sent to market from the commencement of the trade, has been 22,000,000 tons. Of this quantity the Schuylkill region has furnished 11,859,150 tons; the Lehigh, 5,050,327 tons; the Lackawanna, 3,392,572 tons.

The business in the Lehigh region is carried on chiefly by incorporated companies.

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* Great Freshet which injured the canal.

† Of the coal brought from the Schuylkill mines, the following quantities have been brought down on the Reading Railroad, the balance of course has been received by the Schuylkill Canal:—

	Tons.		Tons.		Tons.		Tons.
1841 .	850.00	1843 .	239,255.00	1845 .	822,481.04	1847 .	1,350,151.10
1842	49,902.00	1844 .	241,492.10	1846 .	1,233,141.10	1848 .	1,216,232.03

The total supplies sent from the Schuylkill, on the railroad and canal, in 1848, have been:—

	By Railroad, Tons.	By Canal, Tons.	Total supply in 1848.
Port Carbon . .	372,509.05 . .	257,706.19 . .	- - - - -
Pottsville . .	199,990.07 . .	34,971.01 . .	- - - - -
Schuylkill Haven .	501,560.10 . .	125,409.13 . .	- - - - -
Port Clinton . .	142,172.01 . .	18,514.09 . .	- - - - -
Total . . .	1,216,232.03 . .	436,602.02 . .	1,652,834.05

The following table shows the quantity of coal forwarded by each company and by individuals, from this region, annually :—

LEHIGH COAL TRADE.

The total quantity of Coal shipped from the Lehigh Coal Mines, annually, from the commencement of the trade, in 1820, *to* 1848, *inclusive, has been as follows:*

Years	Lehigh Coal Company.	Beaver Meadow Company.	Hazleton Company.	S. Loaf, now Diamond.	Buck Mount'n Comp'y.	Summit. Spring Moun'n.	Wilkesbarre R. R.	Cranberry.	Total Lehigh.
	TONS.	TONS.	TONS.	TONS.	TONS.	TONS.	TONS.	TONS.	TONS.
1820	365	- -	- -	- -	- -	- -	- -	- -	365
1821	1,073	- -	- -	- -	- -	- -	- -	- -	1,073
1822	2,440	- -	- -	- -	- -	- -	- -	- -	2,440
1823	5,823	- -	- -	- -	- -	- -	- -	- -	5,823
1824	9,541	- -	- -	- -	- -	- -	- -	- -	9,541
1825	28,396	- -	- -	- -	- -	- -	- -	- -	28,396
1826	31,280	- -	- -	- -	- -	- -	- -	- -	31,280
1827	32,074	- -	- -	- -	- -	- -	- -	- -	32,074
1828	30,232	- -	- -	- -	- -	- -	- -	- -	30,232
1829	25,110	- -	- -	- -	- -	- -	- -	- -	25,110
1830	41,750	- -	- -	- -	- -	- -	- -	- -	41,750
1831	40,966	- -	- -	- -	- -	- -	- -	- -	40,966
1832	75,000	- -	- -	- -	- -	- -	- -	- -	75,000
1833	123,000	- -	- -	- -	- -	- -	- -	- -	123,000
1834	106,244	- -	- -	- -	- -	- -	- -	- -	106,244
1835	131,250	- -	- -	- -	- -	- -	- -	- -	131,250
1836	146,522	- -	- -	- -	- -	- -	- -	- -	146,522
1837	192,320	33,617	- -	- -	- -	- -	- -	- -	225,937
1838	159,564	38,426	16,221	- -	- -	- -	- -	- -	214,211
1839	142,071	38,595	33,826	7,550	-	- -	- -	- -	222,042
1840	102,212	43,845	50,441	29,039	- 54	- -	- -	- -	225,591
1841	*78,166	*26,224	*21,247	*17,170	- -	- -	- -	- -	*142,807
1842	163,742	45,159	31,082	31.930	- -	- -	- -	- -	271,913
1843	138,825	54,692	43,950	26,814	2,844	- -	- -	- -	267,125
1844	219,245	70,335	70,168	2,866	13,749	- -	- -	- -	376,363
1845	257,740	77,230	70,266	1,843	23,914	- -	- -	- -	430,993
1846	274,663	85,870	98,109	- -	46,103	17,908	5,865	- -	522,518
1847	334,929	109,110	105,595	- -	50,847	32,840	10,247	- -	643,568
1848	336,569	84,930	86,641	6,391	71,101	65,531	10,425	18,605	680,193

The following Table shows the Imports of Foreign Coal into the United States, annually, from 1821 to the 1st July, 1848. The duty on Foreign Coal under the present Tariff, is 30 to 45 cents per ton, on board:

1821	22,122	1835	49,969
1822	34,523	1836	108,432
1823	30,433	1837	153,450
1824	7,228	1838	129,083
1825	25,645	1839	181,551
1826	35,665	1840	162,867
1827	40,257	1841	155,394
1828	32,302	1842	141,526
1829	45,393	1843	41,163
1830	58,136	1844	87,073
1831	36,508	1845	85,771
1832	72,978	1846†	156,855
1833	92,432	1847‡	148,021
1834	71,626	1848	196,251

* Great Freshet, which injured the canal.
† From 1st December, 1846, to 30th June, 1847.
‡ For the year ending 30th June, 1848.

In July, 1789, a law was passed laying a duty of two cents per bushel on Imported Coal. In 1790, the duty was increased to three cents. In 1792, the duty was increased to 4½ cents, and in 1794 to 5 cents per bushel. This duty was continued until 1816, when it was changed to 5 cents per heaped bushel. In 1824, the duty was increased to $1.50 per ton. In 1832, the duty was raised to $1.75 per ton, which was continued until the present Tariff, in 1846, reduced it to from 30 to 45 cents per ton.

The Coal Trade for 1849 will show a considerable increase over that of 1848. A satisfactory arrangement has been entered into between the Railroad Company and the Schuylkill Canal, in reference to the charges for Toll on Coal, which will prove advantageous to all those who have made investments in the stock of these companies.

GRAIN.

MEASUREMENT OF GRAIN, ETC., BY THE PUBLIC MEASURERS OF PHILADELPHIA.

The following Table shows the Measurement of Grain, Seeds, Salt, and Coal, annually, for the last eleven years.

	Wheat.	Corn.	Rye.	Barley.	Oats.	Seeds.	Beans.	Coal Bit.	Salt.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1838	319,513	593,296	163.085	48,162½	272,104½	22,944½	1,401¼	138,712	356,407⅞
1839	449,980½	455,370⅞	115,933⅞	48,152¼	302,274½	11,593½	327⅛	86,452	291,568
1840	770,205	602,858½	133,891¾	36,542⅝	298,473⅝	18,218½	698⅛	165,740	257,143
1841	467,243¾	781,278⅜	51,371¾	44,336	167,508¼	19,704¾	3,040⅞	118,108	326,132
1842	462,770	492,951	36,334	35,978½	194,908	25,198⅜	1,616½	9,068	151,250
1843	484,384¼	518,671¼	68,013½	20,012	372,713¼	27,773½	1,580½	131,909	174,134½
1844	526,667⅜	640,459	95,227½	58,600	375,578¾	42,358	1,402¾	97,000	217,815½
1845	792,502½	768,486¾	85,357¼	46,630½	357,677½	31,434	3,930⅝	261,838	146,451
1846	983,923	665,178	30,829	40,339	350,942	15,864	3,895	348,261	237,463
1847	947,598	1,093,264	78,972	38,210	369,171	7,528	676	268,760	246,438
1848	723,694½	1,302,318½	46,900½	62,554½	327,733¾	9,770⅝	459	357,827	200,474

OVER-PRODUCTION OF COTTON.

"We have seen very intelligent contemporaries, who agree with us on the necessity of some equilibrium in our capacity for production and consumption, who estimate our excess, already, at 800,000 bales, and who are of opinion that the corresponding ratio of labor should be at once diverted into other channels. On this predicate, the transition would be one-third from cotton, which, with all due deference, we think rather too violent. It would, probably, excite fears, alike injurious to agriculture and commerce, by disturbing the laws of supply and demand, which are most beneficial, when most secure from sudden and great interruption. We have selected the medium course, as the most advisable—let us say, that 400,000 bales ought to be omitted from the production, which would be one-sixth of a full average crop, as noticed by us a few months since, and the capital thus liberated would establish and work machinery to the value of $12,500,000. Let the proceeds be invested in additional cotton mills, and so on, from year to year, until a third of, or even one-half, the crop of the United States shall be manufactured at home. When this or any approximate result shall be attained, then good prices for cotton will be permanent, with the upward slide in our favor, from the very tendency of the change."

We take the above from the "Commercial Times," of New Orleans. The remedy for the over-production of cotton is to be found in the increase of the consumption, and not in the reduction of its cultivation. In the five years which followed the passage of the tariff of 1842, the home consumption of cotton was doubled. Restore that tariff, and it would again double itself in five years, and it would then be found that the planters would obtain more from the export of a million of bales than they now do from the whole crop, while the food that they would then raise would find a market on the land, enabling them to improve its power of production, instead of exhausting it, as now they do.

CONNECTION BETWEEN THE PLANTING AND THE MANUFACTURING INTEREST.

In the following passage, which we take from an article in the Philadelphia "North American," the estimate of the home consumption differs materially from the authorities we have followed, but our chief object in offering it to the consideration of our readers is that of showing the manner in which the present tariff operates as a bounty on the consumption of the cotton of India, and tends to produce that surplus of American cotton, of which the planter complains, and by which he is ruined. How long, we ask again, will it be before he will learn that the plough never has prospered, and never can prosper, in the absence of the loom and the anvil?

"It is a fact not generally known on this side of the Atlantic, that the principal imported cotton goods, which enter into competition with those made in this country, are manufactured almost exclusively of cotton grown in the British East India possessions, which, on an average for a succession of years, costs one penny, or two cents of our money, per pound, less than the American cotton.

"To illustrate this fact more clearly, it should be known that no cotton twist, or warp, from Nos. 5 to 20, except occasionally for home use, has been spun in England, within the last twenty years, of any thing better than East India cotton; and that all cotton filling, or weft, under No. 30, is spun of the same material. In this country the factories rarely, if ever, spin, for manufacturing purposes, any cotton yarn finer than the numbers above named; and they use the American cotton exclusively, at an average cost of two cents per pound above the value of the cotton used by the British manufacturer in making the same fabrics. It is, therefore, a natural consequence that, under a high protective American tariff, the consumption of American cotton is greatly increased, and that of the East Indies decreased; while, under a low or free trade tariff, the consumption of American cotton is materially decreased, and that of the East Indies increased. These facts, of so much interest to American cotton planters, will be clearly demonstrated by reference to the tabular statements contained in Wilmer & Smith's European Times, by which it will be seen that, from the first of January to the fifteenth of October, 1846, when the tariff of 1842 was in full operation, 1,002,150 bales of American cotton, and 240,380 bales of cotton from other countries, were consumed in Great Britain. During the same year, it is estimated that there were over 500,000 bales of American cotton consumed in this country by our own manufacturers; making an aggregate of 1,502,150 bales of American cotton consumed in both countries. Only about one-sixth of that number of bales, the product of other countries, it will be remembered, was consumed during that period. From the same authority it appears that, from the first of January to the thirteenth of October, in the year 1847, when the tariff of 1846 was in operation, there were consumed in Great Britain only 636,560 bales of American cotton, and 242,630 bales of cotton of the product of other countries. And it is estimated that, owing to the distressed situation of our manufacturers, there were not more than 300,000 bales consumed in this country; making only 936,560 bales of American cotton actually consumed in both countries during that period. It will be seen from these statements, that whilst the consumption of American cotton decreased 565,590 bales under the tariff of 1846, the consumption of cotton grown in other countries increased 2250 bales;—and further, that nearly one-third of all the cotton consumed in Great Britain during the period last named, that is under the tariff of 1846, was imported from British possessions; and the reason for this large decrease in the consumption of American, and large increase in the consumption of other cotton, is obvious—the English manufacturers were mainly engaged in producing coarse fabrics, which constituted almost the only description of cotton goods they could send here to advantage, and which were the best calculated to break down the manufacturing establishments of this country."

The Mississippi.—The Mississippi river runs through nineteen degrees of latitude, a space extending from the northern part of Ireland to the Rock of Gibraltar. At its source the winters have the rigor of those of Norway, and at its mouth the seasons are those of Spain. The fir and the birch grow about its northern springs—and the palm, the live-oak, and orange at the Balize. It is closed by ice in November in its northern course, which is melted early in the spring, before it has floated within many hundred miles of its mouth. "Lone, wandering, but not lost," it flows for the first four hundred miles through a high, prairie-like country, until it is precipitated over the falls; then, having descended from the high shelf of land it has lately watered, it flows for the next seven hundred through one of the most beautiful regions.—*New York Literary World.*

ON THE CULTIVATION OF ONIONS.

A PRIZE ESSAY.

We have observed that "town cows" always go, each herd, to its particular part of the commons to pasture, neither of the herds, though there may be a dozen, ever invading the grounds of another—so beggars in towns have each their particular walk. When the cows come home, from the pasture on the farm, or from the commons, you'll generally see precedence yielded to some old dame, one that has won the distinction rather by hard knocks than by amiable manners. All this is well described by Bloomfield in the "Farmer's Boy," where the clattering dairy-maid bawls out to Giles, "Go fetch the cows!" (We've a great mind to copy the whole poem.)

"Straight to the meadow then he whistling goes;
With well-known halloo calls his lazy cows:
Down the rich pasture, heedlessly they graze;
Or hear the summon, with an idle gaze;
For well they know the cow-yard yields no more
Its tempting fragrance, nor its wintry store.
Reluctance marks their steps, sedate and slow;
The right of conquest, all the law they know:
The strong press on, the weak by turns succeed,
And one superior always takes the lead;
Is ever foremost, wheresoe'er they stray;
Allowed precedence, undisputed sway:
With jealous pride her station is maintain'd,
For many a broil that post of honor gain'd."

Well, thus as with cows, in appropriating the commons, so with farmers and mechanics, as to the production and manufacture of certain things. They seem to be surrendered by a sort of prescriptive right to particular places, without any obvious reason why they should not be produced in a thousand others as well—

Newark, New Jersey, for light wagons; Troy, for post-coaches; Lynn, for shoes; and for onions, Weathersfield, Connecticut, where Paulding, speaking of the women, says, rather ungallantly, that at a certain season of the year,

"——— their knees
"Are rough as shag-bark walnut trees."

We have often wondered, when residing south of the Delaware, as we should ever have done, if we had not been (speaking of cows) *poked* out of it; we have often wondered why they should go to the Mohawk for brooms, and to Connecticut for onions,—but it seems they know how to make onions in Vermont as well. As soon as we saw the following in that excellent, because highly intellectual and moral paper, "The School Journal and Agriculturist," we determined to preserve it in the pages of the "Plough, the Loom, and the Anvil." One thing only had wellnigh deterred us from publishing it. Reader, would you know what that was? It was when we came to those lines which we have italicized at the end of section 2! We very much apprehend that in those lines is disclosed the very reason why the cultivation of the onion is monopolized by the Yankee. Well, be that as it may, here is a prize essay on its cultivation, which will leave no excuse for those who profess to be convinced of the expediency of every farmer making all he can "*within* himself." There is in this essay a corroboration of a remarkable fact which we heard some years since, for the first time, from Mr. Clapp, who enjoyed the *post* of Postmaster at some town in New England, under that glorious spoil-system of alternation which tends to make of every man in place a hypocrite or a beggar. He told us that onions did the better for being *grown perpetually on the same ground!*

CULTIVATION OF ONIONS.

[From a Premium Essay by J. W. Proctor, Esq.]

The culture of onions has increased so much, within a few years, in this vicinity, that it has become one of the staple products of the county, [Essex Co., Mass.] In the town of Danvers, more money is realized by the sale of the onion than in any other product of the soil. Products of so much value, and commanding so much attention, are fit subjects of inquiry; and if there be any facts relating to their cultivation not generally known, it may be useful to have them brought forward.

In making these inquiries, our attention has been directed almost entirely to practical cultivators, without reference to scientific treatises. Our intention being to tell their story, as near as possible, in their own way.

We shall treat of the subject in the following order:

1. The preparation of the land.
2. The manure best adapted to promote the growth.
3. The raising and planting of the seed.
4. The care necessary to be applied while growing.
5. The blights and injuries to which the crop may be liable.
6. The time and manner of harvesting.

1. As to the preparation of the land.

Differing from most other crops, the onion grows well on the same land for an indefinite number of years. Instances of continued appropriation of the same pieces of land to the growing of onions, for *ten, fifteen, twenty,* and even *thirty years,* have come to our knowledge. It is the opinion of many that the crop is better after the land has been thus used a few years than at first.

Rarely, if ever, have we known the onion sown upon the turf when first turned over. It is usual to subdue and pulverize the soil, by the cultivation of corn or some other crop. Not unfrequently the first year with corn, the second with carrots, and afterwards with onions. It is important, before the seed is sown, that the surface be mellow, finely pulverized, and clear of stones or other impediments to the free and unobstructed use of the machine for this purpose. The finer and more uniformly mellow the surface is made, the better. Shallow ploughing, say from four to six inches deep, is usually practised. Once ploughing only in the spring, and frequent harrowings, are practised. Before the ploughing, the dressing is usually spread upon the surface of the field, so as to be covered or intermixed in the furrow. The mingling and subdivision of it is effected by the use of the harrow.

Whether it would not be advantageous, occasionally to stir the land to the full depth of the soil, is a point on which there is a difference of opinion: most of the cultivators inclining to the use of shallow ploughing only. There are some facts tending to show that occasional deep-stirring of the soil does no harm to the onion crop, but on the contrary is decidedly beneficial. As for instance, onions do better where carrots have grown the year preceding, than after any other crop. The carrot necessarily starts the soil to the depth of ten or twelve inches. Possibly there may be some other influence upon the soil from the plant itself. Our belief is, that the thorough and deep stirring of it, is the principal preparatory benefit.

2. The manure best adapted to promote the growth.

Any strong manure, well rotted and finely subdivided will answer. But the general impression seems to be, that manure from stables, where the horses are freely fed with grain, is the best; and that it should be at least one year old, because it will not be sufficiently rotten in less time. All agree that the dressing for the land should be kept near the surface, well mixed, and as fine as possible.

Leached ashes are also a valuable manure in the cultivation of the onion; more so when *leached* than before. All kinds of ashes are advantageously applied on onion land.

Compost manure, made of meadow mud and the droppings from the cattle, we have known to be advantageously applied on onion fields; but we have many doubts as to this being the best application of this kind of manure. A more lively and quickly operating manure is better for the onion; one that will give them an early start, and advance them as fast as possible, in the first part of the season. The utmost vigilance and activity is used by

our cultivators in getting their land ready, at an early period of the season, for the reception of the seed. It is the first field labor of the spring. The use of compost manure will depend much upon the constituents of the soil with which it is mixed. If the soil be a sandy loam, with a porous subsoil, the compost will do tolerably well; but if it be a black soil, with a clayey subsoil, such as are most of the lands where onions are raised in this vicinity, stable manure, or muscle-bed, or leached ashes, or a mixture of these, will be a better application. The quantity ordinarily applied annually is from four to five cords to the acre. Whatever is applied should be generously applied. It will be in vain to expect full crops of onions without full manuring. When the manure is collected, it is benefited much by a free application of *elbow grease* in its preparation. *The cultivator of the onion must work early and late and in good earnest. Nothing short of forcible and persevering labor will answer. No one who is afraid of soiling his hands, or the knees of his trousers, will do to engage in this business. Close work, at the proper time, is the only sure guarantee of a good crop.*

3. The raising and planting of the seed.

In relation to the onion, as well as all other vegetables, much care is necessary in the selection of the plants for seed, and the cultivation of the seed. By the application of this care, the character of the article raised may be modified almost at pleasure. Until within a few years the *flat onion*, hollow about the stem, has been preferred. The thinner the handsomer. But it is now understood, that the *round, thick, plump onion*, is preferable in many respects. It is found to have a decided preference in the market, commanding *ten per cent.* more in price. By selecting those of most desirable form, which ripen the earliest, and carefully setting them for seed, where they will not be exposed to the impregnation of the baser sorts, the quality has been materially changed and improved. These peculiarities in the onion were first noticed in this vicinity by Mr. Daniel Buxton. He was careful to select in the field before the crop was gathered, such onions as he preferred, and to preserve them for seed.

By so doing, the seed which he raised soon acquired a character superior to any other. Many of those who had been accustomed to raise their own seed in the ordinary way, laid it aside, and purchased seed raised by Mr. Buxton, and found their account in so doing. There are three varieties of the onion raised in this vicinity—the *Silver-skin*, the *Red*, and the *White* onion. The silver-skin is the predominant species, and more cultivated than all others. The red is preferred by some—sells better in some foreign markets, but does not yield so abundantly. The white onion yields as well as either of the others, is milder and preferable for immediate use; it will not keep as well, and is not fit for exportation; which is the principal use made of our onions.

The common drill machine is used for the distribution of the seed. This admits of regulation, so as to scatter it more or less thick; and in this there is room for the application of sound judgment. The usual quantity sown is about three pounds to an acre. As a general rule, we should say, one pound of good seed was the proper quantity for a quarter of an acre of land of good quality well prepared. It is desirable to have the seed planted as thick as they will grow fairly, both to secure a good crop, and prevent the onion growing too large. Onions from one to two inches in diameter being preferred to those of a larger size. The skilful cultivator carefully looks after all these incidents relating to his crop.

4. The care necessary to be applied while growing.

Much of the success of the crop depends on this care. At first the plant is extremely tender, and requires to be handled with much caution. Any

derangement of the fibres or roots of the young plant, is attended with prejudicial consequences. Much attention is necessary to prevent weeds gaining the ascendancy; and in eradicating the weeds. Want of due care in this is often the cause of failure of a crop. We have known, the present season, a highly promising crop to be injured *twenty per cent.* at least, by permitting the weeds to remain unnoticed *one week too long*. This is especially true when there has been a want of due care in preventing the scattering of the seeds of the weeds on the land in the years preceding. Care should be taken, both that no weeds shall ripen their seed upon the land, and that no weeds shall be found in the manure. In this respect, warm stable manure, muscle-bed, and ashes, have a decided superiority over all other manures. Perhaps there is no plant more liable to be injured by weeds than the onion. The fibres it sends out are very numerous, minute, and tender; any fracture of any of these necessarily impairs the perfection of the plant. When the land is in the proper condition, two careful weedings are all that may be necessary. The rest of the stirring of the ground that may be required to promote the growth, can be done with the *Onion Hoe*—an instrument specially constructed for the purpose, moving on wheels, and adapted to the width of the rows. It is calculated to pass between the rows of onions—being either drawn or pushed. The wheels cover a space of about one foot in width, and the length of the cutting blade is also about a foot. The length of the handle is about five and a half feet. The usual distance between the rows is fourteen inches, and as the hoe takes a breadth of twelve inches, it cuts over all the ground, excepting a strip of two inches along each row. The cost of the hoe varies from $1.25 to $1.50. It was invented by Mr. Joseph Bushby, of Danvers, an intelligent and successful cultivator of garden vegetables, about 25 years since; and was used by himself and neighbors only for about ten years. It has now come into general use, and saves much of *back-aching labor*. The distance between the rows can be varied according to the quality and condition of the soil. Keeping the ground well stirred, loose, and free of weeds, greatly facilitates the bottoming of the onion. There is no plant that will better reward diligent care in the cultivation. The entire difference between a bountiful crop and no crop at all, often depends on this. The old maxim, "a stitch in time saves nine," applies with great force in raising onions.

6. The time and manner of harvesting.

When the tops begin to wither and fall, then it is usual to start the onions from their bed, and throw them together in rows—say eight or ten growing rows into one. After they have lain thus about one week, they are stirred and turned with a rake, and in about one week more, when the ground is dry, and the weather fair, they are gathered up by cart-loads, and taken to the barn. Here they are sorted and cleared of refuse leaves, and then they are in a condition to be *bunched* or *barrelled*.

It should be remarked, that a large part of the labor of *weeding*, *gathering*, and *sorting* the onion, can be performed by children from ten to sixteen years of age. Boys of this age, when properly instructed, will do about as much as men. They are more nimble, and can come at the work with greater facility. The sorting of the onion is frequently done by girls as well as boys. From three to five dollars a week, at one cent a basket, are usually earned by them during the period of harvesting—which includes the months of September and October. After the crop is taken off, if the surface is sloping, it is useful to plough furrows about one rod apart, to keep the surface from washing. Unless this is done, all the herbage being gone, much of the soil will be likely to be misplaced, by the melting of snows and running of water in the spring.

The inquiry arises, whether the growth of the onion is limited to soils of particular character, or whether it can be cultivated upon any good soil, with proper attention. We know that there is a popular impression, that there are but few places in which the onion can be cultivated advantageously. So far as our own observation has extended, this impression is in a great measure erroneous. Like every other plant, the onion grows best on very good soils, in very good condition. But we have known very fair crops, on plain, light land, after the same was well saturated with *manure, muscle-bed, and ashes.* A good substratum must be laid before a good crop can be expected; and this being done, a crop may be expected on almost any soil that will support other vegetables.

If we were asked what course is best to be pursued with land, on which onions have never been raised, to bring it into a condition for a successful cultivation of the crop, we should say—Begin by ploughing to the full depth of the nutritive soil, and during the first and second years, thoroughly subdue and mellow the soil by the cultivation of crops of corn and carrots, with liberal dressings of manure; then thoroughly incorporate with the soil a dressing of strong manure and muscle-bed, just covering this dressing; then harrow the surface thoroughly, and clear it of all roots, weeds, or other obstructions; then apply a coating of lively, well rotted manure to the surface, and bush harrow it; and then it will be in a condition to receive the seed, which is to be inserted as soon as the opening of the spring will admit of its being done.

We are aware that we make the raising of the onion dependent upon severe labor and vigilant attention. We know that it cannot be successfully done without these. But it is not labor lost. No cultivation, within our observation, better repays for the labor and incidental expenses. We have known, the present season, acres that have yielded their owners a net income of more than *three hundred dollars;* and we know that a man with two boys can well attend to half a dozen acres of such cultivation. Surely, when as at present, there is no limit to the demand for the article, and a ready cash market, those who have *acres* and are willing to labor, need not be in want of a fair compensation for their labor.

As samples of the present year's product in the town of Danvers, we state the following that have come under our notice:

Names.	Acres.	Product.
John Peaslee	3	1,980 bushels.
Daniel Osborn & Son	$1\frac{1}{5}$	870 "
James P. King	$1\frac{1}{3}$	660 "
Aaron C. Proctor	$1\frac{1}{4}$	600 "
E. & D. Buxton	$6\frac{1}{2}$	2,750 "
Henry Bushby	4	2,000 "
Joseph Bushby	3	1,500 "

Yielding an average of more than 500 bushels to the acre.

Advice in Poultry Keeping.—The principles upon which I rely for success in keeping hens, are, 1st, to have two breeds—a few to hatch and rear the chickens, and twice the number of everlasting layers, as eggs are more profitable than chickens; 2d, to get a hatch as early as possible in spring, and to keep them well; these never cast their feathers like the old birds, and if they begin to lay in autumn, lay more or less all winter; 3d, never to keep old fowls (none but favorite fowls ought to be kept more than two years;) old birds lay larger eggs than pullets, but not nearly so many; 4th, to give them the best barley I could get, and as much as they could pick up once a day in summer, and twice in winter; they are not only more profitable, well kept, but the eggs are better.—*English Paper.*

THE MARYLAND STATE AGRICULTURAL CHEMIST.

"Dr. Higgins, the Chemist, has, we understand, removed his Laboratory to Easton, where he is now assiduously engaged in his great work. He has been met there by the farmers, in the best spirit, and their attention has been in various ways attracted to his labors."—*Ann. Free Press.*

The above, from the "Baltimore Patriot," is the first and only notice we have seen of the whereabouts and of the operations of the State Agricultural Chemist. Doctor Higgins has a wide field for usefulness before him, and while we trust, we doubt not he will cultivate it well.

The very presence of an officer thus traversing the country, will wake the farmers up to a consciousness that in the great scale of human industry agriculture is "some," and the best results in a great manufacturing process, (which agriculture really is,) are not to be achieved but by some knowledge of the *nature* of the materials employed, and of the *laws* of nature on which all results, profitable or otherwise, in a great measure depend. Perhaps, as the very worm will turn when trodden upon, farmers will at last begin to inquire why it is that *they* maintain great military and naval schools, while their representatives (so called) dare not ask for one dollar for instruction in the great art of production.

The number of our patrons on the Eastern Shore of that good old State, and the interest we shall never cease to feel in the prosperity of all her sons, warrant a curiosity to know, when allowable, the result of Doctor Higgins's analysis of their soils and materials—their fine "white oak" wheat soil, their marsh mud and their marls. On the left hand side of the road coming into Easton from Queen Anne's, and not many miles out, we stopped to look at the operation of marl-digging, near the road, which seemed to be attended with a quantity and cost of manual and animal labor to make it doubtful if it would pay! How would it compare, for instance, with the following Irish marl, of which Dr. Kane gives the analysis:

	Blue Marl.	White Marl.
Siliceous sand	2·35	20·72
Alumina	0·36	0·74
Oxide of Iron	0·24	0·32
Phosphate of Iron	0·03	0·02
Carbonate of Magnesia	0·43	0·53
Carbonate of Lime	90·98	77·04
Organic Matter	2·42	trace.
Water	2·52	1·03
	99·33	100·40

The following analysis is given by the same author, whose valuable work ought to find a place in every farmer's library. This may serve to hint, in some measure, to a certain friend whose plough we once found in autumn, laid by, where it had laid by his corn in the summer, and who, therefore, shall be nameless—what he has to expect from his use of king-crabs in his compost, making to the value of the shells, the addition for the animal matter. How much is to be added on that account, it is not easy to say, as we could never see in these odd-looking creatures any thing but shell and legs.

	Crab-shell.	Lobster-shell.	Oyster-shell.
Animal Membrane	28·6	44·76	0·5
Carbonate of Lime	62·8	49·26	98·5
Phosphate of Lime	6·0	3·22	1·0
Salts of Soda	1·6	1·50	--
Phosphate of Magnesia	1·0	1·22	--
	100·0	100·00	100·0

Dr. Kane says that almost all the bogs in Ireland rest on marly bottom, intermixed with beds of clay, or of limestone gravel, in such manner that these wastes, where they become unnecessary for fuel, contain underneath the best materials for their own reclaiming. So it may be with the marshes along our whole seaboard; and as we get so little in return for fifteen or twenty millions expended annually on the army and navy, we venture here to make one suggestion; and that is, that to the corps of coast-surveyors, should added, in time of peace, the corps of *sappers* and *miners*. Let them accompany the coast-surveyors, whose beautiful maps extend to a certain distance from the shores of all our rivers and creeks. We have seen, for instance, an exquisite map of Blakeford, in Queen Anne county, made in the regular course of coast-surveying. Well, what we would propose is, that these miners might indicate on these maps not only the extent of the marshes, and the rise and fall of the tides, (to indicate whether drainable or not,) and the elevations of the adjacent dry land along the shores within the scope of their survey—all of which may, for aught we know, be done now; but they should also indicate any large deposits of shells or marl, or bog, fit for fuel. In a word, we would get all out of them that we could, in return for the hundreds of millions expended in time of peace to *prepare for war!* In the meantime, we wish all honor and success to the State Chemist.

"THE ECONOMIST" is the title of a paper to be issued early in April, at Cannelton, Indiana, to be published weekly. The Editor—CHARLES H. MASON—says:

"We shall endeavor to show to the cotton planter that there is more economy in working up his staple by the cheap coal of Indiana, than by the expensive coal of England. To the Western grower of food, we shall undertake to prove that there is more economy in feeding the spinner and weaver on the banks of the Ohio, than in Manchester, Glasgow, or Lowell. In short, we shall endeavor to show whatever economy and profit there is in developing the natural resources of the country, and, in so adjusting our capital and labor in agriculture, manufactures, and their auxiliaries, that all may harmonize and yet no one unduly preponderate."

It would be superfluous in us to say that we approve heartily the objects of "The Economist," but we may add that we have every confidence in the ability and resources of the Editor to make his work acceptable and valuable to all who would be familiar with the industrial resources of his country, and the best and most economical manner to develope and apply them.

How to make a Horse Sure-footed.—A singular account of the manner of the ancients in breaking their horses, and rendering them sure-footed when galloping over the most irregular and dangerous grounds, is related by Vegetius. The Parthian horses were lighter and hardier than those of the Cappadocians or Medes, and were the best war horses. A spot of dry level ground was selected, on which various troughs or boxes filled with chalk or clay, were placed at irregular distances, and with much irregularity of surface and of height. Here the horses were taken for exercise, and they had many a stumble and many a fall as they galloped this strangely uneven course; but they gradually learned to lift their feet higher and to bend their knees better, and to step sometimes shorter and sometimes longer, as the ground required, until they could carry their riders with ease and safety over the most irregular and dangerous places. Then it was that the Parthians could fully put into practice their favorite manœuvre, and turn upon and destroy their unsuspecting foes. They were as formidable in flight as in attack, and would often turn on the back of the animal, and pour on their pursuers a cloud of arrows that at once changed the fortune of the day.—*English Paper.*

NEW INDUCTIONS IN AGRICULTURE.

BY DOCTOR R. T. BALDWIN, OF WINCHESTER, VIRGINIA.

Messrs. Editors of the Plough, the Loom, and the Anvil:

THE inductions I have drawn from the practical facts which have passed under my personal observation, since my attention has been directed to the subject of agriculture, differ so materially from the received opinions of the present day, that I have been induced to submit them for your consideration: under the hope and expectation that you or some one equally qualified, will correct them if they should prove to be erroneous. With this view, I shall state them in distinct, substantive propositions.

1st. It is not true that any plant which the farmer is interested in cultivating, derives its principal nutriment from the carbonic acid gas of the atmosphere. Although air is indispensable to vegetable as well as to animal life, it is equally true that no animal can live without food, and no plant exist in an impoverished soil without manure at the root.

2d. That the only food of plants known to the practical farmer is manure, or the residue of putrefaction. Neither water, oil, carbon, phlogiston, nor the sulphates, nitrates, muriates, carbonates, silicates, phosphates of soda and potash; nor the carbonates, sulphates, phosphates of ammonia, lime, magnesia; nor acids, nor alkalies, have ever been *proved* to be the aliment of plants, unconnected with the putrefied substances which may contain them.

3d. It is not true that different vegetable matters, during their growth, extract different fertilizing salts from the earth. For lands exhausted by continued cultivation in one kind of grain will not produce a more remunerative crop of any other kind.

4th. It is not true that lands under cultivation cannot be made to preserve their natural fertility without manure; on the contrary, lands naturally poor may be made exceedingly fertile without the addition of manure, of any kind whatever.

5th. There is no natural disintegration of the soil in a state of repose, and a formation of alkalies, unless its surface be covered with some substances or other. Exhausted lands, which remain uncovered, never improve in fertility by rest.

6th. The residue of the decomposition of vegetable substances, or the "ash of plants," is not manure. Nor can manure be made of *any substance*, without the aid of the putrefactive process.

7th. That the analytical investigations of learned chemists, totally disregarding the vital principle or life, have not promoted the interests of agriculture. On the contrary, diverting the attention of agriculturists from careful observations of the operations of nature, and the inductive reasonings drawn therefrom, have been decidedly injurious to its best interests.

8th. That shade is the great fertilizing agent; the putrefactive fermentation cannot be produced without it, and consequently no manures can be made, and no fertility imparted to the earth, *in any manner*, independent of its influence.

9th. That the earth itself is capable of being converted into the best manure; to effect this, it is only necessary that it should be densely shaded. That is, it should be located favorably for the generation of the putrefactive fermentation.

10th. That the fertility imparted to the soil is more permanent, when produced by shade, than from the application of any manure whatever.

11th. That every particle of earth, as it is naturally constituted, contains a portion of the fertilizing principle. The surface earth, or "mould," is fertilized earth itself caused by shade, and not the residue of vegetable decomposition.

12th. The difference in the fertility of the soil, in our native forest lands, arises solely from the circumstance of the surface soil being more or less densely shaded. Pine, which have no leaves, and white and red oak, which part with theirs so reluctantly, never leave the surface soil so fertile as those trees which drop their leaves with the first frosts.

13th. Many plants do impart more fertility to the soil than they extract from it during their growth,—not in "excrements," but by their shade.

14th. The natural provision for the renovation of worn-out lands appears to be this:—That some plants, like some animals, require but little food; these thrive best on the poorest soils. Every practical farmer knows, that if additional fertility be given to the soil, they disappear almost magically.

15th. However industrious and energetic a farmer may be, he cannot continue to cultivate a farm exceeding one hundred acres, and preserve its natural fertility by manures made on the farm. He attempts an impossibility, and must fail.

16th. Through the agency of shade, every farmer may fertilize every acre of land which he is able to cultivate. In this, consists the perfection of agriculture.

I most sincerely believe that these propositions may be abundantly sustained by facts, prominently before the observation of every agriculturist.

Yours, with respect, R. T. Baldwin.

MR. EARLE'S RESOLUTIONS,

In favor of appropriations by Congress, for agricultural instruction, to an amount equal at least to what may be given for instruction in the use of the cannon and the sword, passed unanimously by the Maryland State Agricultural Society, have been communicated to the members of both Houses of Congress, with earnest suggestions of his own, by the ardent and indefatigable President of the Society. The answers from the members indicate, we understand, an honorable sensibility to the justice of this demand upon the government, but it was hardly to be expected that any thing would be done at this session. Fortunate is it, that the wedge has been entered at last, and if it be not driven home, the landed interest will have no one to blame but themselves. The next best thing they can do, to insure success, is to prevail with the conductors of the public press to co-operate. That the press itself is becoming mindful of the claims of agriculture on the public attention, is evidenced by the fact that many of the leading journals are opening one or more columns to be regularly dedicated to that subject. We wish we could see the State Societies of other States coming up to the line of right and of duty to their constituents.

The Prize Farms on the Eastern Shore of Maryland.—The very interesting reports, in respect of these farms of Dr. Clough and Mr. Covey, with some observations of our own, were sent to the printer for this number, but the "devil" came back and said there was no room. It will be well for all whom it may concern to bear in mind, that whatever is to appear in this work must be in the hands of the printer the first week of the previous month.

HONOR TO THE SPADE AND THE PLOUGH.

When the sagacious people of Boston find a man who has something in him, they know how to turn him to the best account—but well they know the true from the sham. *They* are not people to be led away by humbugs. Quickly they discern the difference between a working man and a bag of wind. Such a working man they found in Col. M. P. Wilder, late President of the Horticultural Society; and they would not let him off until under his lead they placed that institution on a footing that does honor not merely to Massachusetts, but to our whole country. When at last they allowed him to resign, they unanimously passed to him a vote of thanks, at the instance of that accomplished pomologist, B. V. French, and a piece of plate of the value of $150, with a suitable inscription. We shall publish these proceedings, for the sake of deserved honors done to others as well as to him. But scarcely does he free himself from one harness before others are buckled on. We perceive by "The Boston Journal," that he has since been elected a Counsellor to Governor Briggs, and President of their Agricultural Club, which meets in the State House at Boston, and yet more recently was unanimously chosen to be the President of the Norfolk Agricultural Society, which now completes the list—one in each county in the State. So much for having the loom and the anvil near the plough.

In reference to Agricultural Societies, Mr. Wilder said they are of recent origin. The first of the kind in this country was the Pennsylvania Agricultural Society, established in 1785; the Massachusetts Society, still in existence, having a name to live—established in 1793. The first Horticultural Society in the world was established in London, in 1805, the Royal Society at Paris, in 1826, Pennsylvania Society, in 1827, and the Massachusetts Society in 1829. As one evidence of the growth of horticultural taste, he said that at the first exhibition of the Society in Boston, Mr. Manning, the American pomologist, showed but two dishes of fruit, while at the exhibition last fall, the heirs of that gentleman showed 300 specimens.

Several interesting speeches followed, giving evidence of the most cordial and hearty feeling, and the great unanimity which prevailed in the meeting. But the most *effective* and exciting speech of the day, was that made by Samuel Walker, Esq., of Roxbury, Chairman of the Finance Committee. He made a partial report, announcing the following donations to the Society: Charles F. Adams, $300; Marshall P. Wilder, $100; B. V. French, $100; Aaron D. Williams, $100; and $270 from subscription members at $5 each. These several announcements were received with enthusiasm, and the spirit of the meeting being on the giving hand, gentlemen pledged their towns as follows: Roxbury, $500; Dorchester, $400; Needham, $100; Quincy, $100; Dedham, $300; Dover, $50; Wrentham, $200; Milton, $100; and the pledges continued to come in until the funds of the Society amounted to nearly $3000!

An act of incorporation will be applied for immediately, and the Society will enter at once upon its large field of usefulness, fostered by the bounty of the State, and the liberality of its wealthy members.

After passing the customary vote of thanks to officers and benefactors of the Society, and one particularly to E. K. Whittaker, Esq., the prime mover in this noble enterprise, which was responded to by that gentleman in the most eloquent terms, the Convention adjourned *sine die*.

Thus we see, that much as we in the "sunny South" are in the habit

of associating with these Yankees the idea of *close-fistedness*, when you prove to their minds that the thing proposed is *useful*, where will you find men to open their hands quicker or wider?

How much mankind are given to talk without very well knowing what they are talking about! How many farmers can you find to give even $3 for the support of the Philadelphia Agricultural Society? In some counties in New York, it is not easy to make up a few dozen subscribers at (we believe) 50 cents each!

It may, we believe, be added, historically, that De Witt Clinton, Judge Buel, and J. S. Skinner, were among the very first Americans on whom was conferred the honorary membership of the great Horticultural Society of London.

ON FATTENING CATTLE.

BY GEORGE DOBITO.—PRIZE ESSAY.

We do not feel authorized to withhold the following, because the writer recommends *turnips* and *cake*—for the *system* is otherwise worthy of attention, and every reader can substitute corn-meal for cake. But has any one ascertained that oil-cake may not be used with economy in this country? Everybody knows, we presume, that a large portion of its value consists in the value it imparts to the manure. As to turnips, although our climate, except in the mountains, may be too dry for them, mangel-wurtzel, which is also highly spoken of, may, we know, be raised in immense quantity. We should be glad if some gentlemen in the valley, or South branch of Virginia, would give us a paper on fattening cattle in that region—its cost and results, and the manner of conducting that branch of husbandry after the most approved system.

[From the Journal of the Royal Agricultural Society of England.]

Presuming that the object of the Council of the Royal Agricultural Society of England, in offering prizes for essays on various subjects, is that the farmers themselves may be induced to commit their practice and experience to paper, I trust that my humble attempt to describe what I have found to be the best method of fattening bullocks, if considered unworthy of a prize, may at least be criticised with lenity, as it is the *bonâ fide* production of a practical farmer.

The first point I wish to impress upon my readers is, to have a good sort of bullock to begin upon; not that I wish to recommend one particular breed, to the depreciation of all others, for I am sure that different localities require different descriptions of animals; but to caution them that it is right to select the characteristic marks of the breed they intend purchasing—to warn them particularly never to buy a coarse, ill-made, bad-bred animal, because they may fancy it cheap. A man has never got so bad a bargain, as when he has, as the saying is, "got too much for money."

The first criterion for judging of the disposition of the beast to fatten quickly, in my opinion, is that peculiar soft, supple feel of the skin which is commonly called handling well; this is generally accompanied by hair of a soft, fine quality, in great plenty; the eye should be full and clear, and the head well-formed, the shoulders not upright, but lying well back, the chest full, the ribs deep and well arched out, the flanks well down, the hips nearly level with the backbone, and in proportion to the rest of the carcass as to width, the rumps wide, and not too low down, appearing as if when fat the tail and rumps' ends would be level, (but this the butchers in my neighborhood are in the habit of calling the fool's point,) the purse should

be of a full size, and soft to the touch, (this I consider a material point,) the twist good, and the legs short and small in proportion to the carcass, as the offal will be light in proportion to the leg-bone.

Next observe the temper of the animal: in selecting from a considerable drove you will often find beasts possessing many of these good points, yet in lower condition than some of the animals of a worse appearance; consider well whether this may not arise from the masterful disposition of the ill-made one; and whether, when put to fatten where every beast may eat his share of food without disturbance, the good-bred one will not soon surpass his more masterful neighbor. If you observe a beast that is constantly watching an opportunity of goring any other that comes in his way, leave him behind, even if he is much heavier than those you select; he may be a great trouble to you: and although the jobber may think you have selected them badly, he will sell them according to what they are worth at the time, and the present weight is the great point with him. For this reason always select the animals before purchasing, rather than agree to give a certain price per head to pick where you like from the drove.

I think the quality of an animal is of more consequence than his form, for common fattening purposes, but have both good if you can. But if you are thinking of fattening an animal to show for a prize, be sure to have his form as perfect as possible; for all the flesh you may lay on him will not hide any great defect in his form: also ascertain, if possible, how the animal is descended; ten to one but the progeny becomes similar to the progenitor. But this is generally a most unprofitable affair, and I strongly recommend all young farmers to leave it in the hands of those gentry who can afford the loss, many of whom there are in the country, and they deserve our best thanks for their patriotism, for it certainly shows the capabilities of different breeds, and thereby enables the observing farmer to profit by the experience of others. Never buy any animals that are *excessively* poor; they will consume a great deal of food before they are got into health enough to fatten.

I fear I have been rather prolix in these remarks, but have thought it necessary; for, depend upon it, unless your animals are well bought, fatting cattle will never pay enough to leave the manure clear profit, which it ought to do, although, I fear, with the majority of farmers, it is far otherwise.

I shall say but little with respect to summer-grazing, as the wording of the Society's advertisement appears to apply more particularly to winter fattening; merely remarking that the fences should always be kept thoroughly good, a weak place being strengthened before it becomes a gap, prevention in this case, like many others, being better than cure; that the bullocks should be well supplied with water, and have plenty of shade; never allow them to be frightened by dogs, &c.; treat them kindly, and they will soon cease to fear your presence; do not let a day pass, if you can help it, without seeing them. There is an old saying, which ought to be impressed on every farmer's memory—it has been of great service to me in the course of my life—it is, "The master's eye grazeth the ox." A friend of mine has lately adopted a plan which, under the same circumstances, I should strongly recommend; it is that of giving a small quantity of oil-cake to animals grazing, for the sake of improving an ordinary pasture, and its effects are astonishing. The pastures I allude to are small, and one or two bullocks more than they are calculated to carry are put into each; the lot are then allowed 4 lbs. of cake per day per head; this, at a cost of about 2*s.* (50 cents) per head per week—which, I believe, the stock well paid for—has entirely *altered the face of pastures* from what they were three years ago, when the plan was first adopted by him; and, I believe, without any loss to himself.

I now come to the point of winter feeding. First, as to the places in which they are kept, I unhesitatingly give my opinion in favor of stall-feeding, for all the common purposes of grazing; but not for young beasts that are to be summered again, or for prize oxen: the former should have small, well-sheltered yards, with good sheds, (if the fences are so high that they cannot see over, it is much better;) and the latter, *loose boxes*, with plenty of room for them to walk about, because they have to be kept up for such a long period, that if no exercise were taken the health might suffer. It is the abuse of stall-feeding that has got it into disrepute with some people, and the not treading down straw enough with others. This last I hold to be an advantage, instead of a disadvantage; for, depend upon it, it is not the size of the dunghill, but the *quality of the manure* that causes the farmer's stack-yard to be well filled. If managed well, I contend that there is no plan so good as stall-feeding. The fattening-house may be of any size or shape, but it is necessary that there should be underground drains, with gratings, to carry off the urine into the liquid-manure tank; shutters behind the bullocks to regulate the heat, and a wide passage at their heads to feed them and clean their mangers. The advantages I conceive to be the quantity of litter required being smaller, therefore the muck being made better; the temperature being more easily regulated, and every bullock being allowed to eat his share in peace. The disadvantage of the animal not being able to rub himself so well, I consider fully done away with by the rough brush which you will observe I recommend using; and although theorists may fancy the health of the animal likely to suffer, I have never found it so in practice.

Now, with respect to their food, so much does this vary, (from the plan pursued by some people with an ox intended to be shown at Smithfield, in a class restricted from corn, cake, pulse, &c., *which has the cream from several cows given him*, by way of compensation, to that by the man who endeavors to fatten his animals on turnips and barley-straw,) that it would take up far too much of the Society's valuable journal even to enumerate them; I shall therefore simply give the plan I recommend, leaving my readers to follow it if they like, and improve upon it whenever they can.

I think, in many instances, stall-feeding is not commenced early enough in the autumn: as soon as the weather becomes damp, and the days shorten much—say some time in October—the grass in my neighborhood loses its feeding properties, and then the sooner your bullocks are put up the better; for this purpose I recommend having some of the large, forward descriptions of turnips provided, perhaps the "red tankard," although watery, and soon becoming of little value, are at this very early season the best of any, from their early maturity; these are sown in April, at the rate of an acre to every eight bullocks, which will last them three or four weeks, according to the crop, and leave a light fold to begin the sheep upon; at the end of which time the forward swedes are ready to begin. During this period I give them little or no oil-cake, if they are only in moderate condition; but they have half a stone of pollard a day, mixed with an equal quantity of hay or straw-chaff. Some persons may fancy this food is of too loosening a nature, but I can assure them, from several years' experience, that although pollard is loosening itself, yet it has the effect of preventing the watery white turnips from purging too much. Although the bullocks do not gain much in weight during this time, yet I am satisfied they go on faster afterwards; the reason of which, I suspect, is that their bodies are more prepared for the artificial state they have to live in for the next few months. Early in November the food must be changed to swedes, cake, &c.; the quantities of each must vary according to circumstances: the following I consider a good allowance

where swedes are not scarce; if they are, more oil-cake must be given instead of a part of them; or, if very plentiful, they may be allowed even more. The morning's bait, 1 bushel of swedes, well cleaned from dirt, and cut small, given a few at a time, (I always use Gardener's *sheep turnip-cutter* in preference to any other;) then, the refuse pieces being well cleaned out, a dry bait, consisting of 2 lbs. of oil-cake, 3 lbs. of pollard, and a little hay-chaff. While they are feeding, the manure and wet litter must be well cleared away, and any which may be on the bullocks taken off, the floor swept clean, and plenty of fresh litter put in; then have every bullock well brushed with what is called a dandy-brush, (being a brush made with whalebone, for taking the rough dirt off horses.) Let not any slovenly farmer fancy this to be a whim of mine; depend upon it, the bullocks are kept in much better health and greater comfort for it. They must now be left quiet; they will soon lie down and rest, and chew the cud till after dinner, when another bushel of swedes is given as before, in small quantities, followed by a similar dry bait of cake, pollard, and hay-chaff, but with the addition of 3 lbs. of bean-meal; this is left with them at night. Be careful that the shutters are opened or closed, according to the weather, so as to maintain an even, warm temperature, but not hot enough to make them perspire, if it can be avoided. Be also careful that the mangers are well cleaned out between every bait. I have mine cleaned at the commencement of the season, and as often afterwards as I think necessary, with scalding water and the scrubbing-brush.

After a month or so the cake may be increased; and, if it is thought more convenient, the swedes may be changed for mangold-wurtzel. Many persons object to using mangold until the spring; they certainly are more valuable than swedes in the spring, and therefore should always be used last. Never change from mangold-wurtzel to swedes after you have once begun them, or the bullocks will not go on so fast; but if, from having a bad crop of swedes, or from any other cause, you want to begin mangold early, you have only to lay them exposed to the air for a week or two to wither, and they may be used as early in the season as is required.

It will be observed that cleanliness, warmth, and quiet are the great points I insist upon; of course coupled with good feeding: but very many tons of oil-cake are annually wasted, because the comfort of the animals is not more attended to. It will also be observed that I have introduced a cheap article of food, which I think does the beasts more good, in proportion to its cost, than any thing I give them: I allude to pollard, or millers' offal, as some call it. This I can generally purchase at 4*l.* 15*s.* a ton. I have used it extensively for some years, and like it much; some of my neighbors are now following my example.

Before I conclude, I wish to give these recommendations respecting selling the bullocks when fat. Do not determine upon parting with them exactly at any given time; but if a butcher wants to buy a part of them, a few weeks before you think them ready, calculate how they are paying for what they have eaten; and, if you feel satisfied on that head, do not run the hazard of getting a bad sale by refusing a good offer, or perchance the opportunity may not return. Sell them to butchers at home, if you can. Always estimate the weight and value of your bullocks the day before any one is coming to buy them; and, after letting the butcher handle and examine them well, let them out into a yard for him to see; they will always show better than when tied up.*

[* Our impression is, agricultural improvement will advance as the practice of soiling and stall-feeding increases.—*Editors P. L. & A.*]

AGRICULTURAL DISCUSSIONS AT BOSTON.

Just as the number was ready for the press, the Boston Journal brings us the proceedings of later meetings at the State House. With these men, it seems "stormy weather" whets, instead of cooling their ardor. Why do we hear of no such meetings at *Harrisburg?* We wish we could make room for all that is said on these occasions. How idle, as one of our correspondents says, for farmers, who have at least three hours at command in winter nights, to pretend that they don't patronise agricultural journals because "they have not time to *read.*" None so deaf as those who *won't* hear.

We have only space to glance at one or two things mentioned. The subject was *manures*, to which the whole discussion was confined. They did not spend their precious time in talking about *portu lacca*, or *Hafiz wine*, or dahlia roots springing into life and beauty, after being 2000 years in the hands of a mummy!!

"The third of the series of agricultural meetings was held, Tuesday evening, in the Representatives' Hall. Subject for discussion—*manures.* The discussion was opened by the President, Hon. Marshall P. Wilder. In confirmation of the great benefit of charcoal as a component part of compost manures, he stated to the meeting the result of applying it to seven lots of land in Sandusky, Ohio. The first was a lot of land of twenty acres, to which fifty bushels of charcoal were applied, and no other manure, and the result was 25 bushels of wheat per acre—lot No. 2, 4 acres, no coal applied, result 5 bushels—Nos. 3, 4, and 5 contained 15, 25, and 15 acres, 50 bushels coal per acre applied, result 25 bushels per acre—No. 6, 8 acres, no coal applied, result 5 bushels—No. 7, 6 acres, no coal applied, result 3 bushels per acre. The soil and culture on all the lots were alike. The coal cost $30 per 1000 bushels, and was ground in a bark mill before being applied. It was stated at the last meeting that 80 bushels of wheat had been obtained by the application of 50 bushels of charcoal to the acre. This was considered by a gentleman very extraordinary, if not improbable. Mr. Wilder said he would submit the following statement from Mr. Colman's European Agriculture and other authorities, in confirmation that in England the average yield of wheat was 26 bushels to the acre, while in some portions it greatly exceeds that amount. In Lincolnshire from 50 to 60 bushels is often obtained. In the isle of Jersey 66½ bushels have been produced; in Hampton 70 bushels; in Norfolk a well-attested report was made of 90¾ bushels; and at Feversham 60 to 70 bushels; and in one instance it was ascertained, upon a wager, to be 80 bushels."

The question arises with us, whether, where wood is dear and turf more abundant as in Massachusetts, it might not be economical to carbonize turf for manure or other uses, to which charcoal is applied. This is done in Ireland after the fashion that wood is managed for the same purpose. The sods must be regularly arranged and laid as close as possible. They are the better for being large, fifteen inches long, by six broad and five deep. The heaps, built hemispherically, should be smaller in size than heaps of wood usually are. In general 5000 to 6000 sods may go in a heap, which will thus contain 1500 cubic feet. The mass must be allowed to heat more than is necessary for wood, and the process requires to be very carefully attended to, from the extreme combustibility of the coal. The quantity of charcoal obtained by this mode of carbonization is from 25 to 30 per cent. of the weight of the *dry* turf.

But the turf may be so compressed that its charcoal will obtain a greater density than that from wood. Mr. Walker, the very worthy successor of Col. Wilder (easier to be followed than overtaken) as President of the Horticultural Society, said, among other things worthy of note,

"I prefer clay to charcoal, but at all times I want sand in my compost heap—either sea sand or wash from the gutters. Have found my land much benefited in some cases

by the application of 25 loads of sea-sand to the acre. When land is exhausted, or, in other words, so gorged that it will not produce turnips or radishes, I have ascertained that sea-sand, spread upon the surface, one inch thick, and then raked in, has invariably produced the most desirable effect, and that immediately."

We have long believed that American farmers are not aware, or, if aware, they are certainly neglectful of the advantages of adding clay to sand, and sand to clay land, where, as in many localities especially on our water-courses, they lie contiguous to, and yet separated from each other.

On the coast and creek shores of Ireland millions of tons of sea-sand are used for manure. We are told, on indisputable authority, that much of that which is raised in Cork harbor, after a water-carriage of ten or twelve miles, is taken into the country on one-horse carts, by working farmers, to the distance of ten or twelve miles over hilly roads. In fact, every strand, nook, or bay, to which farmers can get access by a horse or by a cart, is made to supply its quota of sand for manure.

Mr. Teschemacher, who never speaks but to command attention, adverted, in a few sententious and powerful remarks, to the importance of *agricultural education*, and after all, that is the great desideratum, along with *protection to American industry*, such as will compel the loom and the anvil to come to the side of the plough. Do that, and you will ensure prosperity to agriculture; and prosperous agriculture will provide schools, as it has done and is doing in Massachusetts. Agricultural schools are to come next, and we would *begin* by converting all our military establishments, along shore, into agricultural seminaries for rearing instructors in the principles of agricultural field-practice and machinery, and animals, and grain, and grass-growing. In the minds and hearts of our young people are the best localities for fortifications. Said Mr. Teschemacher,

"I have passed the summit of the hill of life, and, thanks to a kind Providence, am quietly gliding down the other side, but if there is one thing I desire to see more than another, while yet here, it is the definite experiment of agricultural schools and experimental farms throughout this vast and flourishing agricultural country. What is the reason why our youth pant after commerce or the learned professions? It is because they require the exercise of the utmost energy of the mind, and this exercise is precisely what youth demands, and the want of this exercise drives them into all kinds of foolish excesses; for this excitement of the mind is invincibly strong. Now, is it not possible to divert these energies of the mind to the successful pursuit of agriculture?—yes, but only by a previous education of the first order.

"Young men often consider a farmer as nothing more than a mere machine—a plough, an ox, a cart, or a hoe, with nothing to do but what his father did before him—and as long as these ideas last, so long will the best of our agricultural population flock to the cities, and many a fine mind be lost."

"*The Plough, Loom, and Anvil* for February has the merits and demerits of its forerunners. There are several valuable practical papers in it, and the others are not valuable, because they are not practical. They are raw theory, of the sort that Cobden in England, and Walker in America, have just read the burial service over."

We unaffectedly prize the well-known good-will of our friend of the Winchester Virginian, but he will excuse us for expressing the apprehension that when he talks about the "*burial service*" read over the doctrine of encouragement to American labor, his position in "the valley" may somewhat limit his view of what is going on among the outside barbarians in the great world beyond. If the funeral service has been read, it has been done with indecent haste on the part of Parsons Cobden and Walker, and without waiting for the subject to be entirely defunct; as our friend of the Virginian would perhaps admit, on a view of the very many letters we get from his own, and from more southern States, exactly in the spirit of the following.—It is by yielding implicitly and too long to such doctrine as that which

is preached by Parsons Cobden and Walker, that Virginia herself, with all her magnificent capabilities, is yet more dead than alive; nor will she ever prosper, as her natural resources entitle her to do, until she draws the manufacturer within her borders, and places him, where Mr. Jefferson recommended he should be placed, by the side of the agriculturist.

Foster's, Tuscaloosa Co., Alabama, Feb. 1, 1849.

MESSRS. J. S. SKINNER AND SON:—GENTS:—"Being about to remove to Mississippi, I wish you would forward the remaining numbers of the 'Plough, the Loom, and the Anvil' to my address, 'Parairie Point, Noxubee county, Miss.' I am so much pleased with your excellent periodical, that I intend to preserve them and have them bound as a book of reference, and not destroy them, as some of our farmers are addicted to doing. Though not a farmer, I take great delight in reading a work which has so much at heart the welfare of the country, and especially that of the farmer.

"I am now convinced that the only way the plough can prosper is in connection with the loom and anvil. And I am pleased to see such a manufacturing spirit among our southern people, which is daily increasing. I think everybody who is able (and especially every farmer) ought to subscribe to your periodical.

"I shall exert myself to increase its circulation. When I commenced I thought I would only say a few words, but the interest I feel in your success has caused me to say more. Your obedient servant. J. C. B."

Some friend has kindly sent us the proceedings of the Agricultural Convention of the State of Delaware, held at Dover on Jan. 17, 1849.

They indicate a most promising public spirit throughout that State.

J. C. Clark of Newcastle County was appointed President of the Convention.

The subjects presented for consideration, by C. P. Holcomb, Esq., chairman of the business committee, had reference to the trade in *lime* and *guano*—to the mode of paying *taxes*—to cattle moving at large in the public highways of Newcastle County—to banks—and to equalizing taxes. Mr. Holcomb, from the same committee, reported a constitution of the Agricultural Society of Delaware, which was adopted.

The society was organized, and the following officers were nominated and confirmed:—

President.—Peter F. Causey.

Vice-Presidents.—John D. Dilworth, Newcastle County; Dr. H. Ridgely, Kent County; T. P. McColley, Sussex County.

Treasurer.—Dr. William Burton.

Corresponding Secretaries.—A. M. Higgins, Newcastle County; W. Duhammel, Kent County; P. N. Rust, Sussex County.

Recording Secretary.—Manlove Hayes, Jr.

Managers.—Daniel Corbit, David W. Gemmill, and J. P. Bellville, of Newcastle County; Jacob M. Hill, John Frazer, and James G. Waples, of Kent County; Jona. R. Torbert, Lemuel Draper, and Charles Wright, of Sussex County.

On motion of Mr. Moore, said report was adopted.

We regret not to find among the proceedings any movement to demand from the general government a diminution of appropriation for warlike purposes and establishments; and a proportional application of the public money for *agricultural education*. But that will come sooner or later as the natural fruit of advanced civilization.

More than seventy farmers joined the society on the spot, and it was decided to hold the first State fair at Newcastle, on Wednesday and Thursday after the first 3d Monday in October next.

THE BEE.

"So work the honey-bees;
Creatures that, by a rule of nature, teach
The art of order to a peopled kingdom."
SHAKSPEARE'S *Henry IV.*

I HAVE some experiment-hives which enable me very accurately to inspect the operations of my bees. From the construction of the hives, the combs are necessarily built between two panes of glass, so that on drawing the sliders the two surfaces of a comb are exposed to view. In this way I am able to see almost every thing that is going forward.

When the queen-bee has an inclination to deposit her eggs, she goes forth, accompanied by six or eight working bees as a guard, whose stomachs are filled with honey. She is very deliberate in her motions, and seems to proceed with great caution. She first looks into a cell, and if she finds it perfectly empty, she draws up her long body, inserts her tail into the cell, and deposits an egg. In this way she slowly proceeds till she has dropped ten or twelve eggs, when perhaps feeling exhausted, she is fed by one of the attendant bees, who have surrounded her the whole time. This is done by the bee ejecting the honey from its stomach into the mouth of the queen. When this has been done, the bee goes away, and another takes its place. The operation of laying her eggs again goes on, and is succeeded by the same mode of feeding—the attendant bees frequently touching the antennæ of the queen with their own. When the operation of laying the eggs is completed—and it generally occupies some time—the queen retires to that part of the hive which is most filled with bees. During her progress, the surface of the comb is very little intruded upon, and the space seems purposely to be left unoccupied. Some few of the cells, however, in a brood comb, are passed over by the queen, and afterwards filled either with honey or farina. These serve as deposits of food, from which the neighboring brood may be fed more readily, as such cells are never covered with wax.

With the hives referred to I have been able to follow many of Huber's experiments, and can bear witness to his general accuracy, except in regard to the fecundation of the queen-bee. I have bestowed much time and pains in endeavoring to discover any of the circumstances he mentions relating to this fact, but without success. Neither have I ever seen a cell visited by one of the drones *after* the egg had been deposited, which a modern writer has asserted they do. I have for many years watched my hives with the greatest care and assiduity, but have never yet seen the queen-bee leave the hive, except at the time of swarming. I have also spoken to several experienced bee-masters on the subject, and they are of the same opinion with myself—that she never quits it. Her person is so easily distinguished from the other bees, by any one at all conversant with them, that if the queen absented herself from the hive, in the way Huber describes her as doing, it seems next to impossible that she should not have been perceived, either on her departure from, or on her return to, the hive. And yet we have no English writer on bees (and we have many acute and observant ones) who has even hinted at the probability of the queen's leaving the hive in the manner Huber asserts that she does. It is now many years since his work was published, and no part of it is more curious or more satisfactory, if correct, than what he says on the impregnation of the queen-bee. Curiosity has in consequence been much excited, and many persons, like myself, have been anxious to ascertain the accuracy of his statements. It does not appear, however, that any one in this country has succeeded in doing this, though we have many very patient observers. Is it probable, therefore, that it should have been reserved for Huber alone to ascertain a fact which had escaped the notice of naturalists, not only for ages before, but, what is more singular still, for years since the publication of it in his work? It should be recollected also that Huber was blind, or nearly so, and that he was obliged to rely very much on the reports made to him by his assistant, Burnens. It is however with considerable diffidence that I would venture to doubt the accuracy of any statement of his, especially when the objection turns, not upon a contradictory circumstance, but upon what myself and others *have not been able to discover.*

Wax is a secretion formed under the scales of the back of the insect, from which I have repeatedly seen it exfoliate in small flakes. A considerable degree of heat appears to be necessary to produce this secretion, as I have always observed it most abundant in hot weather. Other writers have maintained that the wax is discharged from the abdominal rings, or segments of the bees. This may be also the case, but I have never perceived it.

The vision of bees seems very imperfect. I have frequently turned a hive, so as to make the entrance about two or three inches from its former position, and have then always found the bees at a loss to gain admit-

tance. Indeed they seem more to *feel* their way than to see it, after they have once landed themselves on the board of their hives. Their progress through the air is always made in a direct line to the hive, and the instinct which enables them to find it, amongst forty or fifty others placed in a row, and nearly similar to each other, is very striking.

Wasps appear to have a better vision than bees, though it is not easy to assign a reason for this being the case, since the construction of the eyes of both insects seems to be similar. Derham, in his Physico-theology, has observed in regard to the eye of the bee and wasp, "that the cornea and optic nerves being always at one and the same distance, are fitted only to see distant objects, and not such as are very nigh; and that the eye will be found on examination to form a curious, lattice-work of several thousand hexagonal lenses, each having a separate optic nerve ministering to it, and, therefore, to be considered as a distinct eye." Wasps, however, certainly seem to alight at the entrance of their nests with more accuracy than bees. I have frequently observed this to be the case, even when the hole of a wasp's nest has been in a field, and surrounded with long grass. They alight at it with the greatest precision, seldom or never going even half an inch either on one side or the other of it, and they do this even late in the evening.

Bees which have been once exasperated, do not soon forget the injury. This was the case with one of my hives, the bees of which never allowed me for two years to come near them while they were working, without attacking me, though a neighboring hive would allow me to take almost any liberties with it with impunity. Indeed I had familiarized myself so much with some of my bees, that I am convinced they knew me, and they always appeared to distinguish me from strangers. By constantly standing before the mouth of the hive, and allowing vast numbers to fly about and settle upon me, and by frequently feeding them, they became so well acquainted with me, that I had much pleasure in witnessing their attachment, and the confidence they placed in me. This affection was mutual, and I always think with pleasure of the many agreeable hours I have passed in company with my insect friends. Those only can judge of this, who, like myself, have witnessed their assiduity, their internal labors, their affection for their queen, and all the various modes they take in promoting the prosperity of the community. I always listen to the pleasing hum of bees with delight, and know of few sounds more soothing and agreeable.

In some papers published a few years ago in the "Plain Englishman," I endeavored to point out the great cruelty of procuring honey by the suffocation of bees, and the advantage which the bee-owner would derive from contenting himself with a part only of their stores. This may be done by placing a small hive-glass, or even a flower-pot, on the top of each hive in April or May. These should be of a size to hold about eight or ten pounds weight of honey; and in a tolerably good season they will generally be filled, leaving a sufficient stock of honey for the bees to subsist upon till the following spring. I am happy to find that this method is more generally practised than it formerly was. By adopting it, the lives of thousands of these industrious insects would be saved; the profits of the bee-owner would be much more considerable, and his stock of bees annually increased.

The summer of the year 1818 was unusually dry and hot, and in July flowers of almost every description had entirely disappeared. I observed that bees, in consequence of this, seldom left their hives in search of honey, though the weather, one would have thought, would have tempted them out. They seemed, indeed, to be perfectly aware that their labor would be useless. I recollect meeting with an account of a hive of bees being transported from a distant place, to a spot by the side of a mountain in Italy, where they they could procure honey all the year round. Finding this to be the case, they soon gave up stocking their hive, and only went out to collect honey as they wanted it. The same observation has been made on bees taken out from this country to the West Indies. The first year they stored their hive as usual, but ever afterwards they merely supplied themselves with food from day to day.

The lower orders of people in this and some other places have curious superstitions respecting this insect. A poor old widow once complained to me that all her stocks of bees had died, and on inquiring the cause, she informed me that on the death of her husband, a short time before, she had neglected to *tap* at each of the hives to inform the bees of the circumstance; that in consequence of this omission they had been gradually getting weaker and weaker, and that now she had not one left. This may be supposed to have been a solitary instance of superstition, but such is by no means the case, and I believe it will be found that very generally on the death of a cottager who has kept bees, some ceremonious observance

takes place. Mr. Loudon mentions that when he was in Bedfordshire, he was informed of an old man who sang a psalm in front of some hives which were not doing well, but which he said would thrive in consequence of that ceremony. This may be a local or individual superstition, but the announcement to the bees of the death of the owner is certainly a more general one. A correspondent of Mr. Loudon's mentions, that in Norfolk, at places where bees are kept, it is an indispensable ceremony in case of the death of any of the family to put the bees in mourning, or the consequence would be that all of them would die. The person who made the assertion mentioned a case in point, where, from the neglect of the custom, every bee in the apiary had perished. The method of putting them in mourning is by attaching a piece of black cloth to each of the hives. Another correspondent also says, that in the neighborhood of Coventry, in the event of the death of any of the family, it is considered necessary to inform the bees of the circumstance, otherwise they will dwindle and die. The manner of communicating the intelligence to the little community is, with due form and ceremony to take the key of the house, and knock with it three times against the hive, informing the inmates, at the same time, that their master or mistress, as the case may be, is dead. A similar custom prevails in Kent, and in some places it is considered expedient to communicate any great event that may take place to these industrious insects. The use of a key seems necessary in another ceremony which takes place in regard to bees. When a swarm has quitted one of my hives, I always observe that a key is used to induce it to settle, by striking it against a frying-pan, and I should feel some regret if this good old custom was omitted. So far from letting the *ringer* think that the tinkling noise he makes is a useless one, I always encourage the practice of it, and it is one of the many pleasurable sounds of the country. Often have I quitted my room on hearing it, to enjoy the sight of my additional wealth, and to assist in securing it. The day is sure to be warm and *smiling*, and I watch the increased accumulation of my clustering bees with infinite satisfaction. The old customs I have mentioned, and many similar ones which are practised by my poorer neighbors, may be laughed at; but I like them all as long as they are innocent, and I consider them as adding in some degree to the interest of a country life.

To a thinking mind, few phenomena are more striking than the clustering of bees on some bough, where they remain, in order, as it were, to be ready for hiving:—

"arbore summâ
Confluere, et lentis uvam demittere ramis."—VIRGIL.

"They make a wheeling flight,
Then on a neighboring tree, descending, light:
Like a large cluster of black grapes they show,
And make a large dependence from the bough."
DRYDEN.

I observe that where a hive is fixed over a swarm, the bees will generally go into it of their own accord, uttering at the same time their satisfied hum, and seeming to be aware of the purpose for which it was placed near them. How the queen-bee is made acquainted that so convenient a place for her to retreat to is near at hand, I know not, but so it is. Surrounded by thousands of her subjects who press around her, she makes her way through them all, and enters the hive, followed by the whole swarm. Some means of communication must have taken place, as it is quite impossible that she could herself have seen the snug retreat which had been prepared for her. Here the work of preparing future cells is instantly commenced, and I have found that although a swarm has not been able for two or three days to quit the hive after they had taken possession of it, a considerable number of cells had been nearly completed. Even as soon as the foundation of a cell has been finished, the queen-bee will sometimes deposit an egg upon it, the sides being afterwards built up. As the cells increase in number, honey and the farina of flowers are stored in them:

"The careful insect 'midst his work I view,
Now from the flowers exhausts the fragrant dew;
With golden treasures loads his little thighs,
And steers his distant journey through the skies:
Some against hostile drones the hive defend,
Others with sweets the waxen cells distend
Each in the toil his destined office bears,
And in the little bulk a mighty soul appears."
GAY.

Nothing can be more melancholy than the appearance of bees in wet weather. Some of them I have observed to come to the mouth of the hive, as if to take a view of the passing clouds, and some of those who are tempted to quit the hive return to it with the greatest difficulty. A sunshiny day in May is their delight, and it is then that bees seem most active and most joyous.

Magnitude of the Sun.—The sun is more than 500 times greater than all the planets, satellites, and comets of our system; it is equal to 1,300,000 globes as large as the earth; and its surface contains an amplitude 53,770,000 times larger than the view from Mount Etna, which comprises an extent of 45,000 miles.—*Dick.*

MANUAL OF MANNERS.

VISITING.

On this subject much need not be said, the usages of the world as to visiting being simple and well known.

Visits of mere form are no longer expected among equals in society; there being something of restraint in whatever belongs to ceremony, which is at all times a cold and constraining thing, and to be avoided, especially among friends and intimates.

Visits ought to be well-timed, otherwise they will be unwelcome to the one party, and irksome to the other.

Idle people do not reflect that "time and the hour" are as much to be observed by the visitor as by the farmer or the mariner. Full of leisure themselves, they seem to care little how they inconvenience others, by the inopportune period of their calls, or the length of their stay. They spend their own time and that of other people to no purpose; and their conversation is not such as to offer any equivalent for the loss. To such persons it will be necessary only to say at once that you are busy. They do not stand upon ceremony with you, why should you be particular with them? At the same time, such a reason for not seeing even one whom you consider a friend, when he calls, cannot be stated with any degree of propriety unless you are really busy. Politeness does not compel you to sacrifice your time to idle chat, or common-place remark, because a friend visits you; nor does it require you to conceal the truth from him. If it is a person whom you may see at any time, to show any reserve on this point would be treating him as a stranger.

How much soever engaged you may be, should a visitor call, it is always better, either at once to inform him that you are occupied, or, which will be esteemed more polite, to quit your occupation for a moment, and tell him so yourself, with an apology for not asking him to remain, to instructing your servant to say that you "are not at home;" a declaration which, besides being untrue, and therefore contrary to the real spirit of politeness, has now become so common an excuse, that in most instances it is not believed.

When a visitor is told that the person whom he calls to see is particularly engaged, to press upon his time, or insist upon seeing him, unless upon the most urgent business, is the extreme of rudeness.

It may happen that you do not wish to see your visitor; in which case, the best method is to send with the servant a polite message, that you are not in a condition to receive visitors. Of course, where you desire to drop the acquaintance of any one, all that is necessary is, not to return his call. Where a card is left, a visit is expected in return, or at least the call to be acknowledged by leaving your own card within a few days.

This one thing you must ever keep in view, that, in visiting, as in every other department of conduct, affability never loses any thing, but rather gains in the estimation of all with whom you may come in contact. In your intercourse with society, you will find courtesy to be the surest passport to the good opinion of others.

In visiting it is essential that you never forget your own character and position in society. Nothing is more necessary than that you should be particularly guarded as to the reputation of those on whom you call, or allow to call upon you. To interchange visits with one regarding whose exact position or reputation you are not precisely certain, would be an indiscretion of which you might soon have reason to repent. An interchange of visits is equivalent to the acknowledgment of a mutual acquaintance, and involves the recognition of a desire that that acquaintance should continue. There are those who, on the faith of a simple introduction, will intrude on you at home, and be as familiar as though they had known you for years. With such people it is easy to deal. They play, as it were, fast and loose in society; and, with good luck generally, they must expect sometimes to meet with rubbers. If they are received with coldness where they are led to expect a different reception, it does not embarrass them in the least; they are prepared for either alternative, like the professional gamester, who stakes his all on the chance of securing a prize to which he has no claim, or losing a sum on which he sets no value, but as a means of gambling. You must conduct yourself at once towards such intruders with indifference, though, for your own sake, with politeness, if you are not sure of their position, or desirous of their acquaintance. Should they invite you in return to their houses, the most discreet thing you can do, until you know them better, is not to accept of their invitation, however pressing it may be. You are not, however, to consider that all you meet with in society, who show a desire to cultivate your acquaintance, are persons of this sort; but the probability is, that whosoever acts in this manner, does it with an object different from what is understood in the legitimate usages of society. It is always the best policy to treat strangers with reserve, and never to be on too intimate a footing with any one.

The etiquette of visiting is a wide subject for remark. The object of this book, as already explained, and as may be gathered from the observations in previous pages, is higher than the description of mere rules of etiquette. It is therefore unnecessary for me to enter upon these as regards this branch of the subject. Every one at all in the habit of visiting, must be aware of many observances which it does not fall within the scope of this work to notice.

But it may be given as a general rule: Not in your neighbor's house to exhibit ill-breeding, by affectation or undue familiarity; nor by pride or assumption display rudeness or self-sufficiency in your own.

One remark may be made, in conclusion, as to visiting on a Sunday. This ought to be a practice confined exclusively to relatives. But should you have a desire to wait upon any one, uninvited, you are bound to consult his feelings and rule of conduct. There are many persons who, from the most praiseworthy motives, dislike being visited on that day by strangers. Should any visitor, in calling on a friend on such a day, be disappointed in seeing him, he ought not to attribute his disappointment to his friend's being unsuitably engaged, or to any reluctance on his part to bid him welcome. It will be more in the spirit of true politeness, as well as more in accordance with what one would expect in his own case, to put the best construction on the matter, and to presume that the latter, from conscientious motives, is unwilling to encourage mere calls of convenience or ceremony on that particular day. In this, as in every thing else, keep in mind always the golden rule, "To do unto others as you would wish others to do unto you."

THE WHOLE DUTY OF WOMAN.

EMPLOYMENT.

From whom cometh evil? from whom poverty and dejection of spirit?

Idleness is the mother of mischief; idleness is the parent of shame and disease.

The slothful spendeth the day in slumber: she waketh at noon, she drinketh her cordial, and inquireth the time of the morning.

She turneth again to sleep, and awaketh not till the dinner of the evening.

She converteth the night into day, and keepeth the light of the sun hid from her eyes.

Her house is a scene of riot and confusion; she hath eye-servants.

Her appetite faileth, and the physician is daily set down at her door.

Industry is up with the sun; she awaketh at the crowing of the cock, and walketh abroad to taste the sweetness of the morning.

She is ruddy as the daughter of health; her ears are delighted with the music of the shrill lark.

Her garment sweepeth the dew-drop from the new stubble and the green grass, and her path is by the murmuring of the purling brook.

Her appetite is keen; her blood is pure and temperate, and her pulse beateth even.

Her house is elegant; her handmaids are the daughters of neatness, and plenty smileth at her table.

She saunters not; neither stretcheth herself out on the couch of indolence.

She crieth not, what have I to do? but the work of her hands is the thought of a moment.

She listeneth not to the gossip's tale; she sippeth not her tea in scandal; but employment is the matter of her discourse.

Her work is done at the evening; but the work of the slothful is put off till to-morrow.

VIRGINITY.

The coronet of glory decketh the head of the young vestal; she sitteth in respect; her steps are attended with reverence, and the words of her mouth are held in high estimation.

She approacheth the excellence of angels; her state is that of the most perfect innocence of mortality.

The heathen consecrated her to divinity; her trust was esteemed an inviolable security, and her intercession gave life to those who had forfeited it unto death.

The Christian calleth the mother of salvation by her name; she is honored throughout the whole earth.

Art thou enamored with the beauty of her condition; wouldst thou honor thyself in her situation, attend to the voice of instruction, and shun the rock on which the vessel of thy sister hath been dashed to pieces.

Presume not on a vow of chastity, nor be transported with the zeal of voluntary virginity; there is no merit in constraint—there is no virtue in forced obedience.

Be cautious, lest thou sully the whiteness of innocence; the least speck is seen on the new-fallen snow.

Let not curiosity mislead thee; for curiosity is unseemly in a woman, but in a virgin dangerous as the breath of evil.

Let thy conversation be with the sisters of elegance; listen not to the levity of the daughters of indiscretion.

Do they say there is no harm, we may talk, for the words of our lips are air, and not criminal: these are the snares of the licentious; the breath of their mouth is malignant, the sparkling of their eyes is contagious.

They will infect thee to do ill, thou wilt fall into the snare before thou art aware thereof.

As the ladder descendeth by degrees, so many are the intermediate steps between the modesty of the virgin and the boldness of a prostitute.

Let not thine ear listen to the tale of the wanton, nor be privy to the amour of thy sister, even with her sworn spouse.

Delight not in the romantic tales of love: the triumphant beauty and the captive knight are deluding images to thy passions.

A fictitious tale may awaken a real curiosity, and that may prove fatal to thy peace.

Learn not wisdom of thy companions, nor endeavor to overreach the sagacity of thy mother.

Let thy toilette claim thy morning hours; but dress not a second time in a day.

Thy elegance will be an ornament; but thy frequent change of apparel will savor of profuseness and uncertainty of temper.

Let not thy servants fly thick with invitations; neither be thou much affected if the rout be put off till to-morrow.

Be not perpetually gadding abroad; neither let the gadder abroad be often invited to thine own home.

In thy father's house, learn the economy of a wife from thy mother; so shalt thou carry it into life, and be the comfort of thy future husband.

Is there who delighteth in assemblies; who prideth herself in the pleasures of the mask; who staketh her fortune on a dye, she putteth her honor in the hands of a sharper, and placeth the jewel of her reputation on the next hazard.

The days of her virginity shall want the honor thereof; and the man who giveth his freedom for her embraces, shall repent of his bargain.

Gray hairs are uncomely to the virgin, the ancient maiden is a by-word with her sisters, and is accounted ill-conditioned among women.

Doth she strive to hide her years, doth she assume the gayety of her youth; her celibacy will not appear the effect of choice, but of necessity.

Reject not the ordinance of marriage, nor put the day afar off, when it promises thee happiness.

Yet, trust not a man on thine own knowledge; confide not in his appearance before thee.

Deceit is familiar to his ways, and flattery and hypocrisy the fruits of his tongue.

Is he obsequious, ceremonious, and full of words; though the honey of the wild bee is on his lips, yet the sting of the hornet lieth hid in his bosom.

Be not taken with the appearance of gayety: the painted butterfly is an emblem of the coxcomb.

Be not deceived by the high opinion of heroism, by the empty braggart; he is as the sound of a drum, and the security he promiseth thee but the defence of a coward.

Neither is the valor of a man, or the strength of his arm, an indication of the integrity of his heart.

Hath he slain his friend in defence of thy beauty, is his sword loose in its scabbard; join not thy hand with his, lest thou repent the magnanimity of thy husband.

Take not a man absorbed in study, the philosopher is not a man of this world; he will be absent even in thy company, he will be as a child to be taught the common forms of ceremony.

He will hold thee inferior to his profound wisdom, he will regard thy remonstrances as the conceptions of a weak woman.

Thou wilt have no companion in him; he will be wanting in the duties of his family.

Listen not to the servile, who cringeth low and is a beggar in his solicitations; for when he hath command, he will be imperious; thou wilt perceive he knoweth not himself.

Avoid the libertine as the fiery serpent; he is the destroyer among the daughters of women.

Thou wilt be wedded to him, yet have no husband; thy bed will be barren, and thy nights comfortless and forsaken.

Doth he promise reformation, yet thou hast no security.

Dost thou flatter thyself thy charms will engage him for ever, thou wilt find thyself deceived ere the waning of the moon be over.

Give not thy youth to the embraces of age, nor the treasure of thy beauty to enrich the poverty of the decrepit.

The gravity of age ill suiteth the levity of youth, and disparity of years is the source of many inquietudes.

Sell not thyself for gold; for contentment is not the portion of riches.

Let the voice of a parent sanctify thy choice, but let thy director thereto be thine own happiness.

The Plough, the Loom, and the Anvil.

Vol. I. APRIL, 1849. No. X.

COMPARATIVE EXPORT OF FOOD BY ENGLAND AND THE UNITED STATES.

The following passage from a speech by an eminent merchant of Liverpool, now in Parliament, has gone the rounds of most of the newspapers of the Union; but we desire to place it on record for the use of our readers, believing that it contains information highly important to every farmer and planter in the country:

"Paradoxical as it may appear, I think Great Britain the largest grain-exporting country in the world, although it is impossible to calculate accurately what quantity of grain, and other farming productions, is consumed in preparing fifty millions of exports by which she so greatly benefits. This grain, and these farming products, are placed in the laboratory of that wonderful machine, man, which gives him the physical power, aided by steam, of converting them into broadcloths, calico, hardware, &c., and in those shapes your wheats and farming find their way to every country in the world."

England *is* the largest exporter of food in the world. The amount of it that she thus annually exports can scarcely be less than from one hundred and fifty to two hundred millions of dollars, and yet but about three-tenths of her population is engaged in the work of cultivation. The total export of the products of the earth—food, tobacco, cotton, &c.,—by the people of the United States, where at least seven-tenths are engaged in that work, but little exceeds a hundred millions of dollars, except in seasons of famine and revolution in Europe.

Both systems are unsound, because both tend to the separation of the loom and the anvil from the plough and the harrow. England desires to compel the rest of the world to bring to her their food and their wool, that the latter may be woven and returned, and she therefore buys food at the high price that is consequent upon her distance from its place of production. Food is therefore scarce with *the many*, while the rents receivable by *the few*, owners of land, are large. The former are crowded together in large manufacturing and commercial cities, there to live in the cellars of houses situated in undrained and ill-ventilated streets, and the consequences are exhibited in the following passage, which we take from an article in "The London Morning Herald," describing the early training of thousands and tens of thousands of the occupants of its great metropolis.

"It is idle to talk of secular education—it is idle to talk of religious instruction, whilst the great mass of the people have no homes. How are we to teach, how are we to instruct; what can the schoolmaster achieve, what the preacher, when the intellects which the one would elevate, and the hearts which the other would teach, are left to the cruel training of the streets? Thousands and tens of thousands of our children have no other education, no other Christianity, than the education and Christianity of the pavements. The hard flag stones are their text books; the foul gutter is their Pierian spring. They lisp blasphemy and indecency; they take God's name in vain before they know the meaning of the words they utter. Savages, in the midst of civilization, they are more irreclaimed than the savages of the wild and the desert."

Such are the effects of a system which teaches that labor applied to the work of transportation, conversion, and exchange, is more productive than that applied to production, and which places commerce in the first rank as

a civilizer of mankind; and yet if we look to our Treasury Reports, and our Patent-office Reports, we see the same doctrine put forward for the acceptance of the farmers of the Union, who are to be taught, in defiance of all experience, that the more numerous the wagons, and horses, and men, on the road, engaged in the work of transportation to distant markets, the richer they will grow.

Both systems are, as we have already said, unsound. England desires to separate the ploughs and the looms of other nations from each other, and she keeps herself poor by the effort, while impoverishing every country that is in close connection with her, as may be seen in the depopulation and abandonment now going on in Ireland, as it has already done in India: and in the depopulation and abandonment of Virginia and South Carolina, and as must be seen in every country of the world, in which the product of the land is not consumed upon or near the land, thereby enabling the cultivator to return to our great mother earth the refuse of her products. To her influence alone it is due that the people of the Union are scattered over so vast a surface, unable to combine with each other for the purpose of rendering their joint labors more productive—unable to clear and drain rich soils, and compelled to cultivate poor ones, yielding bushels of wheat where they might have tons of hay, or turnips, or potatoes—compelled to expend in the making of roads, and in the work of transportation, a large portion of the produce of those poor soils—and remaining poor when they might grow rich, if the loom and anvil could be permitted to take their places by the side of the plough and the harrow. To her influence also is it due that vast cities are growing up, built out of the spoils of the farmer, in which are obvious many of the characteristics which distinguish the great cities of Europe. Enormous wealth is there seen side by side with poverty and vice, resembling in no small degree that described in the passage from "The Herald," given above. With each succeeding year is more and more seen an increase of this tendency to inequality of condition, and yet such is the state of things that our late rulers have desired to see perpetuated and extended. Educated in the English school of political economy, with them commerce was every thing. Every increase in the number of ships was regarded as evidence of increasing wealth. The more wagons that were on the road, the greater was supposed to be the quantity of food, and cloth, and fuel, to be divided among the community, yet ships and wagons produce none of those good things. The ploughman adds to the stock of food. The laborer in the cotton field increases the supply of wool. The miller converts the grain into flour, and the spinner and weaver convert the wool into cloth. The sailor and the wagoner produce nothing, and yet, according to the doctrines so recently in fashion at the Treasury, the real wealth of the nation—that is, its power to produce the food, the clothing, the shelter, and the fuel, required for its population—is to be measured by the number of its ships and wagons, its sailors and its wagoners: by the quantity of capital and labor applied to the work of transportation and exchange, adding nothing to the quantity, and making no change in the form, of commodities to be exchanged.

Throughout the whole of the recent Treasury Report may be seen a constant straining after that which is impossible, the securing of a foreign market for our surplus food, in the form of food. That it is impossible will be obvious on the slightest consideration. The only great importer of food is Great Britain, and she requires in ordinary seasons but a very trivial quantity when compared with that for which we desire to find a market, and small even as it is. the competition for its supply on our part would reduce prices abroad so low that our farmers would be ruined.

Russia produces annually, over and above her consumption,* more than seventeen millions of quarters of spring and winter grain, for which she needs a market. Here, then, are a hundred and forty millions of bushels, in addition to all that is produced in the other countries of Europe that have made no market on the land for the products of the land, and it is with this immense mass that our farmers are to contend for a market for the wheat produced in Iowa, Illinois, and Wisconsin, when by a different course of operation they could have a market at their doors, made by the persons who would eat their food, while converting their wool into cloth, and their ore into iron.

The Commissioner of Patents is, however, after full examination of the subject, confirmed in the belief "that the American grain-growers can deliver grain or flour at as low a price in England as the grain growers of any other country, not excepting Russia on the Black Sea, and that they have it in their power to command the great grain markets of Great Britain, and of nearly all the corn-importing countries of the world." He does not, however, tell us what the people of Russia, and of other corn-exporting countries, are to do with their enormous surplus, when we shall have placed ourselves in the position he so much desires that we shall attain, nor does he seem to see that, send what we may, all their surplus grain must find vent somewhere, and that the inevitable effect of large competition for a small market must be so great a reduction of prices as to ruin the farmers both of Russia and America.

If we desire to become large exporters of food, we must provide ourselves with the machinery required for converting it into cloth, and iron, and such other commodities as are readily transported. We must place the loom and the anvil by the side of the plough and the harrow, and pass the food through that greatest of all machines, the human stomach, retaining for the land the refuse of its products. Doing that, the land will be enriched, and its owner will be enriched, and better soils will be brought into cultivation, and men will cease to fly from each other, and the nation will become stronger by concentration, instead of, as now, being weakened by a constant expansion over poor soils, the cultivators of which are obliged to contribute a large portion of their earnings to the support of men and horses engaged in the work of transportation, and merchants and traders, large and small, engaged in that of exchange. The nearer the consumer and the producer can be brought to each other, the smaller will be the proportion of exchangers and transporters to producers, the larger will be production, the richer will the farmers and planters grow, the better will all be fed, and clothed, and lodged, and the greater will be the progress of intellectual and moral, as well as of physical, improvement.

Oyster-shell Lime.—Some want to know how shells compare in quantity before and after being burned. On trial, 550 bushels when put in the kiln, were reduced to 407 on being calcined. Then on being slaked, they yielded 569 bushels fine slaked lime, and 61 of course stuff, easily pulverized. They took 16 cords of wood in pens, joining each, which is more economical than burning in single small pens.

Hedges.—The most elaborate papers on the cultivation and management of hedges, were addressed by Caleb Kirk, of Delaware, to J. S. Skinner, and published in 1819, in "The American Farmer."

* Patent Office Report, 1847, p. 557.

ON PICKING STONE OFF YOUR LAND.

MAY YOU NOT OVERDO IT?

[From the Mark Lane Express.]

SIR:—I occasionally observe in your excellent journal many useful articles on agriculture, but I do not recollect of having ever seen any thing said by your numerous correspondents, censuring the very improper mode of farming practised by too many excellent farmers, in reference to the care with which many of them gather the stones off their fields. I have myself had many tough arguments with farmers about this matter, pointing out to them the foolish expenditure of money by the too careful gathering of small stones; while, as I have myself many times seen during the period of preparing the fields for corn and green crops, numbers of hands employed picking up the smallest stones, while at the same time they were permitted to leave behind them large quantities of *noxious weeds*.

Now, it is well known that by picking up the stones too carefully every year the active soil is not only rendered shallower in consequence, but what is worse, the ground is robbed of a great deal of heat that would otherwise be imparted to it; for practical and scientific men know well that stones lying on the surface exposed to the direct rays of the sun, get heated during the day, and as they retain a considerable portion of that heat during night, impart much warmth to the soil; and it must have been often noticed that there is under all stones of any size lying on the surface more or less of moisture; an observing eye will easily perceive the blades of corn crops, as well as of grass growing round these stones, not only stronger and more vigorous in appearance than in other parts of the field, but also of a beautiful dark green color—a sure evidence of the healthy state of the plants, and consequently of the nourishment which has been afforded to them.*

If landlords, as well as the occupiers of farms, would more attentively consider their own interest, they should never allow any stones less in size than common road metal, or rather what would go through a three inch ring, to be removed from the surface of their fields, but rather *roll them into the soil with a heavy roller:* and if greater attention was observed by agriculturists in selecting every two or three years *good* perennial seeds, there would be fewer weeds to gather every spring and summer.

Many intelligent farmers gather the weeds into heaps, and then burn them on the fields; but this is a bad plan, though it may save a little trouble and expense in cartage. It is better where there are quantities of weeds to cart them to the corner of the field, and there make them into compost by mixing them with hot lime, and in two years the mould is excellent for top-dressing any parts of the field, the active soil of which may be shallow, and of indifferent quality.

I would venture to recommend every farmer to turn his attention more to the *cleaning* of his fields, and *less* to the gathering of the stones, unless, indeed, they are of considerable size, which certainly do hurt, and ought to be removed. Nothing connected with neat farming is more untidy and unseemly than stones piled up in heaps in the furrows, and there allowed to remain, sometimes for two or three years, not only an eye-sore, but offering great obstruction to the sickle and scythe, and rendering the site on which they are laid not only unproductive, but worse than useless.

I have never seen it tried, nor have I ever heard of any person having made the experiment, but I do certainly believe that when the proper

* Is not this a corroboration of Dr. Baldwin's theory of the effects of *shade?*

management of the soil becomes to be better understood, from the great exertions that are at present in progress, it will be reckoned no uncommon thing to see laborers employed, where there are fields of loamy soil, overlaying the surface of such fields with large quantities of silex, or small granite stones, if they can be procured, that they may amalgamate or mix with the soil, for the very purpose of imparting heat and moisture, thereby doing what many farmers, contrary to their own interest, now very often undo. Indeed, were it possible to pound the granite rocks, (and there could be no difficulty in inventing a piece of machinery for that purpose,) I have no doubt whatever but the powdery or pounded substance would be found suitable and profitable to mix with some soils. It is well known that gravel, or tilly soil, is an excellent top-dressing for moss, and strong clay for soil of a light sandy nature ; in like manner, I am of opinion that silex in large quantities, laid as a top-dressing on the surface of a heavy loamy soil, and worked into it, would be equally beneficial, though it would be found that the straw of the corn crops on such soil would grow shorter than formerly ; but nevertheless it would certainly be firmer in texture, and consequently better for food, and the grain would also be heavier and better in quality. And here I would venture to offer an opinion, that a heavy loamy soil would never be found suitable for cropping, were such soil manured by the sewerage water of towns thrown over it by irrigation, for assuredly nothing would be produced but abundance of soft straw. But *mix such soil with a large quantity of coarse gravel or small stones*, and then the sewerage water would be found to do admirably for corn crops, as well as for green crops and grass.*

It should be the business of every person connected with agriculture to use his utmost endeavor, consistent with a proper regard for economy, to exert himself for the improvement of the soil ; for I do believe when this becomes to be better known, it will astonish every one what may be done with it, especially after it has been laid thoroughly dry by a proper mode of drainage, for without that *(the first and most important of all agricultural improvements,)* it would be a complete waste of money to try any experiments whatever, however profitable and interesting in the outset they might seem. I am, sir, yours, &c. F.

[We know a gentleman in Maryland, who has a "natural turn" (if there be any such thing as a natural turn) for farming, who has had his land picked over, and the stone carried off, eleven times; but doubtless there is still enough left on to meet the views of this writer. There seems to be more reason than rhyme in what he says, and as for the value of clay on sandy land, as an ameliorator, some of the most intelligent farmers in England have lately averred, that its good effects endure for more than twelve years, to an incoming tenant, who enters the next year after the clay has been applied.]

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* We recommend this suggestion to the attention of our friends on Elk Ridge, Maryland. A suggestion of this kind was made to us lately by Dr. Hare; that is, of the availability of a kind of stone abounding in the soil of that region, for manure, when pulverized. The attention of Charles Carroll, of Carrollton, has too been called to the subject by Dr. Hare, who, we believe, received the suggestion from Professor Baer. Here we may mention that Bogardus's mill would answer to pulverize these quartz stones, if it be quartz to which allusion has been made.

How enviable the position of such men as Mr. Carroll, with their ample domains, and various soil, and abundant means and materials for all sorts of experiments and demonstrations for the benefit of the most important of all human pursuits!

HOW MUCH PORK WILL A BUSHEL OF CORN MAKE?

This question has been answered by two correspondents of "The Ohio Cultivator," with all the particulars on which they based their calculations.

The first one says that in 1845, when "there were a great many acorns," he made 20 pounds of pork for each bushel of corn. In 1846, he got also $10\frac{1}{2}$ pounds of pork in return for the bushel of corn. In 1847, 11 pounds. In 1848, he got $12\frac{1}{5}$ pounds per bushel.

In summing the four years together, he got 12,750 pounds of pork in return for 1,030 bushels of corn—equal to $12\frac{1}{2}$ pounds to the bushel.

In 1845, pork sold for $4 per 100 lbs.; in 1846, $2.75; in 1847, $3.25; and in 1848, $3. Suppose the price of pork averages $3, it will make corn bring $37\frac{1}{2}$ cents per bushel. But it has averaged more—about $3.25—which makes the corn bring $40\frac{5}{8}$ cents per bushel. The first year it brought 80 cents; the second year, $28\frac{7}{8}$ cents; the third year, $38\frac{3}{4}$ cents; the fourth year, $37\frac{1}{5}$ cents per bushel.

The other correspondent says, on his experience, which he details, that he can get 8 pounds from a bushel with a good breed of hogs.

It may be presumed that every farmer who habituates himself to useful inquiries, sometimes asks himself the question—At what relative price between corn and meat is it profitable or otherwise for a man to raise, and kill, and cure his own bacon? It does not answer, however, to decide such questions by arithmetical calculations too nicely drawn out—for it is hard to know what allowance is to be made for the time and labor expended in looking after your hogs on the one hand—the injury they do to your crops, and the ill-feeling they beget by trespassing on your neighbors, and the credit due on the other hand for the manure they *ought to* make; but above all, for the satisfaction to be enjoyed in the consideration that when the hog makes his final appearance on the table, you know all about his parentage, birth, and education—from his first nestling in the bed of leaves in the woods, to his being stuck in the pen, and hung up in the smoke-house. How, by any other system than raising your own pork, can the good housewife point the cook to a nice jowl, or sweet piece of belly-bacon—streak of fat and streak of lean—to be served up at this season with a dish of turnip-tops, or cabbage-sprouts, and a fat pullet for dinner?—and does not that alone, as far as his domestic consumption goes, double its intrinsic value in the eye of every man of *taste*, who deserves to enjoy a luxury to be had, alas, only *in the country*, and not by any means in all parts of that.

P. S.—In certain neighborhoods, there is a large per centage allowance usually made for the special benefit of *thieves*—in the number of pigs to be turned out. That per centage varies from 5 to $33\frac{1}{3}$ per cent.; and as land ought to diminish in value in like proportion, is it not clear that it much more behooves landholders of every neighborhood to be giving their mind and heart to the means of *putting down thieves* instead of *putting up demagogues?* These rogues abound most where ALL are cultivators, and where there is the least diversity of employment. They are fewest where the presence of various manufactures offer constant employment and support for labor of every species, and people of every age and description. Hence it is, reader, that you should help us to draw the loom and the anvil near to the plough and the harrow.

WHAT HAVE FARMERS TO DO WITH QUESTIONS ABOUT POLITICAL ECONOMY?

How slow is the progress of truth when great national questions get to be mixed up and identified with party combinations and interests! Had not the question of protection of American industry, as essential to national independence, been taken up and forced into the arena of *party* conflicts as an element of success in the struggles for political power, we should, at this day, from our superior advantages, have been manufacturing for ourselves, and have gained that supremacy as a manufacturing and commercial people, which England sustains towards the world, by the power of her fleets and armies, and her exorbitant system of taxation.

Twenty-six years ago, the farmers of Pennsylvania addressed to the Congress of the United States, a memorial, such as they are urging at this time, and a single extract from which is enough to satisfy any unprejudiced mind of the folly of dependence on other countries for our essential manufactures. The *idea* as presented in this memorial is one of great force, and illustrates itself. It is this—that while our population is increasing at a rate unexampled elsewhere in the world, and therefore, and in like proportion, our demands for manufactures must increase; there is abroad no corresponding increase for our agricultural produce, resulting from an equal increase of population; and thus, while our demands for what we must have from them, under a free trade system, must be every year increasing, at an enormous rate, and their demands for our produce is comparatively stationary, *we must become more and more the debtor nation*, even if they would take our produce. Does it not then become us as a nation, if we wish to keep out of debt, and maintain our independence, to *manufacture for ourselves here at home!* Then we should live, as every farmer wishes to do, as much as practicable, within himself; or, if he must buy, he buys one thing from a neighbor who will take something in exchange; and thus both keep out of debt, and maintain their independence.

The extract to which we allude is as follows, dated Dec. 15, 1823. Who would believe that the blindness which is begotten in the fierce conflicts of party could so long postpone the universal admission of truths so clear! Talk about farmers having nothing to do with such questions! Why they are the very people that have, or ought to have most to do with them; unless they think it better to have rivals than customers. If they looked more into such questions, they would ride instead of being ridden.

"The protection of that important portion of industry employed in manufactures, at all times a sound and necessary policy, and supported by the opinions of the wisest statesmen, and the example of the most prosperous nations, has become at present an imperious duty—the foreign demand for our staples having, as above stated, considerably decreased; the quantity about one-third; and the amount nearly two-thirds; since 1811, notwithstanding the increase of our population in the intervening period.—*Whereas our demands for manufactured goods must increase with our increasing population. We in consequence buy more from, than we sell to, foreign nations; and this, with nations, is as unerringly the road to ruin as it is with respect to individuals.*

"Were there any doubt on the important subject thus respectfully presented to your view, it would be removed by a comparison of any two tracts of our country, in one of which manufactures are carried on extensively—and in the other agricultural pursuits chiefly or wholly, particularly when remote from the advantages of sea-port towns, as is the case with one-half of our territories. In the one, agriculture and horticulture, certain of steady and increasing markets, are carried on with life and spirit—lands are rising in price—every thing flourishes—and, what is of incalculable importance to the farmers, their females and children find valuable employment in and from the factories, for fragments of time which would otherwise be wholly lost. Habits of industry are thus acquired and rewarded—and public and private prosperity promoted. Whereas, in parts of the country destitute of manufacturing establishments, circulation is either arrested, or moves

with a sluggish pace—money is rare and difficult to be procured—there are no markets for horticultural articles—lands are of little comparative value—in a word, every thing languishes. To exemplify this position, and to place it beyond the power of contradiction, it is sufficient to refer to the neighborhood of Providence and Wilmington, on the one hand, and numerous districts in the interior of Pennsylvania, and in the fertile districts of Kentucky and Tennessee on the other. The difference of soil, and some other natural advantages, is greatly in favor of the latter. But the contrast in prosperity is immensely in favor of the former—and the inference in support of the system we advocate irresistible."

THE STUDY OF NATURAL HISTORY.—THE OPOSSUM.

It would, we trust, be superfluous for us at this time of day to repeat suggestions so often made in other days and journals under our control, that natural history should be regarded by every one in the country as one of the chief sources provided for their profitable study and most agreeable recreation. With all the kingdoms of natural history, animal, vegetable, and mineral, the farmer has more or less to do every day of his life; but of them all, that which treats of animal life, termed *zoology*, holds out the richest and perhaps the most pleasing resource, though such men as Col. Wilder would probably say, that in all animated nature there is nothing so interesting as a magnificent carnation or Japonica, or so toothsome as a magnum bonum plum or a luscious Bartlett or fragrant Secle pear.

The great and essential difference which separates the two kingdoms, animal and vegetable, consists, as all know, in their different modes of *assimilating their food*, or of converting it into parts of their own structure. While plants imbibe their nourishment through their external organs, as their roots and leaves; animals possess an internal place of deposit, into which the food must be placed, as in a crucible, to be there first prepared and absorbed into the system. For pursuing both these branches of natural history, the farmer and his sons possess peculiar facilities, if they would open their eyes and their hearts to their enjoyment. One of the greatest benefits the father can confer is to provide his sons with a few of the best authors, and otherwise, by all the means in his power, encourage them to investigate the nature and physiological economy of every thing around them. The love and the habit of doing so being once established, a source of pleasure is opened to them, of which no adversity can deprive them while their faculties remain. In this conviction, and feeling it to be no less a matter of duty than it has ever been of inclination, to amuse and beguile as well as to edify the rising generation, according to our poor abilities and means, we shall give occasional sketches of natural history, over and above those which fall now within the department of "*Reading for Mothers and Children.*"

One of the most curious subjects of speculation among zoologists has been that of the *gestation of the opossum*. So much doubt still hung upon it, in the view of the great naturalists of France, that when General Lafayette (blessed be his memory!) came to this country, he asked as a favor of the Senior Editor of this journal, that he would enable him to comply with their request to send or take back with him to Paris a male and female opossum, that every possible expedient might be adopted to settle the disputes of eminent zoologists on the subject.

The question was opened for discussion in the old Turf Register and Sporting Magazine, then published at Baltimore, and a portion of which was appropriated systematically to the elucidation of such topics. We

remember levying a contribution on Professor Dunglison, (then of Baltimore, now of Philadelphia,) who, as might be expected of a really scientific philosopher, took the side of the old-fashioned natural process of procreation and parturition. But, be that as it may, it is in our mind a "fixed fact" that the young of the opossum has been repeatedly found, in a state not yet apparently developed, adhering to the teat of the mother by a ligature, which required to be *broken*, in order to detach it from its parent stem; and our impression has been that, however it may have found its way there, it continues so to adhere until it attains a certain degree of maturity, when it becomes detached, and then may have recourse, like the young of other animals, to the mother's breast as the fountain of sustenance.

There are some papers on the subject, in these our old volumes of the Turf Register, more exact and authentic than the wild speculations of Buffon, who expressed the opinion, that "the dam *always miscarries*, and the fœtuses save their lives in sticking to the paps, without leaving them, till they have acquired the growth and strength whereto they would *naturally* get in the womb."

From the late Judge Kell, of Baltimore, and from Col. Andrews, of Washington, as well as others, we well recollect to have heard authentic facts in support of the opinion we have given above. Had not these remarks been spun out beyond what we intended, we should have copied some of these articles from the work referred to. We may give them hereafter; in the mean time we invite papers on this and kindred subjects from such of our readers as agree with us that such subjects are or ought to be above all others most congenial and convenient to those who abide in the country, as —*who would not if he could?*

"Oh happy country life! pure like its air;
Free from the rage of pride, the pangs of care."

All American youth who desire to be familiar with the other branch of natural science, especially *agricultural botany*, should lose no time in procuring what has been written on it so clearly and so well by *Doctor Darlington*, of West Chester, taking special care not to omit his paper on the *true grasses*—a paper which, with his leave, we shall do up in the form of catechism for the benefit of our readers; and, as for *borrowing* knowledge, we avow our readiness at all times, however little we may have to give in return, to receive as much as anybody will lend us; and, if for any thing we would break the eighth commandment, it would be to "*steal*" *knowledge;* for the more a man gets, the more will he be inclined, with Job, to inquire, "Whence, then, cometh wisdom? and where is the place of understanding?"

Fable.—The sword of the warrior was taken down to brighten; it had not been long out of use. The rust was soon rubbed off, but there were spots that would not go, they were of blood. It was on the table near his secretary. The pen took advantage of the first breath of air to move a little further off.

"Thou art right," said the sword, "I am a bad neighbor."

"I fear thee not," said the pen, "I am more powerful than thou art; but I love not thy society."

"I exterminate," said the sword.

"And I perpetuate," answered the pen; "where were thy victories if I recorded them not? Even where thou thyself shalt be one day—in oblivion."

AN AGRICULTURAL ANNIVERSARY, AND A CHURNING MATCH.

The Newcastle County, Delaware, Agricultural Club, held its Seventh Anniversary at the residence of its hospitable founder, Dr. J. W. Thomson, on the last day of January, 1849. The members were strong in force of numbers as well as spirits—attracted and exhilarated equally, as it is but fair to infer, by their love of the good cause—of their good host—and of his good cheer.

The Senior Editor of "The Plough, the Loom, and the Anvil," was there in their midst, attracted by special invitation, and no less special inclination. Finding in the Doctor's Agricultural Library a full set of the old "American Farmer," with which he happened to be somewhat familiar from its foundation, the said Editor called the attention of the company to the full account there given, some thirty years ago, of the establishment of the old Newcastle Agricultural Society, and pointed to the celebrated Prize Essay of Dr. Black, written to demonstrate that Delaware lands were then intrinsically worth $500 an acre. Other reminiscences were brought up to show that the fire for improvement was then already kindled, which has been spreading ever since, until, as then and there admitted, some Delaware farmers, not then 100 miles off, are so far on the way to realize the theory of Dr. Black, that they would sigh to part with their farms at $100 an acre.

But until dinner was announced, the chief attraction, except something that bore a marvellous resemblance to old Virginia apple-toddy, (the Dr. comes from the Old Dominion,) was Mr. Anthony's famous "*double acting rotary churn*," which Mr. Emerson had brought down from Philadelphia, that the members might have ocular demonstration of its miraculous performance.

Like Maelzel with his chess-player, Mr. Emerson exposed the interior, to show that there was no witch or witchcraft about it—and truly the whole contrivance seemed to be as simple as a salt-box. Two gallons of fresh milk were thereupon poured into it, and every man pulled out his stop-watch to note its performance—six minutes being allowed. Odds in favor of time. Away went the churn, turning as lightly as a little, old grindstone, in the country, worn down to the size of a breakfast-plate, and behold, at the end of five minutes the operator took off the cover and exposed the butyraceous particles finely separated from the milk, and ready to be served up and submitted to another sense at the dinner table.

It was agreed, however, that of all the discussions of the day, not the least practical and palatable was the discussion of a *fine saddle of mutton*, which would have been deemed worthy of the skill and the pastures of a Barney or a Reybold.

There are certain remarkable agricultural coincidences about this little State of Delaware. 1. No part of the country is improving faster. 2. No people bestow more patronage on the press. Major John Jones, of Wheatland, takes and ☞*pays for* fourteen papers—four of them "professing agriculture." 3. There is no State where they better comprehend the advantages of having the loom and the anvil near to the plough. 4. They understand well the management of the dairy, the rearing of cattle, and sheep, and poultry, and vegetables—and, 5. At the close of their theoretical discussions, they have a practical way of laying their prepared subjects out upon the table, and, with knife in hand, every man demonstrating for himself his views of the animal and vegetable world with a good-will and dexterity that are quite remarkable and exemplary, as we have often witnessed, and—hope to witness again.

FIELD CULTURE OF PEAS,

RECOMMENDED FOR TIDE-WATER VIRGINIA, MARYLAND, AND DELAWARE.

We have been for thirty years endeavoring to get the culture of field peas, recommended by so many advantages, extended from North Carolina, over at least the tide-water portion of the States above named, being well persuaded that soil and climate would admit of their being cultivated, at least that far north, if not through lower New Jersey, to the Hudson—not only for purposes purely economical, and as food for man and beast, but as an ameliorator and improver of worn-out lands—for while peas in North Carolina answer the latter purpose in the same way, and even better than clover, they constitute a very valuable resource as food for domestic animals of all kinds, and especially hogs:—for it is within our own most agreeable experience that as good as any, if not the best bacon to be found in our country, is the ham of the *pea-fed* hog, as we have had opportunity to know.

These hams were tested by Maryland juries, who are among the best judges in such cases, and pronounced to be unsurpassable.

For very particular and conclusive evidence of the value of *pea-culture* for the cheap and rapid improvement of land, we need only refer the readers of this journal to its first number, pages 45 to 48. The facts are striking, and the proof conclusive. But we are prepared to show by what follows, that nearly thirty years have elapsed since we took the pains to write to that State for the most exact information, and for a supply of the peas for gratuitous distribution; yet has any one in Maryland or Delaware made a fair trial, and if so, with what result? If the warm weather has not been there of sufficient duration, or if attempts from any other cause have failed, why not proclaim it? False and even culpable must be the pride that would restrain a farmer from disclosing a disastrous result to any experiment which he may have deemed promising! As culpable as the mariner, who should fail to advise navigators of hidden rocks on which he had foundered, in seas deemed perfectly safe.

Last year we understood that Mr. Carter, near Upper Marlborough, Maryland, meant to give the Georgia pea a full trial, but of the result we are not informed.* In a word, is it not strange, that while the farmers in one State deem the culture of peas to be a resource of inestimable value, particularly as it may be made not exhaustive, but contributive to the fertility of their lands, farmers in States adjoining, with the same sort of soil, should not even make a fair and full experiment with it? Alas, how obstinate, if not fanatical in their local prejudices and habits! Norfolk is the only place where we ever saw the market supplied in a measure by *one-ox* market carts—an economical expedient that even the Yankee might imitate with advantage!

To return to pea culture, we give the following, which we published in Maryland, a quarter of a century ago, in answer to inquiries addressed to the well-informed and public-spirited writer, to whom we were recently indebted for the best account that has ever been given of the *process and profits of the turpentine business;* and which we published in the "Farmers' Library," of which we may *now* say fearlessly, that it contained the greatest amount of agricultural scientific knowledge and practice that was ever offered at any thing like the same cost to the agricultural community of any country.

I have been myself in the habit of planting as many as five different kinds of peas for the last seven or eight years, and am acquainted with nearly as many more: of these varieties there are three that possess superior advantages as stock crops. Others are esteemed more delicate for the table, and are consequently more commonly grown for market. The former are what we here call the cow, the tory, and the black pea; each of which, I am in the habit of planting amongst my corn, and also alone. When planted with the corn, as is the usual method in this and the more eastern countries, they are dropped in the middle of the step, particularly when the rows are at right angles, and the corn is ploughed both ways. From the 25th of May to the 15th of June, is, according to my observations, the best time of

* We have since been informed, by himself, that the result was very favorable; and that he intended to repeat it on a larger scale this year.

planting them; and in some one of the following ways, with a preference in their successive order. With a single horse plough, such as we call "Cutters," or "Jacks," having small mould-boards, a furrow is opened in a cross direction to the way the field was last ploughed, as nearly in the centre between the rows as possible. This plough is immediately followed by a dropper, who is provided with the bowl of a common tobacco-pipe, which, if too large, is made, by packing something in the bottom of it, to contain from twelve to sixteen peas. And here I must observe that this or a similar provision is greatly necessary, both to insure a fine regular crop, and to save seed, which otherwise would be profusely or sparingly disposed of, according to the whim or pleasure of the dropper. In passing from one hill to the next, the hand has sufficient time to fill his measure from the vessel in which he carries the seed, as well as to drop them, without altering a common ploughman's gait. The peas are deposited in the newly opened furrow as near the centre between the corn-hills on either hand as possible; the dropper is followed by a similar plough, covering the seed with great regularity, to the depth of from two to three inches, and leaving a surface for them to come up on, *at least* even with the surrounding ground, which is no inconsiderable advantage. The facility with which an indifferent hand can thus keep up with a plough is evident, and of course the row is finished "*at* once."

In planting them in this way, it is generally calculated to give the corn two ploughings afterwards, in a transverse direction, to finish it; which working will be all-sufficient for the peas; and in poor land they will yield a more profitable crop than the corn; it is not, however, uncommon to give one of those ploughings, *the first*, in the same direction that the peas were planted, say two furrows on either side of the pea row, and unless the field is very grassy they will require no other work; for the share they will have in that *inevitably* given to the corn will be sufficient. Another way is common—to drop the seed with similar precaution, in the first or second furrow from the corn row, at the ploughing that it receives nearest the time thought best to plant, leaving the next furrow to cover them. My objections to this method, are, that the peas are not *in the middle of the row*, and they are consequently deprived of the benefits of the sun that they would *there* receive; and from their contiguity to one row of corn, this is materially injured by their ascending the stalks. It is also common to plant them in the last furrow in a row, at a seasonable ploughing, when the dropper has them to cover with his foot, which is performed with considerable expedition, by persons a little accustomed to it. Planted in these various ways, peas come to great perfection amongst our corn, not, however, without doing it some injury; but not always perceivable, and never in the same ratio that they are profitable, both to our stock and the soil on which they grow; having myself experienced by a succession of these double crops, the productiveness of the soil to increase fifty per cent. in a few years; their foliage, vine, large tap-roots, and shade, each separately and collectively, possessing meliorating qualities in a degree superior to any vegetable known to me.

When the corn is gathered, and soon after the first frosts, the hogs we intend to kill that winter are "turned in" on the peas, and with a feed of corn once or twice a week, they will fatten more kindly than under any other management common in this part of the country; and when slaughtered, their fat is solid and white; epicures say, that hogs thus fed make the most delicious bacon.

The comparative values of the three kinds before mentioned, according to my experience, are that the cow-pea, of a *light clay* color, is rather the most

prolific, the pods being much the largest, though not quite so thick set on the vine: they are also, I think, more inclined to vine horizontally, not attaching themselves so much to the corn as the others; consequently doing it less injury: and they are a little preferred by *laborers* as a diet, *who* give either kind a preference to any other vegetable production accompanying their meat. But they lack the durability of the other two kinds, and will never remain in the field without rotting, as the others will, until late in the winter.

The tory pea is of a *red clay* color. The etymological application of the name I have never been able to ascertain. They are also sometimes called "red rippers." These and the black pea possess very nearly the same qualities, with the exception that I think the black ones mature a little the sooner. Either will remain in the ground all the winter, and come up luxuriantly in the spring; indeed I have had them to stand tolerably thick the second year, when the land has remained that time in stubble.

I am in the habit of sowing rye, and sometimes wheat, following a corn and pea crop, after the hogs have consumed the latter, and have the following summer, after the grain is off, a fine growth of peas, suitable either to enclose or graze; a sufficiency having escaped the search of the hogs to seed the ground tolerably well; though not so regularly and thick as they might have been sown. I never sowed them in the spring, *as a fallow crop*, until the present year, when I did, intending them as a preparation for wheat and turnips, and of course have not, as yet, realized their benefit, though thus far they exhibit every anticipated advantage, and it is in this way that they may be estimated as an inexhaustible treasure, at least to Carolina. Strange as it may appear to the votaries of red clover and gypsum, yet it is my candid opinion, that by something like equal care and management, they are qualified to confer more lasting benefits, at least to the Southern States, than either, or a combination of those, has ever done for Pennsylvania, or any other of our northern sisters. When sown broad-cast, either to enclose or to cut for hay, of which they make more nutritious and heavier crops than any thing else, one and a half to three bushels of seed will be required to the acre; thin soils requiring the greater quantity of seed. From the 1st to the 10th of May is the best time to sow them, when to be employed in these ways. They will thus by the 15th or 20th of August, on land that would produce two barrels of corn to the acre, be knee high; just commencing to vine and bear, at which time they ought to be cut, or ploughed under: being too thick to be very productive of seed. An earlier sowing, which is recommended by some, I find, will not answer with the kinds I am speaking of; for as they are naturally of a very quick growth, requiring the very hottest sun to hasten them to perfection, if they are planted earlier than the time mentioned for sowing broad-cast, they will lack in proper time that portion of heat which they require; and will consequently stunt, and soon begin to shed their leaves: and this they will begin to do a little at the time mentioned as best to dispose of them with the scythe or plough, without bearing much: cold nights being, I observe, absolutely necessary to drive them to that natural function; and hence also the propriety *of late* planting when the crop is to be suffered to ripen, for the nights then become cool by the time their growth slackens.

I have also planted peas alone: a custom that is very common, where particular attention is paid to them, for fatting pork. They are planted in drills, five and a half feet apart, and require but one good ploughing and hand-hoeing, to make the crop. After planting them in this way on the 29th and 30th of May, I have put my hogs on them the 22d of September, when they were fine, and might be called half ripe. The hogs devoured

the green in preference to the ripe pods, and after consuming both, the vines were eaten by them with considerable avidity. Although I acknowledge this to be a slovenly practice, yet the land is greatly assisted by it. Independent of the benefit of the peas for hogs, when planted in corn-fields, they are frequently gathered from them for many other purposes by picking them into baskets, a tedious way, I acknowledge, a bushel being considered a tolerable task for one hand to gather and clean in a day; or they are pulled up by the roots, vine and all, and heaped into piles in the field, where the peas are threshed out with sticks; after which the vines may be housed or stacked, as winter forage for cattle: and in this way a hand may get from three to six bushels a day. But this method is not by any means void of serious objections: it being upon that ruinous and ungrateful, though common practice in husbandry, *of taking all without giving any:* totally depriving the land of the stubble, a poor pittance indeed, though one for which usurious interest is promised.

It is, however, very common to convert them into winter and spring food for horses or cattle, without picking the peas at all. This is a very expeditious mode, and it will, I allow, do well on land that receives annual assistance from the farm-yard, or is of that quality sometimes called "*inexhaustible.*" But as one or the other of these two plans must be resorted to for saving the peas, and as both are somewhat objectionable, I would recommend the last, with this difference—*let the vines be cut off quite near the roots* with a grass knife, sickle, or even a sharp hand-hoe, instead of pulling them up; this method is equally as expeditious as the other, and leaves to the ground the roots, which are a considerable benefit to it, and are useless in feeding. In feeding peas, freed from the pods, to stall cattle, at the rate of half a gallon twice a day, to each head, I have never known them to do the cattle the least injury; but with a plenty of long food accompanying this quantity, they have always fattened kindly. I have never fed my horses with them in this state, though I have frequently given them in the pods, at the rate of a heaping peck to each head at a feed, and without ever noticing any injurious effects to result from them.

Of the other varieties, which I cultivate altogether for culinary purposes, or for market, I need only say, that they are of the white kind, with black and gray eyes. They may be planted several days earlier than the time mentioned for the others, and they will bear much sooner: it is quite common to have them on the table about the first of July. They are a delicious and wholesome diet. As I have, probably in a more suitable place, neglected it, I shall here mention, that when planting among corn, as described, a bushel will plant from four to five acres. Having in the foregoing remarks given as succinct an account of my experience in pea crops, as the subject would allow, or a proper regard for the interests of *many* of your readers would justify, I have only to add, that although it may be both tedious and useless to a large majority, it may nevertheless arouse some few prudent farmers who were not accustomed to witness the advantages of the field-pea cultivation, and induce them to give this crop a fair trial: this anticipation will fully recompense me for the time which I have bestowed on this communication.

I can easily, and I will forward you, in the course of the winter, by way of Newbern, the quantity of seed peas mentioned in your letter.

Yours, most respectfully,

JOHN MACLEOD,
Of Johnston, near Smithfield, N. C.

September, 1822.

ANALYSIS OF SOILS.

CAN IT BE MADE BY COMMON FARMERS—AND HOW?

Enon, Clarke County, Ohio, February 7, 1849.

J. S. SKINNER, Esq.—*Dear Sir:*—The "Farmers' Club of Madriver Township," Clarke County, Ohio, have ordered me to make of you the following inquiries:

Have you a knowledge of any chemical apparatus that will, in the hands of a common farmer, who is unacquainted with the science of chemistry, answer any good purpose for analyzing soils? If so, where can it be obtained, and at what price?

An answer to the above is respectfully solicited.

Yours, with sentiments of high esteem, JOHN R. MILLER,
Corresponding Secretary F. C. M. T.

A copy of the above being addressed to that widely and well-known friend of American farmers, Dr. G. B. Smith, of Baltimore, brought promptly the following reply:

Baltimore, February 16, 1849.

J. S. SKINNER, Esq.—*Dear Sir:*—There is no apparatus or means by which a person entirely unacquainted with chemistry can detect the essential elements of fertility in a soil, other than those in universal use, viz.: practical tests by planting, cultivating, and observing the results. If a piece of land, by means of the usual cultivation, affords a good crop, the farmer knows that the elements of fertility are in that soil. If we had a simple machine that could develope and separate all and each of the elements, and place them before us in separate parcels, the person ignorant of chemistry would not know them—could not distinguish one from the other—could not weigh or measure them, that he might arrive at a knowledge of their relative proportions; and consequently it would not be of use to him. Indeed, it is yet matter of speculation what the real elements of fertility are! Nearly all the soils of the earth contain very nearly the same simple elements, varying only in slight differences of proportions or quantities. But if a single *element*, say lime, be supposed to be one of the fertilizing principles, and it is desired to ascertain if a soil contains it, the apparatus and means of doing so are very simple, and every farmer may use them as successfully as the best chemist. So in regard to the existence of vegetable matter. To ascertain if a soil contains lime and vegetable matter, take a handful of it from various parts of a field, mix it well together, and dry it thoroughly, that all the water may be evaporated. Then pulverize it, and weigh out an ounce of it. Put this upon a common fire-shovel, and heat it over the fire till the shovel and soil be red hot; then let it cool, and weigh it correctly. All that it shall have lost in weight was vegetable matter. Then wash the same parcel in hot water, filter it through any fine linen or cotton cloth, dry the earth perfectly as before, weigh it again, that its *exact* weight may be ascertained. Put it into a glass or earthenware vessel, and pour upon it diluted muriatic acid, (say one part acid to fifteen parts water, by measure,) stir the mixture. If it effervesces or foams slightly, there is lime in the soil, or some other soluble carbonate. Let it stand, stirring it occasionally, until all effervescence ceases, and the earthy matter settles to the bottom, leaving the liquor clear. Then pour the clear liquor carefully into another vessel, and pour some hot water into the first with the earth, stir it well, let it settle, and then pour the clear liquor into the other vessel with the first solution. Now take some potash in powder, and drop it in small parcels, say a tea-spoonful at a time, into the liquor, stirring it till the potash is dissolved: keep adding the potash as long as

there is any effervescence. Then let it stand to settle. When the white powder has settled completely, pour off the clear liquor, and throw it away; put the white soft mass on paper, that the water may drain off; then put the white mass on the shovel, heat it nearly red hot, set it aside to cool, weigh it, and that will give you the weight of lime in an ounce of the soil, if there be any. But for all practical purposes, the mere effervescence of the dried soil in the acid solution, is a sufficient indication of the presence of lime, and the degree of effervescence, slight or energetic, indicates sufficiently exact the quantity too little, or enough. If no white powder be obtained by adding the potash, then there is no lime in the soil.

A very slight scum of foam on the surface of the liquor, soon after adding the acid liquor to the dry earth, indicates that there is a moderate quantity of lime in the soil; a more active foaming indicates a greater quantity.

I admit that there may be other carbonates in the soil, and that there may be effervescence without the existence of lime; but generally, and almost always, it is carbonate of lime that causes the effervescence. It is also true that lime may be in the soil in other combinations, and not in the form of carbonate, and that in such cases there will be no effervescence; but it is in such cases always more or less inactive, and the soil requires the addition of lime, just as much as if it did not exist in those other forms. All other chemical analyses for ascertaining other elements of fertility in soils require a practical and skilful chemist to perform them. And, as far as my observation extends, all the labors of the public chemists in this country have resulted in no other good than simply ascertaining the fact whether a piece of land required lime to render it fertile or not; and that every farmer can do for himself, by following the above directions.

It must be borne in mind that the elements of fertility in soils are as yet not definitely ascertained. Some say carbonic acid is *the* element, others that ammonia contains it exclusively in the form of one of *its* elements, nitrogen, &c. Certainly, good horse-manure furnishes the most sterile soils with nutrition for almost all plants, even where lime does not exist; but it is still more fertilizing in a soil well limed. Now we know that horse-manure is charged with a large portion of ammonia.

There is one element of fertility not sufficiently attended to or thought of. The condition of a soil to retain moisture in the proper quantity, neither too much nor too little. Water exists in soils in two forms: it is in chemical combination in all the various parts of a soil; even dry sand has some of it in its composition, called water of crystallization. This is always in definite proportions, and can never be in excess or deficiency. The other form is free water, making the soil feel moist, or wet. In this form it is always varying in quantity, and its variations depend greatly upon the condition and composition of the soil, whether it be so mechanically worked as to enable it to receive and retain the water; whether this working be carried to a sufficient depth; whether the soil be so sandy or so shallow worked as to permit the easy evaporation of the water, or so clayey as not to permit sufficient evaporation. Now if free water from any cause be deficient in a soil, the latter cannot be fertile; if it be too abundant, the nutritious gases cannot be formed; hence both conditions render a soil sterile.

I fear, in attempting to answer your simple question as to the existence of means for ascertaining the fertility of soils, I have branched out so much that I have rendered the explanation more difficult of understanding than it ought to be—that I have rendered "confusion worse confounded." I wish you to bear in mind that I have written this for "plain farmers," not for scientific chemists to read. And you may also tell the plain farmers that the plain, unpretending description given them above for ascertaining the

existence of lime and vegetable matter in a soil, contains all the REAL information that they could obtain even from the most learnedly abstruse disquisition of scientific pomposity.

Yours, GIDEON B. SMITH.

We are in debt also to Mr. Morfit, of this city, for kindly favoring us with the following:

Philadelphia, Feb. 26, 1849.

MR. J. S. SKINNER:—*Dear Sir*—I received your letter of the 19th, enclosing one of inquiry, as to certain matters, from the Farmer's Club of Mad River, Stark County, Ohio, and as requested, herewith reply.

It would be impossible for any one totally unacquainted with the practice and principles of chemistry to perform a successful analysis of soils, or any other substance. If, as is often the case, a knowledge only of the presence or absence of lime is desired, this can readily be ascertained, the whole apparatus needed consisting of two beaker-glasses, a sheet of filtering-paper, a glass funnel, and three glass bottles containing respectively, hydrochloric acid, aqua ammoniæ, and oxalic acid. The whole stock can be purchased for about $2 to 2.50, from either Bullock & Crenshaw, Philadelphia, or E. N. Kent, New York.

The process of testing is as follows:—Digest the dry soil in one of the beaker-glasses, with hydrochloric acid for several hours, then add water, stir well and filter. To the clear solution running through add aqua ammoniæ in excess, and again filter from the precipitate thus formed. If now the clear liquid which passes becomes cloudy when treated with oxalic acid, the presence of lime is conclusively proven.

Yours, respectfully, CAMPBELL MORFIT,
Analytic and Consulting Chemist.

SCIENCE OF AGRICULTURE.

THE SORT OF WORKS NEEDED BY COMMON FARMERS—WHERE TO BE HAD, AND FOR WHAT PRICE.

MY DEAR SKINNER:—I have just finished Liebeg on Agriculture; it is no doubt a learned work, but too learned, and beyond the comprehension of 99 out of the 100 farmers; nay, we may safely say 9999 out of the 10,000. What we want is the A B C spelling-book for farmers, at present, and until we shall have agricultural colleges established in each State, a book that will tell us how much lime per acre we shall apply to clay lands, loamy lands, and sandy lands, and how often.

How many bushels of wood-ashes, leached or fresh, to some kind of lands, and how often?

How many square feet of compost to some lands, and the best kind of compost? Whether made from marsh mud and stable manure?

Whether salt or lime should be added, and how much of both?

Whether night-soil, and if so, how many pounds of sulphate of iron (common copperas) to 30 cubic feet of night-soil should be added to fix the ammonia; or how much plaster-of-Paris? and whether the soil should be burned and ground, or ground in its natural state? Can wood-ashes be mixed with night-soil, or does it, like lime, expel the ammonia? Now, these are simple questions, that any chemist can answer you. Why will you not ask, and give us plain farmers an answer?

From Liebeg we learn that more than half the ashes from corn-stalks are

potash. Hence we learn the beneficial influence of wood-ashes to corn. It is curious the effect wood-ashes have in producing white clover; cut off the top of a bog in the centre of a large bog meadow, and cover it with a good dressing of wood-ashes, and up comes a crop of white clover, while no white clover is within a quarter of a mile of said bog. Wood-ashes on all grass lands acts equally well, as it does with corn, and the benefits are as great as if nitrate of soda had been used, which benefits grass, but not cereals or roots, as I have tested.

Ever yours, R. L. C.

We shall not differ with our friend in what he says about Liebig. His works pre-suppose a knowledge of the subject upon which he writes, very much in advance of what is possessed by 999 out of a thousand farmers. It is therefore that we would advise all to commence much further back, if we may say so. Let them study the little work, Elements of Agriculture, which has been lately received under Mr. Vattemare's liberal system of international literary exchanges, and which was translated, with slight additions to adapt it to the common schools of America, by F. G. Skinner, Junior Editor of this journal. It was published by Messrs. Carey and Hart, and may be had for 25 cents. Let him also peruse the catechism remodelled in like manner, and now being republished in this journal. And yet more; let him study Petzhold's Agricultural Chemistry, which he will find in the first volume of the Farmer's Library, preceding Von Thaer's Principles of Agriculture.

In his preface to that work, Petzhold says, "A perusal of this little work with ordinary attention, will furnish the necessary amount of chemical information for the purposes of the farmer. He will learn enough from it to satisfy him that science is not to be despised, and if it *open his mind* to the reception of the important truths made known by the great chemists of the present age, *and enable* him to derive from the writings of Liebig, especially, all that has been discovered of late relating to agriculture, the design of the writer will have been accomplished."

Now let the reader bear in mind, that the Editor of the American Farmer, now Senior Editor of the Plough, the Loom, and the Anvil, *selected* the Essex Agricultural Society of Massachusetts, and referred to it for thorough and candid examination and report, all the volumes of that work when it was completed. He was sure of getting from them, not only a frank and impartial report, but one in which, from the character of its members, the public might well repose full confidence. Well, they say, of Petzhold's lectures, which make but a small part of this volume. "We consider it to be a master-piece of skill, in presenting to the most uneducated mind, in a perfectly clear and simple manner, the whole science of agricultural chemistry—*the practical value of this work to every farmer can hardly be over-estimated.* Von Thaer's work *is equally valuable in its way*, embracing the entire subject of agriculture."

Now we have only to add our own opinion, heretofore perhaps expressed—that no reasonable inducement would prevail with us to be without both these works, were we practical farmers in the country. For Van Thaer alone, (the English copy,) we gave in Boston, in May last, $12; and now we can furnish the two,—Petzhold and Von Thaer, bound in one volume,—for one-third of that sum, or $4; and Stephens' great work—the English copy, in three volumes of 1000 pages each, which has lately been sold at $35, we have in two more volumes, with notes by J. S. Skinner, that we will sell for $6,—or the three volumes—Petzhold, Von Thaer, and Stephens, for $9.

To Dyspeptics.—Twenty-nine years ago, we published in "The American Farmer" a very interesting, and we doubt not a very able memoir from Calvin Jones, M. D., otherwise known as General Calvin Jones, on the *diseases of indigestion*, and the *deleterious effects of the coffee of Mocha.* We wish we could make room for it in this journal. It was dedicated "to the two men of America most distinguished for genius, learning, and public spirit, De Witt Clinton and Samuel L. Mitchell, of New York, and *to the most* intelligent and judicious physician of North Carolina, John Beckwith, of Salisbury," the same who is the inventor of the pills called *Beckwith's Pills*, which we recommended in the March No. of this journal.

THE BEST SORT OF GOLD MINES, AFTER ALL.

Where to be found—Talbot County Report on Farms characterized—Local advantages of the Eastern Shore of Maryland and Virginia—Ought to change their staples—Nutritive and restorative matter afforded by different crops, and their effects on the prosperity of a country—Importance of farm accounts and registers—Importance of more attention to farm-yard manure—Instances of shallow ploughing practised by excellent farmers—W. Hambleton—Earl Stimson—Roger Brooke—General Emory—Legislatures ought to vote ploughs as well as swords—Farmers exhorted to *hold on and agitate*—Premiums awarded to Edward Covey and John A. Clough—Results of their management.

THE BEST SORT OF GOLD MINES, AFTER ALL, are to be found, when dug for with skill and diligence, in such fields as those to which the following reports refer; and in others like them, which men of sagacity and perseverance only know how to go on improving from year to year, content to look for gradual accumulations in what is too often overlooked—the constantly augmenting productiveness of their land; finding their greatest happiness, not in the sudden and fitful acquirement of riches, but in the daily consciousness that, by the exercise of manly virtues, they are laying up an honest independence for their families, at the same time that they are setting examples of priceless value to society. These are the gold diggings to which it were better that our newspapers should call the attention of our young men; for, while any fool may have the luck to draw a prize in a lottery, or to stumble on a lump of gold, we can but say of such men as Dr. CLOUGH and Mr. COVEY, who thus bear off the premiums for the best managed farms, "With thy understanding thou hast gotten riches."

With as much satisfaction in view of the spirit, as for the matter of the following report, do we copy it from "The American Farmer," for it indicates on the part of the committee a degree of meditation and heartfelt zeal for their subject, very different from the mawkish attempts at wit and fine writing, which sometimes take the place of that earnestness and judicious discrimination which befit such occasions. Such reports as these warrant the assurance, that a watchfulness for all the means of agricultural improvement, auspicious of the best fruits, has already taken good root in a community where such a committee can be found among the resident farmers of the neighborhood. It is in these various lights that we are accustomed to contemplate the proceedings of every association for the benefit of a pursuit essentially plain and practical, and requiring constant intellectual as well as bodily exercise. And here let us once more repeat, that if agriculture does not thrive, and estates rise in value, where the general principles of good management are thus exemplified and illustrated by farmers and committeemen, it cannot be for *want of knowledge*. And hence it is that scarcely anywhere do we find lands holding their own, and even appreciating, more than on the Eastern Shore of Maryland—and perhaps we might add, especially in Talbot County, where, without insisting on any necessary connection between them, it does so happen coincidently, that their *agricultural clubs and associations have been constantly kept up* for many years, and that, as we know, liberal support is there given to *agricultural journals!*

But here it may be proper, in justice to other localities not so much favored, and where improvement has been stationary, if indeed the movement has not been retrograde, to advert to the fact, that Talbot and the whole Eastern Shore of Maryland and Virginia, enjoy advantages perhaps unequalled elsewhere in our country, if not in the world, in their convenience to market by *cheap natural water conveyances*, whereby the looms and the anvils—the mills and the factories, of Baltimore, Philadelphia, Wilmington, and New York, are virtually placed near to their ploughs and their harrows.

Few persons who have not reflected on it carefully could believe in the value of such facilities for transportation of produce and manures, just as when we have been long in the enjoyment of blessings, even that greatest of all, good health, we are too apt to become insensible to their importance. But this is a subject (we mean the effect of cost of transportation on the value of land) to which we may not now turn, as it would lead us off too wide of these safe and lasting gold mines near at home, and within the reach of almost every industrious man.

Suppose, for instance, Dr. Clough's farm had been even twenty miles from navigable water or other cheap conveyance, such as canal or railroad, how could he have availed himself of the potato crop, thereby making tons where otherwise he must have made only bushels of grain in their stead? It may be supposed that the land which in 1847 produced him 800 bushels of potatoes, the half of which brought him $300—say 4 acres being $75 the acre—would in wheat not have yielded more than one-third that amount. It is dense population, produced by encouragement of various home-labor, which enables the farmer to incur the expense of draining his richest lands that otherwise lie waste—it is that, in a word, which brings the food out of the ground, and where facilities of quick and cheap communication with large markets exist, they have the same effect; but is it not the palpable interest of every farmer, that the people—the citizens—the weavers, the blacksmiths, the shoemakers, the tailors, the coal-heavers, and the ironmongers, who make up these markets—who constitute their customers—should be as numerous, as prosperous, and as easy to come at, as the wise policy of a paternal government can make them?—a policy which looks first and foremost to the development and cultivation of our *own resources*. But to return to this report.

For ourselves, we confess our inability to see why the good people of the whole Eastern Shore of Maryland and Virginia do not go more into the cultivation of hay and root crops, and the making of butter, and the fattening of cattle and sheep; a system which would tend to keep the refuse of the products of the land on the land, for its improvement—a system under which they would raise tons instead of bushels; seeing that none of them can retire, if they would, more than five miles from navigable water, and having in their immediate vicinity, (speaking in reference to easiness of communication,) at least a million of customers for their potatoes, carrots, beets, turnips, cabbages, apples, butter, lambs, mutton, and beef! It must be obvious to all, that in whatever proportion the products of the land are consumed on the land, provided the refuse or excrementitious matter be properly preserved and disposed of, the more will the strength of the land be preserved and augmented. Thus, an acre that will yield 25 bushels of wheat may bring the farmer thirty dollars, leaving him the straw for manure; but how much more valuable to him if that same acre will give him 400 bushels of potatoes, or 800 of turnips, or carrots, to be consumed on the farm, and converted into butter or mutton, supposing the money yielded to be no more than thirty dollars, with the addition of as much as pays for the extra labor?—for has he not got all the elements of fertility which were taken from the land to be restored to the land? Does not their locality at once suggest that they should turn their attention to bulky and perishable crops—to crops, in a word, that won't bear to be transported from the great West, rather than grain and other things which will?

Of the difference of nutritive value in the most common crops, the following table is derived from high authority. In Europe, it is found, according to experiments, that an acre which will produce one of these crops will produce the others, in the proportions here stated. It might, and probably would be different with us, on account of difference of climate, affecting some of these

products—as, turnips, for one—since in our country generally, we have not the moisture necessary to produce with certainty a root of which so large a portion consists of water, (92·5, according to Boussingault.) But he probably refers to the common field-turnip, and it is important that the inquiring farmer should always bear in mind the great difference in the quantity of nutritive matter contained, not only in different vegetables, but in different families of the same vegetable. Some of these may here be noted, at the cost of prolonging these hasty remarks, already too much extended: 1000 grains of Swedish turnips contains of nutritive matter, 64 grains; yellow bullock, 44; white globe, 42; mangold-wurtzel, 136; sugar-beet, 146¾; field cabbage, 73; red carrot, 98½; white carrot, 105; parsnip, 99; but for stock, the Swedish turnip is to be recommended, on account not only of its nutritive properties, but for its quality of keeping so well. Stephens, in his "Book of the Farm," which no farmer should be without, says, he knew the produce of a 25-acre field to be stored in dry weather in November, in order that the land might be sown in wheat. "The store was opened in February, and the cattle partook of the turnips and continued to like them until June, when they were sold off, fat, the turnips being then only a little sprouted, and somewhat withered, but exceedingly sweet to the taste." We may as well mention here, too, in passing, that the larger the Swedish turnip in size, the more nutritive matter is found to be in a given weight of it. It is time to return to the table of nutritive matters in the produce of an acre of land, under the supposition that the acre which will yield one of these will yield the other. As, for example:

Crop.	Weight.	Starch and Sugar.	Gluten.	Oil.	Total of Nutritious Matter.
Wheat	1500	825	185	45	1055
Oats	1700	850	230	95	1175
Peas	1600	800	380	45	1225
Potatoes	9	3427	604	45	4076
Turnips	20	4500	540	"	5040
Carrots	25 "	5600	1120	200	6920
Meadow hay	1½ "	1360	240	120	1720
Clover hay	2 "	1800	420	180	2400

As in the general way crops ought to be of money-value in proportion to their nutritive qualities, does not this table show that that policy of government conduces most to the welfare of the farmer which draws the loom and the anvil near to the plough and the harrow; and placing the customers of the farmer where they can be supplied economically with that of which the earth yields largely, instead of that so-called free-trade policy, which drives to a distance the loom and the anvil and the lapstone and the trowel, turning the weaver and the smith, and the shoemaker and the bricklayer, into rivals, in order to get their bread, instead of customers who would buy their bread from the farmer? and is not this the reason why poor, sandy, stony lands in New England, covered half the year with snow, are worth more than the rich river bottom lands in Virginia, and the blue grass lands in Kentucky? But again we are digressing.

The emphatic manner in which the committee has suggested a special and liberal premium for the best form of keeping farm accounts and registers, adapted to the peculiar course and condition of Maryland husbandry, is worthy of particular commendation, and we may hope will not be forgotten. How is it possible, without such accounts, and without exact farm registers, to decide on the merits of particular farms or systems, or to proceed with confidence in any course of rotation or management? In these cases, for example, striking as has been the improvement as indicated by the increase of the crops, how much more satisfactory, if these gentlemen had been pre-

pared to state, more in detail, and with more exactness, how much there was of each crop *per acre!*—the cost and the wear and tear of animals and implements—the quantity of seed to the acre—the number of ploughings and harrowings of their corn crop—the kind of corn and wheat, the cost of labor, if hired, and, if not, the amount of capital invested in labor, &c., all of which are essential to any thing like an EXACT ascertainment of results.

Threadbare as the subject may seem to have become, it is always gratifying to find emphasis laid on the importance to be attached by every farmer to the increase of his store of *barn-yard* manure. Its accumulation is necessarily attended with so much labor, and demands such constant attention, that the best farmers are prone to shy it if they can, and to be casting about for *substitutes* of one sort or other; but he may rely on it, after all, his own stercorary should be his *great dependence.* It is to him what a good head of water is to a country miller, and without it he can no longer continue to manufacture good crops of wheat, any more than the miller can without water manufacture his wheat into flour; and therefore, even at the risk of dwelling too much on a subject well understood, (which of all things we most dislike,) we shall now place in juxtaposition with this interesting report, some remarks of a modern writer of great ability, on the *composition and value of barn-yard manure.* To relieve the reader, it may as well be read as a separate substantive article, well worthy of attention—not so much for its novelty, as for the very perspicuous manner in which it presents the important considerations involved.

In connection with the recommendation of the committee to bear more in mind the importance of deep ploughing, and believing, as we do, and have often insisted, that one very great defect of American husbandry, after all our talk about manures, is want of *thorough tillage;* the fact is recalled to our mind here, that Mr. William Hambleton—to whom high praise and (we believe) a premium was awarded on a former occasion, for exemplary management and great improvement of lands and crops, in the same neighborhood with Mr. Covey—never could be persuaded to plough his land more than four inches deep; and as one reminiscence leads to another, we are led at this point to turn back, only twenty-eight years ago! to the famous case of *Earl Stimson,* of the State of New York, of whose management and crops the Senior Editor of this journal obtained an account in person from Mr. Stimson, whom he visited in company with distinguished farmers from various States, then sojourning at Saratoga, and from Dr. Steele, then residing there.

Earl Stimson's farm consisted of 250 acres of land—100 of these in wood. In 1812, its average crops were, per acre:

Of Indian Corn	30	bushels.
Wheat	15	"
Barley	20	"
Oats	30	"
Hay	1½	tons.

In 1821—9 years after—the same farm produced:

		Bushels.		Total.
3 acres	Oats	60	per acre	180
8 "	Indian Corn	112	"	896
10 "	do.	90	"	900
4 "	Spring Wheat	34	"	136
6 "	Barley	60	"	360
31 acres	produced			2472

bushels of grain, being an average of nearly 80 bushels to the acre, and his system was never to go, if he could help it, either more or less than three

inches. Being then, curious, as our reader may be, to know the nature of his soil, the following was given as the result of careful analysis, made, it is presumed, by Dr. Steele :

Water	9·5
Animal and Vegetable Matter	12·5
Clay	17·5
Silicious Sand	54
Carbonate of Lime	3
Soluble Salts	1
Oxide of Iron	1
	98·5
Loss	1·5

We shall reproduce the whole statement as soon as we can find room.

We shall doubtless have from the State Chemist, an exact analysis of the soils of the Eastern Shore of Maryland. There must be some special and explainable reasons why such men as Mr. Hambleton would plough only four inches deep.

We remember, too, that our lamented friend—that estimable and well-bred gentleman—Gen. THOMAS EMORY, in an agricultural address, stated it as an undeniable fact, that the general opinion and experience of the *Eastern Shore of Maryland* was against deep ploughing.* We merely mention these facts as we go along. Montgomery County, in Maryland, is entitled to the credit of first calling the attention of Maryland farmers, in a very emphatic manner, to the virtue of deep tillage, and perhaps the germ of the *substratum plough* is to be found in a letter from the venerable Roger Brooke, of that county, to the Senior Editor of this journal, twenty-eight years ago, in which he urged, in a very pointed manner, that to give encouragement for its invention was an object well-worthy the attention of agricultural societies.†

* In an address to the Agricultural Society of Queen Anne's County, (has it gone the way of all flesh ?) from which we shall make more extended extracts, is this remark :— "Mr. Bordley, the only writer we have had, is not satisfactory on this subject. Judge Peters has somewhere said that he had understood that the land on this Shore would not bear deep ploughing. This is unquestionably the opinion (says General Emory) of all practical men with whom I am acquainted." It was the practice of the late John Singleton, of Talbot County, whose memory is worthy of the deepest veneration, never to plough his corn after planting. His reliance was altogether on the harrow.

†In 1821, *twenty-eight years ago!* he wrote to the Senior Editor of "The Plough, the Loom, and the Anvil," (then Editor and Proprietor of "The American Farmer," as follows :—

"Our agricultural implements generally, and ploughs particularly, have lately been much improved, and deep ploughing has been adopted by almost all good farmers. We however lack one implement from the operation of which it is believed we should derive many important advantages. I mean a proper instrument to follow the plough in all its rounds, and to open the bottom of the furrow, *so that we may stir the earth and render it pervious to a greater depth than can be done by the plough alone, and yet leave the vegetable mould near the surface where nature has placed it, and where it ought to be for obvious reasons.* The utility of such an operation will be readily seen by all who know the great length of roots which are thrown out by most vegetables, wherever they find sufficient depth of loose earth. I have for years had thoughts of putting in practice something of the kind, but not knowing exactly what would best perform the desired operation, added to a disposition too apt to delay the performance of what I know to be right—I have neglected it. Although it may appear at first view to be no difficult thing to construct something adapted to the purpose, yet I think it of consequence enough to claim the attention of the Maryland Agricultural Society, and worthy of a handsome premium, for the one that will, with a given power, break the whole width of the furrow to the greatest depth. Should it not be deemed worthy of consideration to the society, I hope some of our ingenious and public spirited mechanics will exert their inventive powers, to confer a benefit on the cultivators of the soil. I have thought of three coulters, or the same number of the tines of Beatson's

Now all we have to say further about these "best managed farms" is, that if a member of the Legislature of Maryland, present at a proposition of some slang-whanger looking for distinction and popularity by proposing a tax on the farmer, or what is the same thing, a draft on the treasury, to buy a sword for an officer in reward for his uniform promptitude and excellence in bloody battle-fields, we should move that at the same time there should be purchased by the State, at like cost, highly ornamented implements of agriculture, with silver or gold mountings and inscriptions, to be presented by the President of the State Agricultural Society to John A. Clough and to Edward Covey, and from year to year to those in each State distinguished by the award of their brother farmers, for "best management;" and if we could not make it appear that such a disposition of the taxes levied on the planter and the farmer would better comport with the real, well understood interests of a republican country, then would we relinquish for ever all confidence in the ultimate predominance of common sense, and sound reason, and just discrimination, and public virtue, over the love of vain-glory and the arts of popularity-hunting and humbuggery.

But let us exhort our friends in the country—those who begin to appreciate their rights and their power—to *hold on*. Better times are coming, if there is any thing in signs. What we want, and what we will have, is a policy that looks to the interests of our own country—to harmonizing all our own interests, and the cultivation of our own resources. Then will we force those who now levy on us fifteen millions a year to keep up military establishments, to establish better systems of industrial education for the people—systems under which the whole rising generation shall be taught the principles that essentially belong to all industrial pursuits, including, (most especially) *farming*, which is the basis of the prosperity of all others. It only requires that each man intending to live by the land, as you and your sons do, shall learn thoroughly *what the land is, and what can be done with it*. Having so learned, the farmer will apply himself steadily and effectually to the practical working of his occupation. Thus will he become certain of success, and success will render him independent, independence will again beget knowledge and respectability, and these will bring him power, for therein is it that "knowledge is power," nor is any sort of power honorable, reliable, or worth having, compared with that which is based on knowledge.

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scarifier placed in a triangular position, but this I leave to better judges, not doubting that if others attach the same importance to the operation that I do, something suitable to perform it *will be invented*."

The invention of labor-saving implements ought to take precedence of all other objects for agricultural premiums. One of the wisest and most benevolent farmers that ever illustrated the agricultural annals of our country—the late James Wadsworth, of New York—said on this subject, twenty-five years ago, "I am doubtful as to the expediency of small premiums for cattle. I think the raising of these animals may be left to self-interest. Suppose you take a hint from Napoleon, and offer *very liberal* rewards for great improvements in *agricultural implements?*" True, the Agricultural Society of that State appears not to have concurred with him in his opinion—as we see that for 1849, while they have offered 150 or 200 premiums for cattle, in sums ranging, many of them, from $10 up to $50, for agricultural implements, the offers are $2—some two and a "dip," yet under the head "Farm Implements" they offer $10 as the highest for any single one, and that only in the case of best wheat-thresher, the improvement of which would require ten times as much exercise of mind, and inventive genius, and expensive experiments, as buying or fattening a bull or a bullock. Let us take room here to repeat the suggestion that instead of returning small surpluses into the Treasury from the Patent-office, they should be expended in offering premiums for inventions of great and unquestionable importance in agricultural and mechanical industry. Here, too, is a field open for the employment of the thousands which the American Institute is accumulating, for—they know not what!

It is the want of this—want of direct and thorough instruction in the principles and the rights of their calling—that subjects farmers to be ruled so exclusively by lawyers and doctors, and to be taxed for the establishment of schools only to teach the art of—WAR AND BLOODSHED !

REPORTS OF COMMITTEES AT THE TALBOT COUNTY CATTLE SHOW AND FAIR,

Held at Easton, Maryland, November 15, 16, *and* 17, 1848.

REPORT ON FARMS.

The Committee on Farms, instructed by the Societies through their advertisement, proceeded to inspect those offered for premium, and in accordance with the specifications set forth, respectfully report :—First, of the farm of Mr. Edward Covey, near St. Michaels. For an account of Mr. Covey's practice in manuring, and system of rotation, and for other important information in connection with his management and success, they refer the societies to the following statement, drawn up and forwarded by Mr. Samuel Hambleton, Sr.:

"The first glance must have convinced the committee that mine is not a show farm; my small force forbids any attempt at embellishment. My main object has been to restore its lost fertility; how far I have succeeded you will be able to judge from your hasty review, and the following facts and observations elicited by questions put to me by one of your board. I purchased this farm in 1836, then containing 196 acres, at $15 per acre, and placed on it a tenant. The first crop was a little over 100 bushels of wheat, and 90 barrels of corn, and the crops the second year were rather less. One-third of these crops I received as rent. I settled on it in 1839. My first crop of wheat was 330 bushels, corn crop not recollected; the farm then in three fields. In 1841 it was divided into five fields, and I am now clearing up land for the sixth. In 1838 I added to my farm by purchase, 54 acres, at $22, and in 1840, 18 acres, at $20 per acre, so that the farm now contains 268 acres, at the average cost of $16·80 per acre; amounting to $4512. These two last parcels of land at the time of purchase, and as late as 1841, lay out unenclosed, as a common. Every year I have burned and applied lime from oyster-shells, one year as high as nine thousand bushels; every field has been dressed over. Occasionally I buy a few loads of manure in St. Michaels, and one year hauled out marsh; but of late my main reliance has been on my own farm-yard, which enables me to manure my corn cultivation every year. A few years ago I applied leached ashes, in all six thousand bushels; but not satisfied with their effects, have discontinued their use. Since 1841, my system, without much variation, has been two fields in wheat, one in corn, and two in pasture; clover-seed yearly on corn and wheat. I have in vain endeavored to ascertain the amount of my early crops. The committee will probably conclude that they were not bad, when they hear that with the aid of one thousand dollars in hand, they enabled me, after supporting my family, to complete my payments for this farm four years ago. The amount of my crops for the last three years, with the amount they sold for, or are worth, is as follows:

"1846. Wheat, 1384 bushels—Corn, no account—sold for $1800.

"1847. Wheat, 1150 bushels—Corn, 400 barrels—sold for $2150.

"1848. Wheat, 1500 bushels—Corn, 300 barrels—on hand, worth $2250.

"The average of those years, of wheat, is 1344 bushels—average, same time, receipts for grain, $2066. I sell beef and pork every year, but cannot say how much. My working force, principally hired, superintended by myself, is somewhat less than four efficient hands. I use horses altogether for labor. It will be seen that the original cost of this farm was $4515. Its present value is matter of opinion. If for sale, it would probably bring $50 per acre—$13,400. The committee, from these facts and estimates, will be able to form a tolerably correct opinion of the progress of improvement, and the means by which it has been made.

"I am, very respectfully, your obedient servant, EDWARD COVEY."

His method of draining is that practised generally in this county, by ditches combined with water furrows, from which the earth is carted either to the compost-heap, or to fill up some low spot in the field; and in the opinion of the committee has been tolerably well executed. His cultivation, as evidenced by the condition of the fields in which he had just seeded wheat, is highly creditable. As to grasses, the committee saw no evidence that he had turned any attention to them, further than mentioned in his statement; but

have from his known enterprise, good reason to hope that he will soon follow in the footsteps of his neighbor, Mr. Hambleton, of whom it was well said by last year's committee, that "had he no other merit, his attention to stock, and the provision he has made for their sustenance and protection, should alone entitle him to the highest consideration." Mr. Covey's stock, so far as seen by the committee, were ordinarily good. Of his farm buildings, fencing, and gates, they saw nothing in any respect particularly worthy of note. His utensils, it is presumable from the fact of his good cultivation and the amount of labor performed, are sufficiently good.

The committee next inspected the farm of Dr. John A. Clough, of whom they obtained the following statement:

"GENTLEMEN:—The farm on which I now reside, was purchased of the late Col. Wm. Hughlett, in the year 1833, for the sum of $2800, and contained at that time 162⅜ acres of land; since then, 1836, I have added to it by purchase, nearly ten acres, at a cost of $30 per acre, making in all about 172 acres, the arable portion of which is about 120 acres; the wood contains 42 acres, and there is in broken shore and marsh about 10 acres. At the time of purchase, it was cultivated on the three-field system, and was so continued until 1838 and 1839, when I divided it into five fields, which are not equal in size, owing to the inconvenient form of the farm. The fencing and ditching, at the time of purchase, were in bad condition; and the rent did not pay the interest of the purchase-money. The land in cultivation has been kept seeded with clover, timothy, and orchard grass, as fast as the manuring could progress; but that progress was slow, indeed, under the three-field system, in comparison with the five-field, as an exhibit below of the crops will verify. Under the five-field culture, one field was manured and put in corn, a fallow prepared in the summer for wheat upon clover; the corn crop was taken off the land in the fall, and both seeded in wheat, which was continued annually for three years; but at the end of that time, I thought it nearly as much expense to prepare a fallow as it was to cultivate a corn crop, owing to the formation of a heavy sod of blue grass, consequently I abandoned the fallow and put two fields in corn: one upon clover and grass sod, the other upon wheat stubble, using a fair dressing of manure to each, which last system (if it could be called one) destroyed the grasses about as fast as the one preceding had increased them. Therefore in the latter part of July, 1844, I concluded to try a stubble fallow, by turning in the stubble and weeds which had collected. The land being well and deeply ploughed, was rolled, and from 50 to 60 bushels slaked lime applied to the acre, after which it was harrowed both length and cross-ways the ridges, which nearly levelled them. The wheat was then seeded length-ways the rows, and ploughed in shallow, keeping the ridge in the same place where it was when limed. I have continued this system of stubble fallow ever since. One half the time, or every other year, seeding two fields on stubble, the other half one field in fallow and one on corn land. Two fields have been gone over on the above plan, viz:—of getting a crop of corn and three crops of wheat in succession from the same field, with a decided increase in product, as well as quality of the grain; and also an improvement in the general appearance of the soil, which I attribute to the action of lime and the vegetable matter ploughed in. All the arable land has been dressed over with Indian shell, mixed as they were with a dark rich mould, at the rate of 120 cart loads, of 12 bushels each, per acre—making upwards of 1400 bushels. The other manures used have been marsh, pine rushes, and soil from the woods; the manure of the farm-yard, stable, and hog-pen, sometimes used separately, at others in compost. The number of working hands, when I first took possession, were one man, two lads, and two small boys, except at harvest. The hands employed since, have been two men and two small boys. The number of horses or mules kept for work or riding, has been five throughout the whole period, and one pair of oxen. Under-draining to the extent of about one acre, has been tried with complete success; the materials used were pine trees sawed into 12-inch lengths, split in slabs about two inches thick; the ditches were then cut from two to three feet deep, two feet wide at top, and the breadth of a spade at the bottom. The slabs were then set in the bottom of the ditch, inclining from one side to the other; pine bushes were then put in until it was about a half or two-thirds full, and then the whole covered with earth, the sod put in first. No more cattle or hogs are kept than are requisite for the farm, and due attention is given to keep their pens well filled with marsh and the scrapings of the woods, to be worked into manure. I purchased of Col. Hughlett the rent corn for 1833, and received 18 barrels (90 bushels) of good corn, and 4½ of short, being one-third of what was raised. The crop of wheat not recollected, but altogether insufficient to pay the interest on the purchase-money. I have purchased and applied 6850 bushels of lime.

"I here give an account of my crops for almost the entire time of possession, some years unfortunately not recolleeted. The quantity of wheat stated is the crop raised; of corn, it is the quantity sold only. What was used should be added, which could not be less than 300 bushels per annum:

	Bushels Corn.	Bushels Wheat.		Bushels Corn.	Bushels Wheat.
1834	241½	140	1843	674	634
1835	286	91	1844	941	434
1837	410½	180	1845	910½	675
1838	386½	168	1846	1081	550
1841	642	368	1847	1110	869
1842	628½	454			

"1848 not yet ascertained, but supposed 1500 bushels corn, 900 bushels wheat.

"The crops of Mercer potatoes for several years have been worth about $100. In 1847, the crop was 800 bushels, one half of which were lost by rot; the others sold for over $300. That of the present year has in part been sold for $214.

"JOHN A. CLOUGH."

Between these two gentlemen, the committee have great difficulty in deciding. Both appear to have applied themselves with equal energy to their similar vocations. The one—Mr. Covey—on land worn-out and destitute of calcareous manures, almost entirely; yet by dint of great labor and expense, has dressed over his land heavily with those indispensable substances, and by their aid brought it to a point of fertility and profit rarely known in agriculture. The other—Dr. Clough—whose land was equally much reduced, yet favored by nature with resources in which the former was deficient, has applied them with a skill and industry not to be surpassed. His large purchases of lime show that he spares no proper expense, whilst his skill in cultivation is equal to that of Mr. Covey, as evidenced by a proportionate increase of grain. His more diversified and successful experiments, his attention to grasses, the productiveness of his soil, good condition of his ditches, fences, and gates, eare of farming utensils, the neat and convenient arrangement of his commodious farm buildings, all combined, place him on an equality with the best farmers of the times, and in the opinion of the committee entitle him to the first premium. To Mr. Covey, they award the second premium, not because he has no competitor to whom it could be given, for the committee think in point of well-directed industry and careful management, he is second to no man, and have to regret that he has not been in possession of his farm a length of time sufficient to have enabled him to bestow more attention to his fencing and ditching, and to the grasses, so essential to a thorough system of farming.

The committee, nothing doubting that the Societies of Talbot in their action with regard to all suggestions offered in good faith, will be guided by the same enlightened liberality which has marked their past course, respectfully suggest for consideration, whether, inasmuch as experience clearly indicates the entire absence, in our community, of a simple and comprehensive system of farm accounts, it might not be well, in conjunction with such societies in other counties as may feel disposed to act with them, to offer a premium for the best that shall be submitted before their next annual exhibition. By the introduction of such a system, embracing within its range those prominent points which, in the progress of intelligence, have been admitted to have a bearing, the operations of future committees would soon be greatly facilitated, and solid information would be more rapidly and thoroughly diffused.

The committee cannot take leave of this subject without endeavoring to impress on the farming community of this county the great and primary importance of deep ploughing, so far as the nature of the soil will allow—as rich and fertile soils will admit of being broken much deeper than those that are poor and thin. But even on these latter soils, we must deepen the plough gradually if we wish to improve them in a permanent manner. If we stir the land at all, it is but reasonable that we stir it well. We cannot sow without ploughing. Does not good sense tell us all, that if it is necessary to loosen the soil imperfectly for the benefit of growing plants, it is more useful to do so in the best possible manner? Why do we fallow, but to give the field the benefit of repeated ploughings and harrowing, thus loosening perfectly every part of it, and permitting every particle of earth to be acted on by the rains, the dews, and the indispensable influence of light and warmth? The effect of all this stirring is observable upon the seed put into the ground, for all must have observed that the grain sown in a fallow field will germinate several days sooner than on one where the soil has not been so well prepared, and the growing plant will maintain its superiority for a long subsequent time. It is to be hoped, therefore, that our

farmers will turn their attention to this important subject, and give us the result of some well-conducted experiment, which will establish the difference in product between a well stirred or an imperfectly ploughed field. Of so much importance is this subject regarded in other countries, that experiments are there in process of execution to ascertain how far spade husbandry, as a farming operation, will compare with that where the plough is used; and as far as we are informed, although the expense is much greater, a corresponding increase of crop has nevertheless been the result. Their more numerous population gives them much greater facilities than we enjoy, and they have established the great practical truth, that a deep and perfectly stirred soil is an essential element of a farmer's success.

The subject of manure is another branch of agriculture of no less importance than the one upon which the committee have already at some length commented; and as equally deserving of all the consideration that the farmer can bestow upon this part of his most important vocation. All created things are so constituted that the perfect development of one almost necessarily involves the destruction and decay of its predecessor. This is the case with the long list of vegetable productions given us by Providence. The death of the one affords the aliment for the growth of its successor, and its perfection is much aided by the application of the decayed remains of the former; and the series by carrying out the rule, instead of becoming more and more degenerated, is only rendered more vigorous and healthy. Manure is, according to the experiments of chemists and scientific agriculturists, the organic remains of what has constituted vegetable life. Its application in this state to the germinating seeds and roots stimulates the tender plant to put forth all its powers for growth and maturity. That this is a law of creation, is dictated alike by observation, reading, and reflection. Men cannot violate it without loss, nor act upon it without remuneration. Such being the case, it becomes our duty to use all efforts to make so much of this valuable substance as we can possibly consume; not to be content with that made by our cattle in barn-yards alone, but to use as much time as is consistent with our other farming duties in collecting all else that will contribute to its increase. Providence has not stinted us to the use only of one kind of manure, but in His wise dispensation has enlarged the source from which it may be gathered, leaving it to the industry of man alone to make it commensurate with his wants. Within a few years the substances used for it have increased to a great extent. He must use an abundant supply of litter—draw muck, leaves, turf, scrapings of ditches, sods; indeed almost every locality has its own peculiar advantages to increase this kind of collection, and it would be very easy generally to double the quantity that under the ordinary course of farm management would be collected. Calcareous manures is another branch of this subject, upon which the committee will not touch, as they do not profess the scientific knowledge to treat it as it should be done. We have all used lime and marl, more or less, and know from experience that our lands can be brought to the highest point of fertility by their application, but the manner of action we are unable to give. This cannot be done until education is more generally diffused, and our farmers call the intelligence of the head to aid the labor of the hands. But the abundant use of these substances is of so much importance to the entire community, that the committee think it not inappropriate to state, that the recorded opinion of the most scientific and learned writers upon those matters, deduced from careful, exact experiments, is "That a soil full of calcareous matter never produces an unwholesome atmosphere." We cannot conclude without a word or two in reference to the benefits already conferred by the Societies in the improvement of our stock and farms; they promise to increase the value of our lands, and to augment the supply of the necessaries of life, and their moral operation is to make the profession of farming so respectable by products and profits that we will be taught by interest not to forsake it.

WM. HAYWARD, Chairman. JOS. B. HARRINGTON,
SAM'L. EMERSON, JOHN NEWNAM.
THOS. R. HOLLYDAY,

A PROLIFIC VINE.—In 1819, a single pumpkin-seed, in Herkimer County, New York, produced:

Pumpkins	50
Length of vine	730 feet.
Weight of pumpkins	434¼ lbs.
Weight of the vine	136 "
Weight of pumpkins and vine, from one seed	570¼ "

How many fold for one is that?

ON THE NATURE AND VALUE OF FARM-YARD MANURE.

I HAVE already noticed that to certain plants the atmosphere is itself a source of nitrogen, but it is not so to all, not even to the most important; the giving of nitrogen to the soil is, therefore, a most essential office of manures. To effect this, a variety of means have latterly been afforded to the farmer, as the nitrates of potash and of soda, the salts of ammonia, the decomposed excrements of sea birds, guano, and numerous other even more complex bodies, all of which serve the purpose, all of which promote the fertility of the soil and favor the growth of plants, when judiciously applied, but none of which possess *any real utility over the manure available on the farm, suitable to every crop, and most ready in its action. To this manure it is, therefore, highly important for the economical farmer to direct attention, in order that correct ideas may be formed as to the care which it deserves, and the relation which it bears to the crops, and feeding operations of the farm.*

If we consider the final application of farm produce, it will appear that comparatively little of it is absolutely removed from off the ground, and that by much the larger proportion is consumed within the limits of the farm, in the provisioning and stalling of the various animals. The corn which is sold, or the animals which are sent to market, remove from the farm certain quantities of inorganic materials and of nitrogen, which must be replaced, in order to sustain its fertility, and the cost of replacing which must be considered a necessary and fair deduction from their money price; but the straw of the corn crops, the tops of turnips and potatoes, contain a much larger quantity of those materials which need not be removed from off the farm, but, on the contrary, should be most carefully returned to the soil, to serve for the support of future crops of plants. It is similarly with the produce consumed by the animals as food. Each day's food serves but to replace in its organization the materials which are daily thrown off from its frame. The dejections and excretions of the animal must, therefore, represent the food which it consumes, and thus by returning to the soil all such materials, the sustenance of the animal is really deprived of any power of diminishing the fertility of the soil. I do not here consider the case of fattening animals, but only such as are sustained in a uniform condition and health; but the fattening does not affect the principle in any important degree.

Now these various materials, the straw of the corn crops, the tops of the potato and turnip crops, the excretions and dejections of the animals sustained upon the farm, all mixed and subjected to the reaction which soon sets in amongst their chemical ingredients, constitute farm-yard manure. It is made up of the remains and products of every kind of crop: it contains, therefore, the elements of every kind of crop. Its state is continually changing, as it is more or less rotted, and hence no two specimens of it would probably agree exactly in constitution, but still, as illustrating in a general point of view the nature of its elements, I shall add the results of analyses made by Boussingault of that which, in a half rotted condition, he puts out on his experimental farm.

The manure, in its usual form, contains in average 79·3 per cent. of water, and 20·7 of perfectly dry material.

The dry material contained:

	Richest.	Poorest.	Average.
Carbon	40·0	32·4	35·8
Hydrogen	4·3	3·8	4·2
Nitrogen	2·4	1·7	2·0
Oxygen	27·6	25·8	25·8
Salts and earth	25·7	36·3	32·2
	100·0	100·0	100·0

The ashes of this manure contain in 100 parts:

Carbonic acid	2·0
Phosphoric acid	3·0
Sulphuric acid	1·9
Chlorine	0·6
Silica, sand, and clay	66·4
Lime	8·6
Magnesia	3·6
Oxide of iron and alumina	6·1
Potash and soda	7·8

On comparing this with the analyses of the ashes of various grasses and cultivated plants, it will be at once evident, that every constituent which they require is present in the farm-yard manure. It is, therefore, of the most vital importance to those whose livelihood depends upon the produce of their farms to economize as completely as possible this valuable material. A dung-heap formed on the ordinary ground of the farm-yard, allows of the escape of the most valuable portions of the manure by drainage through the porous soil. By exposure to the weather during wet seasons, the most active of its elements may be washed away. These disadvantages may be removed at very trifling cost by the adoption of such modes of collecting and preserving the manure as are employed in other countries. The dung-heap should be formed upon an impervious floor of brick-clay or of cement, this to dip towards the centre, so as to form a shallow tank, toward which the floors of the various stables should have such inclination as would enable the drainings to be conveyed by suitable channels to the central tank. By such an arrangement nothing goes to waste; the liability to loss by rain is obviated, and even the smallest farmer will very soon find the cost and trouble well repaid by the improvement, as well in the quantity as in the quality, of his stock of manure.

I am not disposed to underrate the importance of the various artificial and foreign manures, the effects of which on the fertility of the soil have been in many cases wonderful, often by their activity producing results to which the farm-yard manure would be incompetent, and by their portability presenting, in many localities, a real advantage. Nevertheless, in the existing state of education in this country, it is, as I conceive, *far more useful to point out to the struggling farmer how to take advantage of the materials which now run to waste about his stables*, than to send him to lay out ready money, of which he generally has so little, for a fertilizer, of whose special properties and nature he is probably quite ignorant, and which has seldom any great advantage over well prepared farm-yard manure.—*Kane.*

THE DESIGNS OF PROVIDENCE,

IN THE DISTRIBUTION OF NATURAL RESOURCES FOR NATIONAL INDEPENDENCE.

In the formation of the world, as far as geological observation has enabled us to estimate, the distribution of *coal* made by Providence for *the use*, as we may suppose, of the countries respectively, is as follows:

In the United States	133,132	square miles.
Great Britain	11,859	"
Spain	8,408	"
France	1,719	"
Belgium	518	"
British Provinces in America	18,000	"
Making an area of coal formations of	168,636	square miles.

There are other countries in which coal is found, but the areas are not given. We have, however, the quantities mined, which, in 1845, were :

In Belgium	4,960,000	tons.
Prussia	3,245,607	"
France	4,141,617	"
Great Britain	31,500,000	"
Austria	659,340	"
But estimate of America, both anthracite and bituminous, about	4,000,000	"
Making the whole produce of coals	48,506,564	tons.

Now, was this coal provided by an all-wise and overruling Power to be used, or to be left undisturbed in the bowels of the earth, there to sleep for ever, along-side of beds of iron ore, which it is fitted to smelt and bring into form—while we send away to foreign countries, because their people are so heavily taxed and so nearly starved to death that they (to keep from starving outright) can make iron a little cheaper than we can ? But every thing is not cheapest that costs the least in amount to buy it—as perhaps the planter and the farmer of the United States may find out, after they have been fleeced for another half century, to the tune of "*free trade!*"

THE AGRICULTURAL SCHOOL-BOOK.

FOURTH LESSON.

OF THE ORGANIC SUBSTANCE OF PLANTS.

1. THE organic substance of plants chiefly consists of woody fibre, starch, and gluten.

2. Woody fibre is the substance which forms the greater part of all kinds of wood, straw, hay, and chaff, of the shells of nuts, and of cotton, flax, hemp, &c.

3. Starch is a white powder, which forms nearly the whole substance of the potato, and about half the weight of oatmeal, wheaten flour, and of the flour of other kinds of grain cultivated for food.

Fig. 13.

4. Gluten is a substance like bird-lime, which exists, along with starch, in almost all plants. It may be obtained from wheaten flour, by making it into a dough, and washing it with water, (fig. 13.)

The teacher will here mix flour with water into a dough, and wash it with water upon a piece of thin muslin tied over the mouth of a tumbler or other large glass, (fig. 13,) and will show how the milky water carries the starch through the muslin, and leaves the gluten behind, and how, after a time, the starch settles at the bottom of the water, in the form of a white powder.

5. The woody fibre is the most abundant in the stems of plants, and the starch in their seeds.

6. Starch also exists abundantly in the roots of the potato, and other similar roots.

7. Woody fibre, starch, gum, and sugar, all consist of carbon and water only.

8. As the leaves drink in carbonic acid and water, all these substances may be derived from their food.

9. Leaves return the carbonic acid to the air, because they do not require it to form woody fibre and starch.

10. The carbonic acid gas in the atmosphere would be exhausted by vegetation, if it were not continually renewed from other sources.

11. These sources are three in number.

First—From the breathing of animals, since all animals throw off a small quantity of carbonic acid from their lungs every time they breathe

This may be shown by breathing the air from the lungs for some time through clear lime water, by means of a small glass tube, or a straw, when the lime water will gradually become milky, as it does when pure carbonic acid is passed through it, (fig. 11.)

Second—From the burning of wood, coal, candles, &c., since the carbon which wood contains, when it burns in the air, forms carbonic acid gas just as pure carbon when burned in oxygen does.

Third—From the decay of vegetables and roots in the soil, since this decay is only a slow kind of burning, by which the carbon of plants becomes *at last* converted into carbonic acid.

12. Animals and plants appear to live for each other's support. Thus the animal produces carbonic acid, upon which *plants* live, and from this carbonic acid and water together, plants produce starch, &c., upon which *animals* live.

13. Water consists of oxygen and hydrogen.

14. Every 9 lbs. of water contains 8 lbs. of oxygen, and 1 lb. of hydrogen.

15. It is very wonderful that water, composed as it is of two gases, (hydrogen, which burns readily, and oxygen, in which bodies burn with the greatest brilliancy,) should put out all fire; but there are many substances, the composition of which is almost equally extraordinary.

16. For instance, it is extraordinary that *white* starch should consist of *black* charcoal and water only, and that sugar and gum should consist of the same elements as starch and woody fibre.

17. We may say, then, that all these substances consist of carbon, hydrogen, and oxygen.

The teacher may take this opportunity of explaining more particularly the word *elements*, contrasting the nature of the *elementary* bodies, hydrogen, oxygen, carbon, and nitrogen, *which cannot be separated or split up into more than one kind of matter*, with such *compound* bodies as carbonic acid, water, starch, and oxide of mercury, which *can be separated* into more than one.

18. Gluten consists of all the four elements—carbon, hydrogen, oxygen, and nitrogen—united to a little sulphur and phosphorus.

19. Plants obtain carbon, hydrogen, and oxygen from the air; but nitrogen, sulphur, and phosphorus they usually obtain almost solely from the soil.

Note. Hence the importance of adding to the soil manures which contain these three latter substances.

QUESTIONS.

1. Of what compound bodies does the substance of plants usually consist?
2. What is woody fibre?
3. What is starch?
4. What is gluten?
5. Which of the three substances is usually most abundant in plants?
6. Is starch found in the roots of plants?
7. What do woody fibre and starch, and also gum and sugar consist of?
8. May these substances be formed from the food which the leaves drink in?
9. Why do plants give off the oxygen of the carbonic acid into the air?
10. Why do not plants rob the air of the whole of its carbonic acid?
11. Whence do the supplies of carbonic acid come?
12. How is it that animals and plants appear to live for each other's support?
13. Woody fibre, starch, gum, and sugar consist of carbon and water only—of what does water itself consist?
14. What are the relative proportions of oxygen and hydrogen in 9 lbs. of water?
15. What is there wonderful about water?
16. What other substances are as remarkable?
17. Of what elements do all these substances consist?
18. Of what does gluten consist?
19. Do plants derive from the air all the elements of which gluten consists?

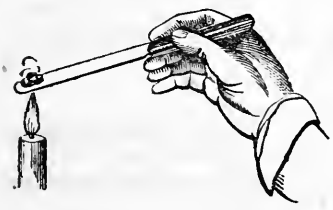
FIFTH LESSON.

OF THE SOIL ON WHICH PLANTS GROW.

1. A soil consists of an *organic* or combustible, and of an *inorganic* or incombustible part.

2. This is proved by heating a portion of soil to redness on a bit of sheet iron, or on the end of a knife, either in the fire or over a lamp. The soil will first turn black, showing the presence of *carbonaceous* matter, and will afterwards assume a gray brown or reddish color, as this black organic matter burns away.

Fig. 14.



The teacher will show this experiment, and will explain the meaning of the new word *carbonaceous*.

3. The organic part of the soil is derived from the roots, stems, and leaves of decayed plants, and from the dung and remains of animals and insects of various kinds.

4. Of peaty soils this organic part sometimes forms three-fourths of the whole weight, but of rich and fertile soils it does not usually form more than a twentieth to a tenth of the whole weight.

5. A soil cannot bear good crops if it does not contain a considerable proportion of organic matter. A rich soil generally contains at least one twentieth of its weight (5 per cent.) of organic matter.

6. When land is frequently cropped without manure, its organic matter diminishes in quantity; on the contrary, the organic matter increases when it is planted with trees, laid down to permanent pasture, or heavily manured.

7. The organic food which plants draw from the soil through their roots is supplied by this organic matter.

8. The quantity of organic food drawn from the land varies with the kind of plant, with the kind of soil, and with the season; but it is always considerable, and is necessary to the healthy growth of the plant.

9. It is then evident that if the soil is constantly cropped, and thus deprived of its organic matter, it must gradually become poorer.

10. The supply of organic matter must be kept up by ploughing in green crops, by growing clover and other plants which leave long roots in the soil, by restoring all the hay and straw to the land in the form of manure, or by laying it down to pasture.

11. The inorganic part of the soil is derived from the crumbling down of the solid rocks.

The teacher will satisfy his pupils—by drawing their attention to the decaying walls of buildings, to the heaps of what is called *rotten rock*, (decomposed trap or whinstone)—of limestone-gravel, &c., which are found at the foot of the hills—that rocks really do crumble down in the air.

12. These rocks consist of more or less hardened sandstones, limestones, and clays.

The teacher may exhibit specimens of
Sandstone—red and white, or other freestones;
Limestone—chalk and blue, or other limestones;
Clays—roofing slate, and the shale or shiver of the coal beds.

13. All soils consist principally of the same substances, viz., sand, clay, and lime.

14. If a soil contain very much sand, it is called a sandy soil; if much clay, a more or less stiff clay soil; if much lime, a *calcareous* soil.

The teacher will explain the new word *calcareous*.

15. A mixture of sand and clay with a little lime is called a loam; if much lime is present, it is called a calcareous loam; and, if it is clay with much lime, a calcareous clay.

16. *Light* lands are such as contain a large proportion of sand or gravel; *heavy* lands, such as contain much clay.

The teacher may illustrate this by referring to the different kinds of land which occur in the neighborhood.

17. Light lands are those most easily and cheaply cultivated.

18. Heavy clay lands that retain water derive more benefit from draining than light lands.

19. Light lands are frequently dry on the immediate surface, but too wet beneath—they also should be drained.

20. If a fall can be had, drains should never be less than 30 inches in depth.

21. The deeper the dry soil is made, the deeper the roots can go in search of food.

22. The roots of wheat, clover, and flax will go down three feet, and even turnip roots in an open soil will go down two feet.

23. Another object in laying the drains deep, is to enable the subsoil-plough to go down 20 or 22 inches without injuring them.

24. Besides carrying off the water, draining renders the soil pervious to the air, and allows the rain-water to sink through it, and wash out any thing that may be hurtful to the roots of plants.

25. Crops that at first look well suddenly fail when their roots reach the hurtful matter that often collects in the subsoil.

26. It often occurs that lands, either from their situation or quality, will not pay in cultivation, in which case they are generally laid down in permanent pasture.

27. If such lands are unprofitable from being too heavy and stiff, they may be made lighter by draining, subsoil ploughing, and by the addition of lime or marl when it is required.

The teacher will here explain to his pupils the difference between *common ploughing*, which merely turns over the surface soil; *subsoil ploughing*, which only stirs and loosens the subsoil; and *trench ploughing*, or trenching, which brings the subsoil to the surface.

QUESTIONS.

1. What does the soil consist of?
2. How is this proved?
3. Whence is the organic part of the soil derived?
4. Does the organic form a large proportion of the soil?
5. Can a soil bear good crops if it does not contain a considerable proportion of organic matter?
6. Does the organic matter increase or diminish in the soil, according to the way in which it is cultivated?
7. What food does the organic part of the soil supply?
8. Do plants draw much of their organic food from the soil?
9. How is it that land constantly cropped without manure becomes gradually poorer?
10. How is the supply of organic matter kept up?
11. Whence the inorganic part of the soil?
12. Of what do these rocks principally consist?
13. Of what do all soils principally consist?
14. How do you call a soil containing one of these substances in large quantity?
15. But if the soil contain two or more of them in large proportions, how do you name it?
16. What do you understand by LIGHT and HEAVY lands?
17. Which are most easily cultivated?
18. Which kind of land is most benefited by draining?
19. Do light lands sometimes require draining?
20. At what depth should drains be made?
21. Why should they be made so deep?
22. How deep do roots penetrate?
23. What other object is obtained by laying the drains deep?
24. For what other purpose besides carrying off water is land drained?
25. Do hurtful substances often collect in the subsoil?
26. When are lands usually laid down to permanent pasture?
27. How are stiff lands made lighter?

SIXTH LESSON.

OF THE INORGANIC FOOD OF PLANTS.

1. The inorganic or earthy part of the soil serves two purposes; *first*, it serves as a medium in which the roots can fix themselves, so as to keep the plant in an upright position; and, *second*, it supplies the plant with inorganic food.

2. In addition to sand, clay, and lime, the inorganic part of the soil contains in small quantities eight or nine other substances.

3. These substances are potash, soda, magnesia, oxide of iron, manganese, sulphuric acid, phosphoric acid, and chlorine.

4. These are exactly the same substances found in the ash, or inorganic parts of plants, only they form a much larger proportion of the soil than they do of plants.

5. The special difference between the inorganic part of the soil and that of the plant, is, that the former contains alumina, and the latter does not.

Here the teacher may direct the attention of his pupils to the following table:

The *soil* contains both silica and alumina.
The *plant* silica, but no alumina.
The *animal* neither silica nor alumina.

6. Alumina is a white, earthy, tasteless powder, which exists in *alum*, and gives their stiffness to pipe-clays and to stiff clay soils.

Here the teacher will show the preparation of alumina, by pouring a solution of common soda or of pearl-ash into a solution of alum. The mixture becomes milky, and

the alumina falls in the form of a white powder, which may be collected on a piece of linen or cotton cloth, and washed with water.

7. Plants can obtain all their inorganic parts from the soil only, for potash, soda, magnesia, &c. do not exist in the air.

8. This earthy matter, dissolved by rain-water, enters the plant by the roots in a state of solution.

Here the teacher will explain the new words *dissolve* and *solution*—showing how salt and sugar melt away or dissolve in water, forming clear solutions of salt or sugar, in which these substances can be recognised only by the sense of taste—but from which they may again be obtained unchanged by boiling off the water.

9. Fertile or productive soils contain every one of the inorganic substances mentioned.

10. A *fertile* soil must contain them all, because plants require them all for their healthy growth.

11. Plants do not require them all in equal proportion; they require more of some of the substances than of others.

The teacher may illustrate this question by directing the attention of his pupils to the following table, which he should cause to be copied upon a large piece of calico, and hung upon the wall of his school-room. He can thus readily point out, that, while 1000 lbs. of clover hay leave in all 75 lbs. of ash when burned, there are present in this ash 28 lbs. of lime, but only 20 lbs. of potash, and less than 4 lbs. of magnesia; and so on with the ash of the other kinds of hay mentioned in the table.

Quantity and Composition of the Ash left by 1000 *lbs. of hay from*

		Clover.		
	Rye-grass.	Red.	White.	Lucerne.
Potash, . . .	9	20	31	$13\frac{1}{2}$
Soda, ...	4	$5\frac{1}{4}$	6	6
Lime, ...	7	28	$23\frac{1}{2}$	48
Magnesia, . .	1	3	3	$3\frac{1}{2}$
Oxide of iron, .	trace	trace	$\frac{1}{2}$	$\frac{1}{3}$
Silica, ...	28	4	15	$3\frac{1}{3}$
Sulphuric acid, .	$3\frac{2}{3}$	$4\frac{1}{2}$	$3\frac{1}{2}$	4
Phosphoric acid,	$\frac{1}{4}$	$6\frac{1}{3}$	5	13
Chlorine, . . .	trace	$3\frac{1}{2}$	2	3
	53 lbs.	$74\frac{3}{4}$ lbs.	$89\frac{1}{2}$ lbs.	$94\frac{2}{3}$ lbs.

This table will suggest to the teacher many instructive questions—which his pupils will readily understand and answer, when they have the table hanging before them.

12. All these substances, however minute in quantity, are necessary to the growth of the plant—just as the few ounces of nails are as necessary to the carpenter in making a box as the many pounds of wood which the box contains.

13. If then a soil is entirely destitute of any one of these substances, good crops can not grow upon it.

14. If the soil should contain a large supply of all the substances but one, and only a small supply of that one, those plants would grow *well* upon it which require only a small quantity of that one substance; but those which require a large quantity of it would be stunted and unhealthy.

15. Referring to the preceding table, we find that the ashes from 1000 lbs. of rye-grass hay contain but 7 lbs. of lime, whereas the same quantity of

Lucerne hay contains 48 lbs.; hence we may infer that a soil may produce very good crops of rye-grass, and yet be so deficient in lime as to grow very poor lucerne.

By referring to the above table, the teacher may exercise the understanding of his pupils, by asking for other examples of a similar kind, which an intelligent boy will readily give by considering the numbers on the table. Thus he may say lucerne requires more phosphoric acid than rye-grass does; therefore, if there be little phosphoric acid in the soil, lucerne will not grow so well upon it as rye-grass would do, and so on.

Once for all, it is recommended that all the analytical tables given in this book be printed upon calico, and suspended upon the walls of the school-room.

16. If a soil should be destitute of a considerable number of these inorganic substances, it would refuse to grow good crops of any kind whatever. It would be *naturally* barren.

17. There are many large tracts of country known to be naturally fertile, and others naturally barren.

18. In the fertile soils all those inorganic substances exist which our cultivated crops require; in the barren soils, some of these substances are wholly wanting.

This answer the teacher will illustrate by a reference to the following table.

Composition of Soils of different degrees of Fertility.

	Fertile, without Manure.	Fertile, with Manure.	Barren.
Organic matter,	97	50	40
Silica, (in the sand and clay,)	648	833	778
Alumina, (in the clay,)	57	51	91
Lime,	59	18	4
Magnesia,	8½	8	1
Oxide of iron,	61	30	81
Oxide of manganese,	1	3	½
Potash,	2	trace	trace
Soda, Chlorine, } chiefly as common salt,	4 2	—	—
Sulphuric acid,	2	¾	—
Phosphoric acid,	4½	1¾	—
Carbonic acid, (combined with the lime and magnesia,)	40	4½	—
Loss,	14	—	4½
	1000	1000	1000

The soil, of which the composition is given in the first column, had produced crops for sixty years, without manure, *and still contained a sensible quantity of all the substances required by plants.* That in the second column produced good crops when regularly manured,—*it was in want of three or four substances only, which were given to it by the manure.* The third was hopelessly barren,—*it was in want of many substances which ordinary manuring could not supply in sufficient quantity.*

19. A soil may contain all the substances required by plants, and yet be rendered barren by *too large a proportion of one of them*—such as oxide of iron, which in great quantity is injurious to the soil.

20. To improve a soil of the latter description, it should be thoroughly drained and subsoiled, that the rains might sink through and wash out the injurious matter. It should also be limed if necessary.

QUESTIONS.

1. What are the purposes served by the inorganic part of the soil?
2. Does the inorganic part of the soil contain other substances besides clay, lime, and sand?
3. Name these substances.
4. Are these the same substances that exist in the ash of plants?
5. What is the difference between the inorganic parts of the soil and those of plants?
6. Describe alumina.
7. Can plants obtain their inorganic parts elsewhere than from the soil?
8. How does this earthy matter enter into the plant?
9. Do all soils contain every one of the substances, potash, soda, &c., mentioned?
10. Why should a fertile soil contain them all?
11. Do plants require all these substances in equal proportions?
12. Are all these substances necessary to the growth of the plant?
13. What is the consequence if a soil is entirely destitute of any one of these substances?
14. Suppose a soil to contain a large supply of all the substances but one, and a small supply of that, what would happen?
15. Give an example.
16. What would you say of a soil destitute of a considerable quantity of these substances?
17. Do lands naturally barren exist?
18. How is the difference between these soils explained?
19. Can a soil be barren, and yet contain all the substances required by plants?
20. How do you improve a soil of this kind?

SEVENTH LESSON.

EFFECT OF CROPPING UPON THE SOIL.

1. If the same kind of cropping be carried on for a long time, the land will gradually become less and less productive.

2. If, for instance, a crop of wheat, or corn, or oats, is taken from a field year after year, it will at last become unable to grow any of these crops.

3. As the same crops draw always the same substances from the soil, these substances must gradually diminish and finally disappear from the soil so cropped.

4. Our grain crops especially exhaust the soil of *phosphoric acid* and of *magnesia*.

The teacher will illustrate this by a reference to the following table, representing the composition of the ash of several kinds of grain usually grown in this country—exclusive of the straw.

Composition of the Ash of Wheat, Oats, Barley, and Rye.

	Wheat.	Oats.	Barley.	Rye.
Potash and soda, .	37·62	19·12	20·70	37·21
Lime, ...	1·93	10·41	3·36	2·92
Magnesia, . . .	9·60	9·98	10·05	10·13
Oxide of iron, . .	1·36	5·08	1·93	0·82
Oxide of manganese,	?	1·25	?	?
Phosphoric acid, .	49·32	46·26	40·63	47·29
Sulphuric acid, . .	0·17	...	0·26	1·46
Silica, ...	...	3·07	21·99	0·17
	100·00	98·87	98·92	100·00

The teacher will draw attention especially to the large quantity of phosphoric acid in the above table, and will explain that, as the grain takes out more of this than of any other substance from the soil, numerous successive crops of grain must exhaust it of this more than of any other substance.

5. The exhaustion of any particular ingredients in the soil is to be counteracted by the return to the soil of those particular ingredients.

6. If, for instance, the phosphoric acid is carried off, it should be returned in the shape of ground bones, or guano, or some other substance abounding in that acid.

7. Any kind of cropping will in time exhaust the most fertile soil, if the crops are carried off the land, and what they draw from the soil is not again restored to it.

8. Every crop takes away from the soil a certain quantity of those substances which all plants require. If you are always taking out of a purse, it will at last become empty.

9. The farmer takes his money out of the land in the form of crops; and if he is always taking out and putting nothing in, it must at last become empty or exhausted.

10. If he put in the *proper substances, in the proper quantities, and at the proper time*, he may keep up the fertility of his land—perhaps for ever.

11. To maintain his land in its present condition, the farmer must return to it at least as much as he takes out.

12. To make his land *better*, he must put in more than he takes out.

13. His profit consists in this, that he takes off the land what he can sell for much money, and he puts in what he can buy for comparatively little money.

14. Thus, when I sell my corn, wheat, or hay, I get a much higher price for them than I afterwards give when I buy them back again in the form of horse or cow-dung.

15. As the farmer puts in what is cheap, and takes off what is dear, he can afford to put on his land as much as he takes off, and yet have a profit.

The teacher may avail himself of this occasion to point out how beautifully and bountifully the earth and the plant are made to work into the hands of the practical farmer, by *converting into valuable produce what he lays on in the form of a worthless refuse*, —and how they always do most for the skilful, the prudent, and the industrious.

16. These substances, returned to the soil by the farmer, are called *manure;* and when putting them in, the farmer is said to *manure* his soil.

QUESTIONS.

1. What is the consequence of the continuation of the same kind of cropping?
2. Give an example.
3. Why is this?
4. What substances does grain especially draw from the soil?
5. How would you remedy such special exhaustion?
6. How would you return the phosphoric acid, for example?
7. But with any kind of cropping may not even a fertile soil be exhausted?
8. How is this explained?
9. How is an exhausted field like an exhausted purse?
10. How is the farmer to keep his land in a fertile condition?
11. How much of the various substances must be put upon the land to keep it in its present condition?
12. How much to make the land better?
13. In this case, where is the profit to come from?
14. How do you mean?
15. Then the farmer may yet make a profit?
16. What do you call the substances which the skilful farmer puts into his land?

COMPARATIVE CONSUMPTION OF COTTON AND WOOL,

UNDER THE FREE TRADE AND PROTECTIVE SYSTEMS.

THE annual circular of the British Board of Trade gives the following statement of the

Exports of Packages from Liverpool to the United States for 1848, *and the three previous years.*

COTTONS.	1845.	1846.	1847.	1848.
New York	11,217	10,289	17,759	15,315
Philadelphia	2,464	4,253	6,073	4,357
Baltimore	293	192	1,075	677
Boston	3,354	3,601	5,805	3,305
New Orleans	816	924	2,267	4,070
Total	18,174	19,258	32,979	27,724
LINENS.	1845.	1846.	1847.	1848.
New York	13,445	13,064	14,943	14,001
Philadelphia	2,519	2,810	5,302	3,371
Baltimore	487	384	494	542
Boston	3,453	3,380	5,449	3,182
New Orleans	1,025	1,151	1,873	2,047
Total	20,929	20,819	30,061	23,143
WOOLLENS.	1845.	1846.	1847.	1848.
New York	9,114	7,017	16,369	14,068
Philadelphia	1,946	1,873	4,547	3,192
Baltimore	652	308	302	347
Boston	2,975	2,794	4,809	2,459
New Orleans	96	82	277	516
Total	14,793	12,070	26,301	20,582
WORSTEDS.	1845.	1846.	1847.	1848.
New York	4,449	4,945	15,888	13,091
Philadelphia	539	1,095	3,968	2,831
Baltimore	47	3	320	292
Boston	2,259	2,640	4,769	2,497
New Orleans	32	67	290	290
Total	7,326	8,750	25,235	19,010
BLANKETS.	1845.	1846.	1847.	1848.
New York	2,383	1,701	3,546	3,288
Philadelphia	437	340	778	560
Baltimore	88	77	145	143
Boston	98	48	278	214
New Orleans	50	58	118	228
Total	3,056	2,233	4,837	4,433

A glance at the above tables will show to all, says "The Dry Goods Reporter," why it is that we have written so confidently upon a rise on most styles of British fabrics. It will be perceived that Great Britain exported to us in 1848 a less number of packages by 25 per cent. than in 1847. The experience of all must also point to the fact, that *the major part of this decrease was in articles designed for the trade of last fall and this spring*, as the mania for importing extended throughout the whole of 1847, and was still running strong in the spring of 1848."

We desire most particularly to call the attention of the wool and cotton-growers to this statement, as it contains information of serious importance to them. The whole consumption of foreign cottons in 1848, over 1846, was little more than 8000 packages. Averaging them at 2000 yards each, we obtain sixteen millions of yards, the product of about four millions of pounds of cotton, or ten thousand bales, about enough to supply five factories of respectable size, whereas, had the tariff of 1842 been adopted as the *settled*

policy of the country, we should now have running, in addition to what are now in existence, one hundred, if not even two hundred, such factories, consuming two hundred, if not four hundred, thousand bales in addition to what is now consumed, while the superior productiveness of labor everywhere would enable every man, and woman, and child, to consume two yards where now they consume but one.

The increased consumption of woollens and of blankets is but 7000 bales, and averaging them at 500 pounds each, we obtain three millions and a half of pounds, as the increased demand produced in the wool market of the world by our change of system in 1846. Let us now see what was the increase produced by the adoption of the tariff of 1842. In that year we consumed about 35 million pounds. In 1846, four years after, the consumption exceeded 50 million pounds, having increased about one-half in the short period of four years, and it would have doubled in four years more, had the system remained unchanged. As it is, we have shut up numerous factories that would have consumed vast quantities of wool. We have ruined their owners, and we have so far diminished the power to consume woollen cloth, that the quantity *manufactured and imported* in 1848 was not as great as that manufactured and imported in 1846. The power to consume both cotton and woollen cloth has *diminished*, while our population has *increased* at least eight per cent., and all because the measures of the government have tended to separate the plough and the loom, and to increase the number of persons employed in the work of transportation and exchange, *at the cost of the producer*.

In all this, too, we wish our readers clearly to remark, we have claimed no allowance for the fact that the great reduction of imports took place in the latter half of the last year. Were we now to compare that portion of 1848 with the same portion of 1846, the result would be much more striking; and yet even that would not give the full truth, for the effects of famine and revolution in Europe, as shown in the prices of food, had not even then passed away.

The truth or fallacy of the doctrines of the administration must be determined by an examination of their effects on the power of consumption. If under the free trade system men can consume more cloth and iron than under the protective one, then are the lessons taught in the Treasury Report right; but if they can consume less, then are they wrong. We pray our readers to compare for themselves the power of consumption in 1846 with that which existed in 1842—the period of almost perfect free trade—and that which now exists, under the free trade system, with that which did exist in 1846–1847, under the protective one, and determine for themselves on which side is to be found the truth.

Cure for Pleurisy.—Wash and beat 3 or 4 lbs. of nettle-root—boil it with two gallons of hydrant, rain, or river water, until reduced to one gallon; strain it through a cloth and sweeten it with molasses. Take a pint every ten minutes, as hot as it can be drunk. Let an old woman stand by to give the decoction, and keep the patient well covered in bed; and if the above directions are strictly attended to, the pleurisy will be cured in ten hours or less, without a doctor, and a saving of $20 or more, according to the supposed length of your purse.

New York Average Crops in 1845.—Winter wheat, per acre, 14 bushels; oats, 26; barley, 16; rye, 9½; Indian corn, 25; buckwheat, 14; peas, 15; beans, 10; potatoes, 90.

MANUFACTURING BY SLAVE LABOR.

"South Carolina already has several flourishing cotton manufactories in operation. Among those recently completed is the Graniteville Mill, on the South Carolina Railroad, about 11 miles from Augusta, one of the largest interior cotton markets in the United States. This mill contains 9250 spindles, and 300 looms, and is said to be one of the most perfect mills in the country. The factory buildings are of granite, the dwelling-houses of wood, put up in good taste—the streets and grounds laid out and ornamented, and nothing spared which will add to the beauty of the scene, and inspire pride in the operatives. There is said to be scarcely a town in New England which will compare with it for neatness and beauty; and the old politicians who visit it, admit that it is indeed one of the bright spots in South Carolina, and that, if it proves to be successful, it will revolutionize public sentiment. Failure is considered out of the question; they have Rhode Island men to manage the concern, and the most efficient that can be procured. Labor is obtained at about half the cost of labor in New England, and the operatives are said to be little inferior to those in Rhode Island. The favorable location, with industry and good management, must secure profitable results. The expense of the whole establishment is $33 per spindle, including 9000 acres of land, dams, canal, water-power for 20,000 spindles, hotel, academy, two churches, and 90 dwelling-houses."—*Southern Argus.*

We take the above from one of our exchange papers, and it affords us a high degree of pleasure to give it to our readers as an evidence of the growing tendency, throughout the South, to adopt that policy which will tend to bring the loom and the anvil to the side of the plough. In no part of the Union is a change so necessary. Of all the States in the Union, there is no one, if we may judge by the statements contained in the various addresses to the Agricultural Society, that contains more of the natural elements of wealth and prosperity than South Carolina, and yet her population has been, of late, actually diminishing, and men have abandoned their properties because purchasers, even at low prices, could not be found. Let her pursue with spirit the new course upon which she is now entering—let her exert herself to induce men who have looms and anvils to come to the side of her ploughs and harrows—let her people combine their efforts to obtain for themselves the machinery requisite for converting their food and their wool into cloth, and the State will speedily occupy that position in the Union to which her natural advantages so well entitle her. She will then cease to import lime from Maine, or hay from New York, because increased population and wealth will enable her to make roads for herself, and she will then find that the community that is *least compelled to depend upon foreign markets, is the one that can sell to most advantage in those markets, and the one that is under the least necessity to buy in them, is the one that can buy most advantageously.* She will then, and not till then, buy in the cheapest market and sell in the dearest one, and to the advantage thus obtained she will add that derived from cultivating rich lands, yielding manure, by aid of which to improve the poor ones, instead of wasting labor on poor ones, becoming poorer every day by reason of her inability to return to the land the refuse of its products. She will then find that "population makes the food come from the rich soils," as now she finds that depopulation is driving men back to the cultivation of poor ones.

Food.—Nearly one half the weight of all vegetable productions which are gathered as food for man and beast, in their dry state, consists of carbon: the oxygen amounts to rather more than one-third, the hydrogen to little more than five per cent., while the nitrogen rarely exceeds two and a half per cent. of their weight.

THE HALF-BRED RACER.

A second-rate description of racer has lately been very prevalent in England, Newmarket excepted, known by the term "cock-tail," or *half-bred* horse, as he is called; but improperly so termed, because the stain in him is generally very slight indeed, and too often difficult to be traced. Many objections are raised by sportsmen, who are thorough racing men, and who wish well to the Turf, against the cock-tail racer, and for very good reasons. In the first place, if really half-bred, he resembles the royal stamp upon base metal, for no half-bred horse is deserving the name of racer, nor will he always stand the necessary preparation. Secondly, what are called half-bred stakes, some of which are very good, have been the cause of a great many frauds being committed, by bringing horses to run for them under false pedigrees, which will ever be the case, from the great difficulty of proving a horse to be thorough-bred, whose dam may have been purchased by accident, or in some clandestine way, and still perhaps of pure racing blood. Again, as there is no scale by which the degree of impure blood, which qualifies a horse for these stakes, can be measured, the breeder of the cock-tail, of course, avails himself of the parent stock in which the slightest possible stain can be shown, which indeed has been attempted to be shown, in some of the best race-horses of later times. In this case, an animal is produced against which no half-bred horse, in the proper acceptation of the term, has a chance, and he sweeps the country of all the good stakes; and some such horses (Habberley, for example) have proved themselves superior to many of the thorough-bred racers of their year.* But the breeding of horses for these stakes is any thing but beneficial to the country, the great object of racing. It encourages a spurious race of animals, often possessing the faults of the blood-horse without the strength and activity of the hunter, and it was for the latter description of

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* The general and generally well-founded opinion in England is, that no cock-tail or under-bred horse can maintain a long contest against a thorough-bred. If he is forced to encounter long and repeated struggles, nature denies him the power of performance—as they say in that case, "out comes the black mare." But there are instances in sporting annals, that look like exceptions, and such as would seem to show that sometimes it depends on whether the dam, supposing her to be cold-blooded, breeds closely after the horse, or after herself? Walk-in-the-water, for example, one of the most successful and famous race-horses at all distances, that ever figured in the Western country, made a good race at Nashville, when he was eighteen years old; and his history was substantially as follows:—His groom—Peter Faggan—was a free colored man, who fell in debt to a Mr. Weaver, who placed the account in the hands of a collector. Weaver was riding a little pacing chestnut mare, in company with Allen J. Davie, to whom Sir Archy then belonged: Davie hearing Weaver ask the collector if he had made that money out of Peter Faggan, and the collector answering no, and he doubted if he ever could, said jestingly to Weaver, "You had better take it out in *music*." It seems that Faggan could not only make the most graceful bow, but drew the sweetest bow of any man in his bailiwick. Weaver demurred to the music, whereupon Davie told him if he would go home with him that night, he would let Faggan pay him with a chance of his *mar* to Sir Archy. It was agreed to, and the celebrated old Walk-in-the-water was the produce. When he became so highly distinguished, this little chestnut pacing dam was hunted up, and bred again to Sir Archy more than once, but with all, except the first produce, "out came the black mare." She bred after herself, and the subsequent produce all proved to be dunghill. Her dam too was a country pacing mare. We dare say our old friend Panton, if alive—and such men should never die or lose their faculties, if we could help it—could tell many interesting particulars of old Walk-in-the-water, the cock-tail.

It was only to show that a cock-tail may be game that he was made to "burst his cerements" for this occasion.—*Editors P. L. & A.*

horse that this stake was first intended. *Bonâ fide* hunters' stakes would be advantageous, if *open to all horses* bringing certificates of their having been regularly hunted throughout a season, but not merely ridden by a boy to see a fox found; and giving no allowance to the horse called "half-bred." Let the best hunter win, which would encourage the breeding of strong thorough-bred horses, which make the best hunters of any—a fact no one who has ridden many of them will deny.*

THE HUNTER.†

GENERAL DIRECTIONS TO BE FOLLOWED.

There is no description of horse which could be applied to so many purposes, racing excepted, as the powerful English Hunter. Setting aside his own peculiar services in the field, he is fit to carry a man on the road, on the field of battle, and he answers for every kind of draught. Indeed, we are inclined to believe no horse would equal him in ploughing; and as for road-work on harness, either slow or fast, nothing could touch him, in a carriage properly suited to his powers.‡

We will, however, set forth what we consider the best properties of the full-bred and the half-bred hunter, as also the most probable means of breeding each kind to advantage; at the same time venturing an opinion, that, when their individual capabilities are put into the scale of excellence, the balance will incline to the former.

One great obstacle to the general success in breeding hunters is, not so much the difficulty of access to good stallions, but of making breeders believe that it would be their interest to send their mares to such as are good, although at an extra expense. Most rural districts, in other respects favorable to horse-breeding, swarm with covering stallions, the greater part of which have proved very bad racers; but which, falling into the hands of persons who are popular characters in their neighborhood, and covering at a low price, get most of the farmers' brood-mares sent to them, their owners never reflecting, as they gaze upon these misshapen animals, that Nature will not go out of her course to oblige them, but that, in the animal creation, "like begets like." Neither does the evil stop here. So much is this made a matter of chance instead of one of judgment, should the produce of a mare sent to one of these bad stallions be a filly foal, and she proves so defective in shape and action as to be unsaleable at a remunerating price, she remains the property of her breeder, and in time becomes herself a brood-mare. What, then, can be expected from such produce? Why, unless chance steps in and supplies the defect of judgment, by the procreative powers of the male, in the case of a better sire being selected, so far exceeding those of the female as to produce a foal free from the defects of the dam, another shapeless, unprofitable animal is produced.§ Neverthe-

* *Weatherby's General Stud-Book.* To assist in the detection of spurious blood, and the correction of inaccurate pedigrees, is the chief purpose of this excellent publication, now increased to a third volume, and forming a part of every sportsman's library.

† We give this chapter the sooner, because in breeding a good hunter a farmer gets a horse good at all work.

‡ When the "Woollens Bill" was under discussion in the House of Representatives, John Randolph said he would "at any time go fifty yards out of his way to kick a sheep!" Fanatical as he was, or pretended to be, in his aversion to that most unoffending of animals, he was as much so in his admiration of the bred-horse, whose "slouching walk" he used to say would "tell even in the plough in a hot summer's day."

§ Universal suffrage and the love of popularity are two of the things good in the use

less, in the course of time, perhaps this produce, if a female, however bad she may prove, is also bred from, and thus a succession of shapeless horses is produced, to the certain loss of the breeder, and much to the injury of the community. Under the most favorable circumstances, and with the aid of good judgment, we cannot consider horse-breeding to be a certain source of gain; yet there are many inducements to try it as one branch of rural economics. The money goes out a little at a time, or by degrees, and therefore it is suitable to such occupiers of land as cannot embark in more extensive speculations, and it returns in a lump, oftentimes at a most welcome moment, and, in many instances, of sufficient amount to render the average of former less profitable years sufficient to cover expenses, if not to leave a profit. There is likewise another inducement to breeding horses; we mean the pleasurable excitement inseparable from all human speculations, from which more than an ordinary return may be looked for, which is the case here; added to the nearly universal interest attached to the breeding and rearing of every species of domestic animals.

With respect to brood-mares designed for breeding hunters, we admit that circumstances, not always within control, have their weight. An occupier of land is possessed of a mare or two which he thinks *may* breed hunters, and having them, it may not be convenient to him to replace them by those which might be more likely to breed good ones. But the choice of a stallion is always within his control, and he should not spare trouble, and moderately increased price, in his selection. It is well known to all

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and bad in the abuse of them. The fear of their popularity keeps State Legislators from enacting a few wholesome regulations to improve the breed of horses. There ought to be, in each county, commissioners, known judges of the horse, who should assess the rates of *licences for keeping public stallions*, and they should be regulated by a sliding scale, making the tax lighter in proportion to the excellence of the horse, ordering all inferior brutes to be altered or shot, as contraband of war. In Virginia, with a conservative and improving discrimination, which has always characterized her legislation, and carried her forward to such an admirable development of all her resources, they lay the tax on the *owner*, and not with any reference to the qualities of the horse—making the owner of the most magnificent stallion, even a Timoleon or a Sir Charles, pay as much as he who advertises for public use a beast better suited to be given to hounds than to mares.

While on this subject of legislation for the improvement of the horse, we cannot forbear—and would not if we could—quoting a beautiful letter (at which he is so inimitable) from our old friend, CHRISTOPHER HUGHES, then *Chargé d'Affaires* at Copenhagen. "Shall auld acquaintance be forgot?"

It had been made our pleasing duty to communicate to him, then on leave of absence, and on a visit to Baltimore, the unanimous resolutions of the old Central Course Jockey Club, inviting him to attend one of their regular biennial race meetings; and all who partook of them and yet *survive*, remember what delightful re-unions they were for not a few of the *elite* of the land. Hughes was sick, and could not attend, but said, "I am not the less sensible of the amiable feeling which has dictated this kind mark of distinction and of recollection. I am gratified at such proofs from so many of my old friends and beloved associates, that I still hold a place in their cordial and affectionate memory. Twenty years have made sad ravages among those who *started with us!*" Since then fifteen years have been piled on the twenty! In the meanwhile, Time has not stayed his ravages. Alas! where is the amiable and gentlemanly Proprætor?—where "The Napoleon of the Turf?" *Cum multis aliis!* But for another quotation; for who knows how long he may remain to write, or I to quote him? "You do justice," said Hughes, "to my opinions on the *horse!* They are more than opinions: with me it is instinct to love that noble animal! I consider the horse as the creature in animated nature next in importance and in *dignity* to man: and I know no animal more degraded than the man who *undervalues* or *over-works* the horse! Nor are there many subjects more worthy of a humane and enlightened legislation, for improvement and protection, than is this gallant and generous and useful animal, which most men admire, all use, and, alas! too many abuse."

hunting men, that the stock of certain horses have been remarkable for making good hunters, (we could name many of present and past times,) and that there are such horses always to be found, on seeking for them. A few pounds extra, laid out by the breeder in putting his mares to such horses, are sure to be amply repaid; for the produce would be generally sought after and purchased, even previously to their being tried. Englishmen know of no such restrictions, nor do we wish they ever should; but the interference of the governments of several European states as to stallions for the use of their respective countries, reads us a useful lesson on this head; for it is well known, on the other hand, that a great number of stallions to which English hunting mares have been put, have been equally remarkable for begetting soft, infirm stock, quite unequal to endure, for any length of time, the severe work of a hunter. It should also be borne in mind, that even a first-rate racer may not be a propagator of first-rate hunters. The former is called upon to exert his powers on very different ground, and under very different weight to the latter, and the action which may suit one may not suit the other. This accounts for the stock of certain thoroughbred horses, which were very indifferent racers, proving very excellent hunters. We have already given it as our opinion, that a cross of Arabian blood is a great desideratum in that of an English hunter, and we need not urge this point further; but if breeders would reflect, that the expenses of rearing a bad colt equal those of rearing a good one, they would attend more than they do to the following nearly unerring directions.

First, Observe peculiarity of shape in horse and mare. As length of frame is indispensable in a hunter, if the mare be short, seek for a stallion likely to give her length. Again, if the mare be high on her legs, put her to a short-legged stallion, and *vice versâ;* for it is possible that even a hunter's legs may be too short, a racer's certainly may be. In fact, to form a complete hunter, it is necessary he should be more perfect in his shape than a racer, which will admit of imperfections that would quite disqualify the other.

Secondly, Look to constitution. As no description of horse endures the long-continued exertion that a hunter does, this is a point to be attended to. But it may be overdone. Horses of a very hard nature, very closely ribbed up, consequently great feeders, with large carcasses, seldom make the sort of brilliant hunter now the fashion in England. Besides, one of this description requires so much work to keep him in place and in wind, that his legs must suffer, and often give way when his constitution is just in his prime. Horses with moderately sized carcasses last longest; and, provided they are good feeders, will come out quite as often as they ought to do, and are invariably good winded and brilliant, if well-bred and of good form, with a few other requisites. We never saw a very closely-ribbed, large carcassed horse brilliant as a hunter, and we know such form is not approved of in the race-horse.

Thirdly, and *lastly*, let the breeder of any kind of horse be careful in avoiding either sire or dam that has proved constitutionally infirm. As has been already shown on very high authority, perfect or defective conformation is not less likely to be the result of a proper or improper selection of horse and mare, than disease to be inherited from parents that have been constitutionally diseased, or health from such as have been healthy. We could name stallions whose stock have been blind; others afflicted with splents, curbs, and spavins, and a mare which produced three roarers by three differerent sires. But it may be said, that splents, curbs, and spavins are the result of malconformation of the parts. Granted; but avoid all such

malformation which is quite apparent to the eye, in a breeding stud. It may perhaps be carrying this objection too far, were we to say, we would not breed from a mare or horse which had become groggy or lame in the feet from diseased navicular joints. Had the feet been more vigorously constituted, perhaps such lameness might not have occurred; yet it is but too probable that here the predisposing cause may be traced to over-severe treatment, and not to constitutional defect.*

TRAINING OF COLTS.

Next in importance to the judicious selection of sire and dam, is the rearing of the colt which it is intended should make a hunter. It was the remark of a gentleman, who kept fox-hounds more than half a century, that "great part of the goodness of a horse goes in at his mouth," and nothing is more true. In the work called "Nimrod on the Condition of Hunters," (p. 223, first edition,) is the following passage:—"It is my confirmed opinion, that unless a colt be what is called 'deformed,' it is in the power of good keep, exercise, and physic, to make him what is termed 'a fine horse,' and one which will sell for a large price, either for harness or the saddle. No one who has not witnessed it, is aware of the improvement in shoulders, thighs, gaskins, &c., from good old oats, accompanied by regular work and proper riding." Breeders of hunters may be assured that such is the case; and that it is of little use to breed colts with the expectation of their making first-rate horses, unless they keep them *very well* in their colthood. They should also be treated *as horses* at a very early age. They should be ridden gently, and by a light man, or boy, with good hands, at three years old, across rough ground, and over small fences; and at four they should be shown hounds; but they should only follow them at a distance, and after the fences are broken down; for, if put to take large leaps at that tender age, they are apt to get alarmed, and never make first-rate fencers afterwards. Above all things, avoid getting them into boggy ditches, or riding them at brooks; but they should be practised at leaping small ditches, if with water in them the better, in the middle of a field, the rider putting

* We are clearly of opinion, that, in general, too little is thought, and great mistakes made, about the proper *condition* of the stallion, by which we mean the state of his system when employed for the purpose of procreation. At this season, in order to catch the vulgar eye, they are too much pampered—kept too fat—and take too little exercise. A remarkable instance once occurred in England, illustrative of what we mean. George IV. when Prince of Wales was fond of the chase, and rode a hunter, an entire horse, of unequalled excellence. In admiration of his great powers, he caused a few of his mares to be bred to him soon after the hunting season was over, and before he had lost his hunting condition, and the produce, on coming to maturity, proved every way worthy of their sire. But when he had ascended the throne, and relinquished the chase, the same horse being pampered and kept, and in great demand as a stallion, failed altogether. Being loaded with flesh, without exercise, and over-tasked in the breeding stud, his stock shot up into lank, weak, leggy, awkward, good-for-nothing nags, to the ruin of the horse's character as a stallion.

It must have been in reference to this effect of *condition* at the time of procreation, that Diogenes said to a stripling, somewhat crack-brained and half-witted, "Surely, young man, thy father begot thee when he was drunk;" and Shakspeare intimates the same thing where he makes a hero taunt his enemies with the remark, "For ye were got in fear." For these suggestions we are indebted to a correspondent (G. B.) of "The Farmers' Library." We know not whether he does us the honor to read this journal. We have called for him—so you may call spirits from the vasty deep, but will they come when you call?—*Editors P. L. & A.*

them at them in rather a brisk gallop. This gives them confidence, and, the natural result, courage. With respect to the use of the bar, and teaching colts to leap standing over it, the practice is now condemned, and the system of letting them become timber jumpers, by taking it, as it comes, in crossing a country, is preferred, the present rate of hounds not admitting of the time occupied in a standing leap.

Some sportsmen adopt, and we believe with good effect, what is termed the "circular bar." Every description of fence that a hunter is likely to meet with is placed within a prescribed circle of ground, and in this is the colt exercised or "lounged," as the term is, the man who holds him standing upon a stage in the centre. As another man follows him with a whip, he is forced to take his fences at a certain pace; and, in a very short time, a good-tempered colt will take them with apparent pleasure.

At five years old it is customary to consider a horse as a hunter; but we are inclined to demur here. It is true, that if a colt has been very well kept, on the hard meat system, he is enabled to go through a good day's work with hounds at five years old, being quite equal to a six-year-old which has been kept on soft food, and not sufficiently forced by corn; yet it is always attended with danger of injury to his joints and sinews, if not to his general constitution; and we cannot pronounce a horse to be a hunter until he has passed his fifth year. As muscular action, however, produces muscular growth, he should not be kept in idleness during his fifth year, but should be ridden to cover, or with harriers, before Christmas; and when the ground gets dry and light in the spring, a good burst with fox-hounds may not do him harm. We do not, however, consider any five-year-old horse fitting or safe to carry a gentleman over a country, as he cannot be sufficiently experienced to take a straight line.

We have known some masters of fox-hounds who have preferred purchasing yearling colts, or weanlings, at Michaelmas, to breeding them for their own use. The classical reader cannot fail calling to his recollection here the practical lesson which Virgil, in his third Georgic, imparts on this head; neither can the purchaser of such animals do better than follow it to the very letter. Should he fix upon the one which, as he describes him:—

> "Primus et ire viam, et fluvios tentare menaces
> Audet, et ignoto sese committere ponti,"

he would be pretty certain of having in due time a first-rate hunter, that would turn his tail to nothing.* Nor should the breeder overlook the poet's advice to keep his young stock well, if he wishes to have them in the high form (and can any thing be finer?) in which the one of his own choice is presented to us in this most splendid passage.

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* The writer of this article recollects "a case in point," as the lawyers say, with reference to this system of purchasing *promising* colts. A farmer had, among others, a yearling colt, which he did not dream of making a hunter of, by reason of his being out of a cart-mare, until, on the hounds running over his farm, he perceived him follow them, which he continued to do till the fox was killed at the end of a long chase. His owner was, in consequence, induced to ride him with hounds when he became a horse, and a capital hunter he made, in the late Sir Richard Pulerton's hunt, the property of a yeoman of the name of Humphrey Hughes, of Altrey, one of the best riders in the said hunt. The writer himself offered seventy pounds for this horse, when he was half worn out, but his offer was refused.

ROOT CROPS.—RUTA BAGA, OR SWEDISH TURNIP.

We have never been able to persuade ourselves that root crops might not be profitably made an object of *much more attention* than they are in the Middle States; and especially the Swedish turnip. We are aware that manufacturing communities generally are needed to bring from rich lands *tons* of root crops, instead of *hundreds* of pounds of grain crops from poor ones. Still we are fully persuaded that turnips might and ought to be cultivated extensively, to be fed to dairy cows, and to be transported to market in the form of sheep and cattle—while they would greatly increase the quantity of manure to keep up the fertility of the soil. It is for that object, and as the best preparation for wheat and barley, that they are so much cultivated in England. It is no exaggeration to say that the suppression of the turnip crop in England now, would impoverish the nation, and jeopard the government.

The Swedish turnip came into use in the United States about the time of the establishment of the first agricultural journal,—"The American Farmer,"—of which to-morrow will be the twenty-ninth anniversary, making thirty years! It was introduced into field-culture on Long Island, New York, by the celebrated WILLIAM COBBETT, who *described the plant*, and wrote a complete and detailed treatise on the cultivation, curing, and harvesting the root. He sent to the Senior Editor of this journal, then Editor of "The American Farmer," an account of a crop of thirty tons, or 1600 bushels to the acre, made in England. We could give many cases of crops of 1000 bushels, and more, in this country; but our purpose now is to refute the allegation that our *climate is too dry* and our labor *too dear* for this crop, by the following communication from Judge Buel, who, it will be seen, said that after six consecutive years' experience, he was more and more impressed with the profit and the value of the crop. We might find or make many re-hashes of old things for our readers, but doubt if we could better fill the same place than by giving this in Judge Buel's own language:—

From an unpublished volume of Agricultural Memoirs.—On the Cultivation of Ruta Baga as a second crop; with an estimate of its comparative value for feeding stock: By J. BUEL, *of Albany.*

Having for several years grown the common white turnip with uniform success, on ground where the same season I had cut wheat, barley, rye, &c., I was induced, in 1822, to hazard the experiment, then to me a novel one, of raising the Swedish turnip after clover. My success in that and the two subsequent years has fully confirmed me, not only in the practicability, but in the economy of the practice. The result of my first experiment will be found in the Memoirs of the Board, vol. ii. p. 250.

The second experiment was upon a lay, partly of lucerne, too thin to be worth preserving, and partly of clover. The first was cut twice for green food, and the latter once for hay. The ground, having been manured, was ploughed and harrowed, and the seed drilled in, at the distance of three feet between the rows, the 28th of June. The crop was cleaned, thinned, and hoed in the usual way, and the product was between five and six hundred bushels, or about sixteen tons on the acre.

Encouraged by this success, I this year put in two and a half acres. Being short of pasture, I fed off the clover in June, instead of cutting it for hay; manured, ploughed, and harrowed the ground. A man was employed half a day in putting in the seed with a drill-harrow. The crop was between 12 and 1400 bushels. Some of the roots weighed between 15 and 16 lbs. each. The tops, nearly equal in bulk to an ordinary crop of grass, were fed to my cows in November and December, with great benefit to their milk as well as flesh. The roots were pitted in the field.

Messrs. I. and J. Townsend, who cultivate a farm adjoining me, have raised ruta baga the three last seasons, the last of which was upon a clover lay, where the grass had been mown for hay. They have used their crops in fattening bullocks, with good success.

The following is a fair estimate of the expense of cultivating my crop the current year:—

2½ days ploughing, man and team	$2.50
1 day harrowing	1.00
½ day man drilling in seed	0.25
2⅓ lbs. seed, at 75 cents	1.87
Man, boy, and horse, 1½ days, going through twice with the cultivator	1.50
10 days' work in thinning and weeding once	5.00
12 days do. in pulling, topping, and pitting 2½ acres	6.00
	$18.12
50 loads manure, and spreading	16.50
Total expense	$34.62

Or $13.34 the acre. This is allowing the whole expense of the manure, though not more than a third or a half should be charged to the crop. Assuming as a fact that the product was 1400 bushels, the expense falls short of two and a half cents the bushel. I make no charge for the ground, because it had given its crop of clover; and the tops more than compensated for the after-feed. Besides, it is greatly enriched, and made clean, and in fine order for a barley crop, by the manure and turnips.

That I may not be charged with underrating the labor, I will state my mode of culture somewhat in detail. The ground, being a sand or sand loam, requires but one ploughing for any crop, and is soon pulverized by the harrow. This work was therefore done in less time than is stated in the estimate. The drill-barrow is propelled by a man in the same way that a wheelbarrow is; and it requires the same time to drill in and cover the seed, that it would to furrow the ground for corn. The seed being sown in drills, an implement called the *cultivator*, which cuts 22 inches, destroys the weeds and mellows the soil between the rows. The thinning and weeding are performed by turnip-hoes, the blades of which are about an inch and a half wide, and eight inches long; their extremities being rounded, turned up and united, form a shank for the handle. With one of these, a man walks between the rows, and draws it through the strip left untouched by the cultivator, leaving the plants standing only at intervals of nine to twelve inches. After a little practice, a laborer will thin half an acre a day. I have estimated one-fourth of an acre as a day's work. In harvesting, pits are made at convenient distances, five or six feet square, and eight or ten inches, only, deep. The roots are drawn up with a potato-hook, and thrown to the edges of the pit, where a boy seizes them by the tails, and, with a large knife, strikes off the top at a blow, and throws them into the pit. They are raised in a pile two or three feet above the surface, and brought to a point, slightly covered with straw and two or three inches of earth.

It remains to be shown, that the crop thus produced is really worth what it has cost: to wit, *two and a half cents the bushel*, or thirty-four dollars sixty-two cents in the gross. I can perhaps best demonstrate this, by stating the uses to which it is to be applied, and the manner of consuming it. As my farm is small, it is of importance that every acre should be appropriated to the most profitable use. I keep seven good cows, and a yoke of oxen. To render them profitable, it is necessary they should be well kept. With small enclosures, a good selection of grasses, and frequent shiftings, a cow may do tolerably well with an acre of pasture; but in a single enclosure of ordinary pasturage, two, and sometimes three acres to each cow are found necessary to render the dairy productive. Assuming what I conceive to be a fair medium, I should then require eighteen acres of pasture to keep my nine cattle till the first of August; and about six tons of hay (allowing each animal to consume 24 lbs. per diem, or a ton in three months) to keep them through the months of March and April. Now, these eighteen acres of pasture converted into mowing ground, estimating the product at two tons

per acre, (and I would not commute at less than three tons,) would give 36 tons of hay. The fair average price of this is $10 the ton. Deduct $4 the ton for curing and marketing, and it leaves a clear profit of $6 the ton, or $216 on the whole eighteen acres, which I propose to convert from pasture to meadow. Now if I can keep my stock, and keep it well, without the aid of these eighteen acres, my gain will be the difference between the profit on 36 tons of hay, or $216, and the actual expense of the food on which it subsists. This brings me to the first point suggested—*the uses to which the turnips are to be applied.*

I propose to feed them at the rate of one bushel per day to each animal, commencing the first of March. As 60 lbs. of roots will be far better for a cow or an ox, at that season, than 12 lbs. of hay, the quantity of hay fed to them may be diminished one-half after that time. This will make a saving of three tons of hay in March and April. This saving, which will be equal to $30, I will take no account of, as the feeding may be continued 20 days in May, *till lucerne is fit to cut.* The 1400 bushels ruta baga will, at this rate, feed nine head of cattle till the first of August. But as they may not keep later than the 10th or 15th July—and I think they will keep till that time—resort will be had to clover, if the lucerne fails, or to the early mown fields.

While the ground remains frozen, with a pick-axe or grubbing-hoe, an opening may be easily made into a pit. The whole of the roots are taken out of it, put in the barn, and covered with straw. They are fed without being cut, in the yards—they being kept well littered—or in the stables. When the ground has thawed, they are placed in mangers or troughs, in the stables, sheds, or yards. And in April and May, the roots are all taken from the pits, and spread on the floors of the barns. The lucerne will be a valuable auxiliary after the 15th or 20th of May. This grass will bear cutting three times, at intervals of 30 to 35 days; and as I have an acre of it in excellent order, I think it will afford me a continued supply, until my meadows and grain fields are ready to be pastured.

According to the data which I have assumed, the account will stand thus:

Profit on 18 acres in meadow - - - - - - -		$216,00
From which we are to deduct:		
Expense of 1400 bushels ruta baga - - -	$34,62	
Value of an acre of lucerne, say ' - - - -	20,00	—— 54,62½
Difference or gain - - - - - - - - -		$161,37½

I have made no account for feeding the roots and lucerne, as I think the manure, the value of which is not generally appreciated, will afford an ample remuneration.

The preceding result, I am aware, will, by many, be deemed altogether visionary. I confess it is calculated to surprise those who have never had the opportunity of appreciating the value of this root; yet on re-examining the estimate, I do not find that I have erred in its favor. I have cultivated the ruta baga six years, and my opinion of its value has continued to increase. It is not only valuable for neat cattle, but, when boiled or steamed, for horses and swine; and there is nothing superior to it for sheep. It is also in the spring a fine vegetable for the table. It has been a sure crop with me; bears much frost without injury; does not become pithy, and may be kept as late in the summer as the potato. Yet it is generally getting out of credit, from the circumstance of few persons having been successful in their attempts to cultivate it. If sown on a light soil, well manured, cleaned and thinned when the plants are small, and the ground kept well stirred, it cannot fail to remunerate the cultivator.

AGRICULTURAL STATISTICS.

TABLES like the following occupy considerable space, and are expensive to publish, where the work, as in our case, is stereotyped. Nevertheless, they are indispensable to that comprehensive knowledge of the agricultural affairs of this country, which, according to the doctrine we have been preaching for thirty years, every planter and farmer ought to possess, who makes pretension to being reasonably well informed in the line of his own profession. True it is, that some of our readers, who may happen to be so favored by their Representatives in Congress as to receive the Report of the Commissioner of Patents, may get many tables like this, which serve to make up those Reports; but if by chance they should, they will probably receive along with them, as heretofore, an exhortation to submit themselves to the low wages and low living that may enable them to compete in the grain markets of the world, with the produce of the slave and the pauper labor of Europe—products which in England are consumed and *re-exported* to the United States in the shape of iron, and cloth, and coal.

Foreign Export of Wheat and Rye Flour, Corn Meal, Wheat, Corn, Rye, &c., and Ship Bread from the United States, during the year commencing on the 1st of July, 1847, and ending on the 30th of June, 1848.

WHENCE EXPORTED.	WHEAT.		FLOUR.		INDIAN CORN.		INDIAN MEAL.		RYE MEAL.		RYE, OATS, and other small grain and pulse.	SHIP BREAD.		
	Bushels.	Dollars.	Barrels.	Dollars.	Bushels.	Dollars.	Barrels.	Dollars.	Barrels.	Dollars.		Barrels.	Kegs.	Dollars.
Russia	. .	. .	5	35	. .	. .	. .	. .	. .	. .	. .	2	. .	5
Sweden and Norway	3,007	3,970	595	4,040	. .	. .	. .	. .	. .	. .	$9,059	2	. .	6
Swedish West Indies	. .	. .	5,799	34,127	2,202	1,669	2,789	8,609	325	1,399	1,670	192	110	743
Denmark	. .	. .	56	350	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Danish West Indies	. .	. .	51,222	306,303	5,443	3,712	49,915	153,860	1,011	4,291	8,851	3,005	1,303	11,275
Hanse Towns	. .	. .	4,531	27,924	284	202	200	666	. .	. .	20,021	. .	. .	. .
Holland	. .	. .	2,564	14,365	. .	. .	. .	. .	. .	. .	18,153	. .	. .	. .
Dutch East Indies	. .	. .	2,000	12,492	. .	. .	. .	. .	. .	. .	95	. .	. .	. .
Dutch West Indies	. .	. .	16,810	105,776	665	486	2,533	7,204	1,056	4,599	2,343	1,483	. .	4,972
Dutch Guiana	. .	. .	3,405	23,526	. .	. .	. .	. .	. .	. .	. .	171	. .	637
Belgium	30,207	39,602	1,873	10,046	. .	. .	. .	. .	520	2,310	28,106	1,000	. .	3,325
England	1,285,069	1,689,044	827,202	5,314,616	3,365,392	2,204,979	184,558	591,706	326	1,384	97,671	13,767	16,090	75,291
Scotland	41,923	50,435	37,586	218,234	126,907	87,021	10,225	32,052	. .	. .	1,279	34	35	133
Ireland	204,997	299,032	93,956	587,026	1,569,921	1,075,418	31,817	105,655	118	468	2,354	1,428	109	4,829
Gibraltar	. .	. .	6,038	36,227	5,000	3,500	150	600	. .	. .	201	1,505	30	3,561
Malta	. .	. .	35	215	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
British East Indies	380	500	1,488	8,982	. .	. .	. .	. .	. .	. .	1,935	180	. .	550
Cape of Good Hope	. .	. .	3,603	22,213	. .	. .	66	244	. .	. .	171	253	. .	695
Honduras	1,017	1,253	7,087	43,431	204	122	27	92	. .	. .	1,072	1,385	75	4,641
British Guiana	. .	. .	26,330	151,085	18,838	13,126	9,925	28,290	. .	. .	13,028	16,907	50	53,027
British West Indies	7,094	9,403	227,226	1,327,072	195,993	129,064	117,867	355,364	2,316	9,851	76,343	44,452	3,287	152,207
British American Colonies	309,789	385,826	274,206	1,607,893	216,562	119,730	140,554	421,329	35,462	148,416	30,561	45,886	460	161,647
France on the Atlantic	148,789	186,606	28,895	171,530	1,577	1,199	4	13	. .	. .	5,379	484	307	1,619

France on the Mediterranean	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	1	. .	3
French West Indies	. .	. .	21,269	129,381	20,300	15,106	6,488	21,198	85	337	8,469	1,243	175	4,686
Miquelon & other French fisheries	. .	. .	4,079	24,001	1,500	1,387	50	138	. .	. .	389	38	. .	163
French Guiana	. .	. .	684	4,433	264	118	100	225	. .	. .	840	. .	60	90
Spain on the Mediterranean	. .	. .	590	3,145	. .	. .	100	320	. .	. .	50	. .	. .	. .
Teneriffe and other Canaries	. .	. .	1	7	. .	. .	. .	. .	. .	. .	. .	4	20	27
Manilla and Philippine Islands	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	125	86	676
Cuba	832	1,174	29,872	154,185	205,466	125,634	7,253	22,905	. .	. .	17,142	2,386	1,918	9,766
Other Spanish West Indies	. .	. .	14,846	90,967	4,676	3,523	12,111	38,568	50	264	1,546	2,587	3,441	14,073
Portugal	. .	. .	1	8	. .	. .	. .	. .	. .	. .	. .	1	. .	2
Madeira	1,500	2,100	4,183	26,183	54,397	38,845	750	2,588	50	175	. .	25	50	191
Cape de Verds	100	170	1,745	10,206	. .	. .	10	37	. .	. .	866	3,080	30	8,553
Italy	. .	. .	15	106	. .	. .	. .	. .	. .	. .	4	8	. .	19
Trieste, &c.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	5	5
Turkey, Levant, &c.	. .	. .	80	525	. .	. .	. .	. .	. .	. .	. .	30	. .	75
Hayti	. .	. .	28,009	171,843	. .	. .	245	825	. .	. .	531	760	30	2,327
Mexico	. .	. .	12,070	66,218	9,987	4,801	102	153	30	94	22,120	5,979	. .	23,864
Central Republic	. .	. .	894	4,770	. .	. .	. .	. .	. .	. .	. .	228	. .	691
New Grenada	. .	. .	1,470	9,199	200	107	. .	. .	. .	. .	28	80	120	446
Venezuela	. .	. .	28,446	176,097	3,498	2,489	3,915	12,689	185	738	1,807	723	530	3,020
Brazil	. .	. .	294,816	1,952,212	. .	. .	3	18	. .	. .	1,218	2,150	6,755	14,904
Cisplatine Republic	. .	. .	25,229	152,201	1,281	780	. .	. .	. .	. .	367	271	194	1,315
Argentine Republic	. .	. .	3,913	24,204	. .	. .	. .	. .	50	240	26	275	. .	827
Chili	. .	. .	2,284	15,204	. .	. .	. .	. .	. .	. .	. .	4,389	1,155	15,234
Peru	. .	. .	1,329	9,334	. .	. .	. .	. .	. .	. .	. .	205	100	946
China	. .	. .	4,397	31,640	. .	. .	10	40	. .	. .	. .	3,655	645	12,387
West Indies generally	. .	. .	5,185	32,120	7,077	4,465	594	2,001	. .	. .	2,303	277	176	1,124
South America generally	. .	. .	3,990	27,222	. .	. .	. .	. .	. .	. .	. .	45	. .	186
Asia generally	. .	. .	396	3,129	. .	. .	. .	. .	. .	. .	. .	95	50	465
Africa generally	. .	. .	5,838	39,296	. .	. .	66	204	. .	. .	466	4,014	725	14,362
South Seas and Pacific	. .	. .	1,250	8,765	. .	. .	2	8	. .	. .	108	2,980	. .	9,506
Total	2,034,704	2,669,175	2,119,393	13,194,109	5,817,634	3,837,483	582,429	1,807,601	41,584	174,556	376,572	167,790	38,121	619,096

Treasury Department, Register's Office, January 26, 1849.

Total value, $22,678,601.

JOHN SINGLETON, OF TALBOT COUNTY, MARYLAND.

FIRST USE OF MARL AS A MANURE IN THE UNITED STATES.

Some youthful and vague impressions of the services rendered to the cause of agriculture by the farmer whose name stands at the head of these remarks, served to inspire a feeling of grateful respect for his memory, which has been confirmed and augmented by the little we have from time to time learned of his habits and character. The following extract from a letter of his, in answer to one from the venerable Judge Tilghman, discloses, probably, the origin of the use of marl in the State of Maryland, if not in the United States. It will be seen that it refers back to a period of almost half a century. We shall take an early opportunity to give the whole letter, and to ask how much has been discovered, beyond what is there suggested, as to the use of marl in particular, and to farm management in general? Let us, then, while we press forward in the noble struggle to see who shall excel in the discovery and dissemination of truth, and who in examples of morality and industry—let us, we say, *never forget what we owe to those who have gone before us.* Is it not due, as well to the good of society as to the memory of such benefactors as even at this distance it is seen Mr. Singleton was, that our agricultural annals should preserve fuller and more enduring memorials? We do not particularly know who may be his surviving relations, but if we are not mistaken there is a nephew who possesses all the qualifications of scholarship and materials, with affectionate reverence, to do justice to the virtues of the man and the value of his example. But we took pen only to register, from the letter to which we have referred, the following extracts, which we look upon as historical of *the first use of marl in Maryland.*

This, I believe, will answer all your questions, except as to the time when I began to use the marl, and how soon I experienced the beneficial effect of it?—being your fourth question.

In August, 1805, in digging down a bank on the side of a cove, for the purpose of making a causeway, I observed a shelly appearance which it struck me might improve clay soil; I took some of it immediately to the house, and putting it into a glass with vinegar, found it effervesced very much; this determined me to try it as a manure; accordingly, in September, I carted out about eighty loads, and put it on a piece of ground, fallow, preparing for wheat, trying it in different proportions, at the rate of from twenty-seven to about a hundred loads per acre, and the ground was sown in wheat; I could not, myself, be satisfied that there was any difference through the winter and spring, although General Lloyd, who was viewing it with me in the spring, thought he could perceive some difference in favor of the marl; but at harvest time, the wheat, though not more luxuriant in growth, or better head, was considerably thicker on the ground; and, after the wheat was taken off, the ground where the marl had been put was set with white clover, no clover being on the ground, on either side of it. The next year, 1806, I discovered it in the drain into the head of the cove, which I immediately ditched, and from the ditch put out seven hundred loads, on the fallow ground: the effect as to the wheat and clover was the same, (this was put for experiment, at the rate of from forty to a hundred and twenty cart-loads per acre,) though the marl was not of the same kind as the other, but more mixed with sand and surface-soil, being taken from the low ground, by ditching, and all mixed together. I also tried it on corn ground, spread out as above-mentioned, and found the effect immediate, as to the corn, and in the same manner as above described, as to the wheat sown on the corn ground; this induced me to persevere in the use of it, which I have done ever since, adopting the mode I mentioned before, putting it at first from forty to seventy loads per acre, till I have now come down as low as eighteen or twenty loads per acre, going the third time over the ground with it.

I believe I have now answered all your inquiries, as well as I can, except

as to the average comparison of the past and present crops, which I cannot well do, for the reasons above given, and also that my fields are entirely changed, neither containing the same grounds, nor the same quantity of ground in each; but I believe I shall not be much out of the way, if I say that I think the soil now capable of producing between two and three times as much per acre as it would before I began to use the marl; and though the marl has not solely produced the improvement, yet the improvement would have been far short of what it is, if it had not been for the marl, which has contributed, in a very large degree, towards it; and no small matter in favor of the marl is, that, by the blessing of God on my endeavors, I have, in twelve years, been enabled to improve three hundred acres of ground to the pitch that these are, and am now in a fair way of increasing in the same ratio that a snow-ball increases as it is turned over.

CONDENSED PORTABLE DIET FOR THE GOLD DIGGERS.

Some fifteen years now past, the Senior Editor of this journal had the high satisfaction of sojourning some days, in "charming summer weather," at *Old Brandon*, on the James River—the venerable and delightful residence, then, of the late George E. Harrison, distinguished, even among Virginia gentlemen, for his refined manners, and for hospitality at once sumptuous, easy, and elegant.

Among various sources of recreation provided for his guests, there was laid upon the hall table the somewhat celebrated "Byrd Manuscript," as it was called. The author—Col. Byrd—had been appointed by the British government, long before the Revolution, Commissioner to run the Boundary Line between the Old Dominion and the Old North State, and this manuscript was the record of his daily proceedings under that appointment; but how little could any one expect to find in a mere diary of such a service, such a mass of shrewd observation, witty reflections, and curious anecdote, as is interwoven in this old manuscript about men, statesmen, soldiers, Indians, &c. We copied, by permission, numerous passages for the amusement of our readers at that time, of "The Turf Register and Sporting Magazine," then not only the first of its kind, but among the most popular and best sustained periodicals that our country has produced.

Among these scraps we find a prescription by Col. Byrd, for the preparation of a portable food for those who are about to embark, as those are who are setting out for California, on long and precarious journeys through unsettled countries. We republish it now, in the persuasion that it ought to find its way into the knapsack of all who design thus to wend their way 2000 miles across, through wild, uninhabited prairies, to the great diggins in California.

We here give it for their benefit, and will think ourselves well paid if those who have recourse to it will only bring us back of gold an ounce for a pound of all the provisions they will need if they follow the annexed prescription of old Col. Byrd. Only imagine that such provision should have been then deemed necessary in running the line between Virginia and North Carolina!

[Extract from the Byrd Manuscript in the Brandon Library.]

PORTABLE PROVISIONS FOR TRAVELLERS AND SPORTSMEN.

The portable provisions I would furnish our foresters withal, are glue broth and rockahominy, one containing the essence of bread, the other of meat.

The best way of making the glue broth is after the following method:

Take a leg of beef, veal, venison, or any other young meat, because old meat will not so easily jelly; pare off all the fat, in which there is no nutriment, and of the lean make a very strong broth after the usual manner, by boiling the meat to rags, till all the goodness be out. After skimming off what fat remains, pour the broth into a large stew-pan, well tinned, and let it simmer over a gentle even fire till it come to a thick jelly. Then take it off, and set it over a boiling water, which is an evener heat, and not so apt

to burn the broth to the vessel. Over that let it be evaporated, stirring it very often, till it be reduced, when cold, into a substance like glue. Then cut it into small pieces, laying them singly in the cold, that they may dry the sooner. When the pieces are perfectly dry, put them into a canister, and they will be good, if kept dry, a whole East India voyage.

The glue is so strong that two or three drachms dissolved in boiling water, with a little salt, will make a half pint of good broth; and if you should be faint with fasting or fatigue, let a small piece of this glue melt in your mouth, and you will find yourself surprisingly refreshed.

One pound of this cookery should keep a man in good heart above a month; and it is not only nourishing, but likewise very wholesome. Particularly it is good against fluxes, which woodsmen are very liable to, by lying too much near the moist ground, and guzzling too much cold water. But as it will be only used now and then in times of scarcity, when game is wanting, two pounds of it will be enough for a journey of six months.

But this broth will be still more heartening if you thicken every mess with half a spoonful of rockahominy, which is nothing but Indian corn parched without burning, and reduced to powder. The fire drives out all the watery parts of the corn, leaving the strength of it behind, and this being very dry, becomes much lighter for carriage, and less liable to be spoiled by the moist air.

Thus half a dozen pounds of this sprightly bread will sustain a man for as many months, provided he husband it well, and always spare it when he meets with venison, which, as I said before, may be very safely eaten without any bread at all.

By what I have said, a man must not lumber himself with more than eight or ten pounds of provisions, though he continue half a year in the woods. These and his gun will support him very well during that time, without the danger of keeping one single fast. And though some of his days may be what the French call "jours maigre," yet there will happen no more of those than will be necessary for his health, and to carry off the excesses of the days of plenty, when our travellers will be apt to indulge their lawless appetites too much.

Remarkable Produce at Augusta, Georgia.—In the autumn of 1819, a squash-vine in the garden of Mr. Searle, up to July 31, had yielded 775 squashes.

Gathered	9th August	325
"	16th "	250
"	23d "	375
"	30th "	350
"	15th September	140
Total		1440

They averaged 48 pounds for every hundred squashes. In the same garden, one watermelon seed produced that year 380 pounds of melons. The melons weighed separately from 12 to 34½ pounds.

To prevent Horses rubbing the Hair off their Taits.—Grease the rectum or fundament with hog's lard or bacon; repeat it until the hair grows out again. The habit is caused, it is thought, by an itching of the fundament, occasioned perhaps by the discharge of a species of worm. At any rate, we have been well assured that this is a certain cure.

HUSBANDRY AND PRODUCTS OF CLARKE COUNTY, VIRGINIA.

To the Editors of the Plough, Loom, and Anvil.

GENTLEMEN:—In answer to the queries made in your letter, dated the last day of '48, as also those appended to my communication in the February number, I take great pleasure in replying, to the best of my abilities.

The kind of corn planted by me was large white gourd seed. As some time has intervened, I do not pretend to be very accurate in my estimate of the cost of preparing for and planting the crop; but, to the best of my recollection, it was as follows:—

To five days' ploughing with two three-horse teams,	$25 00
To harrowing one day with two three-horse teams,	5 00
To laying off with four one-horse ploughs,	5 00
To planting and thinning crop,	5 00
To husking and housing 200 *barrels*,	45 00
To shelling my half 500 bushels,	5 00
To hauling to Winchester, (10 miles, at 5 cents per bushel,)	25 00
The cost of the whole crop, shelling, and carriage of half,	$115 00
By 500 bushels of corn, sold at 83 cents per bushel,	415 00
Balance, after deducting all expenses from my half,	$300 00

Allow $30 for shelling and carriage of the other half, supposing it to be sold at the same price, (at which it might have been,) it would add $385 to the profits, making from 12½ acres, $685.

Land is worth from $35 to $60. Mrs. P. has recently refused $50 per acre for the farm on which this crop was grown.

With regard to the value of our slaves being lessened by our proximity to Pennsylvania—in a pecuniary point I think not.

Ours is not properly a grazing country; but it is becoming somewhat the practice to combine it with tillage to a small extent, which is found profitable.

The bullocks are bought in the fall at an average of about $15, and sold the ensuing fall at an advance of $10 or $12 per head, without being corn-fed.

We are careful of, and make due use of our manure; but farming on so large a scale as we do, of course our main dependence is on clover and plaster.

I shall not attempt to draw a comparison between this county and Albemarle, but merely make an extract from an essay delivered before the Agricultural Society of that county, by T. J. Randolph, and published in the Farmer's Register, Jan. 31, 1843: "The country through which the road passes for eight miles, from Ashby's Gap to Warrenton in the county of Fauquier, is clothed most beautifully with grass, and in April, 1842, I was told of the sale of a farm at $50 cash per acre, and that this had not been deemed an extraordinary price for those lands. The proprietors consider them as better *grass* lands than those of *Clarke* and Jefferson, indisputably the *finest* lands in the state. Yet these lands in Fauquier are, in their relative position to the Blue Ridge, aspect of hills, valley, and stream, as well as in apparent quality of original soil, more nearly like the Brown's Cove of our county than any two spots of country I have ever seen. And how different has the hand of man made them! One covered with luxuriant crops, fields of beautiful pasturage, innumerable herds of fat cattle, in fine every thing denoting wealth and abundance. The *other*, like large portions

of our country, exhibiting the remorseless worryings of a short-sighted cupidity, where man has warred against nature and suffered in the conflict."

Wishing these answers may be satisfactory, I am your subscriber and obedient servant. NATHANIEL BURWELL, Jun.

Mill Wood, Clarke County, Va., Feb. 9, 1849.

P. S. There are several misprints in the last communication, (No. 8, page 508,) bushels being put for barrels in divers places, which gives it rather an odd reading.

N. B.

Thus the cost seems to have been about $9 an acre, or 11 cents per bushel, in the corn-house on the land, without charging interest; $3 per acre on the land.

The reader may be gratified to see a comparison of the estimates of the cost of corn in different States, according to the report of the Commissioner of Patents. These estimates may in some measure aid the corn-planter in the endeavor, which all of them should make, to find out whether they are or are not coming out at the "little end of the horn."

Mr. Harvey Hunton, of New Hampshire, says he gets 40 bushels to the acre at a cost of 50 cents a bushel, including $8 *per acre for manure.* Land valued at $25.

Mr. Ambler, of Litchfield, Conn., makes 50 bushels per acre, at a cost of $36\frac{5}{10}$ cents per bushel. Land valued at $50.

Mr. Doubleday, of Binghampton, New York, values his corn land at $25; averages 40 bushels; cost of production 29 cents; nothing charged for manure except 37 cents per acre for plaster in the hill.

Mr. Shearer, of Plymouth, Michigan, makes 50 bushels per acre, at a cost of $8.35; value 30 cents per bushel.

S. M. Bartlett, of Michigan, makes 50 bushels per acre, at a cost of $11\frac{3}{5}$ cents per bushel, without manure.

R. W. Griswold, of Ohio, without manure, makes 50 bushels average, at a cost of 20 cents per bushel.

In Fayette Township, in Western Pennsylvania, the yield per acre for *wheat* is 15 bushels; cost $6, or 40 cents per bushel. Corn, 40 bushels to the acre; average expense, $16\frac{1}{4}$ cents per bushel; interest rated at $33\frac{1}{3}$ cents per acre for value of land.

Drill Husbandry.—At one of the celebrated sheep-shearings that used to be given by Mr. Coke, of Norfolk, afterwards Earl of Leicester, at which hundreds congregated and remained for days together, he mentioned a fact that is not generally alluded to, as being founded on the observation and practice of his manager, Mr. Blaikie, a man of great sagacity. It was that a field with a southern aspect, if rich, should be drilled north and south; but if DRY, and in want of shade, it should be drilled east and west. It is easy to see that, in the latter case, the crop would shade the land from the influence of the sun, and counteract the effect of drought.—*Model American Courier.*

Strawberries.—At the request of the public I forward the proportions of the substances employed by me in the cultivation of the strawberry:—The loam for potting and top-dressing, containing one-third decayed vegetable matter, (humus,) is mixed with eight per cent. of the superphosphate of lime, in bulk. For watering, to the ammonia is added one-half its weight of sulphuric acid, and the whole is diluted in 2000 parts rain-water, irrigating twice a week during summer and autumn, and whenever the soil requires moisture in spring, preserving a humid atmosphere. The kind of strawberry is Keen's Seedling.—*J. Elliott, Norton Conyers, Ripon.*

MICE.

Extraordinary instances of the rapid increase of mice, and of the injury they sometimes do, occurred a few years ago in the new plantations made by order of the Crown in Dean Forest, Gloucestershire, and in the New Forest, Hampshire. Soon after the formation of these plantations, a sudden increase of mice took place in them, which threatened destruction to the whole of the young plants. Vast numbers of the young trees were killed,—the mice having eaten through the roots of five-years-old oaks and chestnuts, generally just below the surface of the ground. Hollies also, which were five and six feet high, were barked round the bottom; and in some instances the mice had got up the tree, and were seen feeding on the bark of the upper branches. In the reports made to government on the subject, it appeared that the roots had been eaten through wherever they obstructed the runs of the mice: but that the bark of the trees constituted their food was ascertained by confining a number of the mice in cages, and supplying them with the fresh roots and bark of trees; when it was found that they fed greedily on the latter, and left the roots untouched. Various plans were devised for their destruction: traps were set, poison laid, and cats turned out, but nothing appeared to lessen their number. It was at last suggested, that if holes were dug, into which the mice might be enticed, their destruction might be effected. Holes therefore were made, about twenty yards asunder, in some of the Dean Forest plantations, being about twelve in each acre of ground. These holes were from eighteen to twenty inches in depth, and two feet one way, by one and a half the other; and they were much wider at the bottom than the top, being excavated or hollowed under, so that the animal, when once in, could not easily get out again. In these holes, at least 30,000 mice were caught in the course of three or four months, that number having been counted out, and paid for by the proper officers of the forest. It was, however, calculated, that a much greater number were taken out of the holes by stoats, weasels, kites, hawks, and owls, and also by crows, magpies, jays, &c., after they had been caught. The cats also which had been turned out resorted to these holes to feed upon the mice; and in one instance a dog was seen greedily eating them. In another, an owl had so gorged himself, that he was secured by one of the keepers. As the mice increased in number, so did the birds of prey, of which at last there were an incredible number. In addition to the quantity above mentioned, a great many mice were destroyed in traps, by poison, and by animals and birds: and it was found that in the winter, when their food fell short, they ate each other, so that in Dean Forest alone, the number which were destroyed in various ways could not be calculated at less than one hundred thousand, and in the New Forest the mortality was equally great. These calculations are made from the official weekly returns of the deputy-surveyors of the forests, and other sources.

There were two descriptions of these mice. One of them called by Buffon *Mulot*, was our long-tailed field-mouse, *Mus sylvaticus*. The other was a short-tailed mouse, *Cervicola agrestis*, and seems to have been the same animal as the *Campagnol* of Buffon. There were about fifty of these latter taken to one of the former. The long-tailed mice had all white breasts, and the tail was about the same length as the body. These were chiefly caught on the wet greens in the forest, and the short-tailed both on wet as well as dry ground.

The short-tailed mouse has a much thicker head than the long-tailed one, and its ears are very short, and almost hid in the hair. Its body is about three inches long, and the tail one inch. The upper part of the body is of a reddish brown, and the belly a deep ash colour. Their runs and nests are under the surface of the ground. They produce seven and eight, and in some instances nine young at a time.

Amongst the birds of prey which made their appearance in Dean Forest during the time the mice were in the greatest numbers, was a small white owl. None of these birds had previously been observed in the forest; but in the space of a few months, many were seen, and were considered to be the most destructive of any of the winged enemies of the mice.

In the pits made for catching the mice, they exhausted themselves in efforts to climb up the sides, so that by far the greater number of them were taken out dead. Many were drowned where the water partly filled the holes; but so little did they dread water, that ash was seen fresh barked, the bottom of which was surrounded with water in such a way, that one of the officers of the forest asserted, that the mouse must have been actually swimming at the time of barking it. In the same report he also mentions his belief that the weasels, at the time they are preying on mice, swallow them whole, and that what they cannot digest, as the fur, &c., they void from their mouths in balls afterwards. In one of the retreats of a weasel ten mice were found; and another weasel

was seen to run into its hole with a mouse in its mouth. It is probable, however, that they were brought there as food for the young. The weasel, I believe, generally sucks the blood of its prey, at least that of the larger animals.

It should be mentioned in conclusion that, in a plantation in Dean Forest, consisting of three hundred acres, not more than four or five plants were found which were not destroyed or injured by the mice.

INCUBATION OF BIRDS.

It is an interesting fact in natural history, that if you remove one or more eggs from the nests of some birds, before they have completed their natural complement, they will continue laying a great number afterwards. If the peewit (*Tringa Vanellus*) is deprived of only one egg after she has completed her number, she immediately forsakes the rest: if, however, she has but one other to lay, and all but one of her eggs are removed, she will continue to lay for ten or twelve days, and sometimes longer. The same has been observed of the blackbird, lark, and the long-tailed titmouse: the latter has gone on to lay as many as thirty eggs before she began to sit, a friend of mine having removed that number. In the case especially of the lark, if only one or two eggs are allowed to remain in the nest, the bird will go on to lay for a long time; but if there are three, she will sit. The usual number of eggs in a lark's nest is five.

This is one of those mysteries in nature which it is not easy to account for. We find that a bird, as soon as it has deposited four eggs in its nest, as in the case of the lapwing, immediately ceases to produce any more; but if disturbed in its arrangements, will go on to lay perhaps five times that number, and yet cease the moment it has collected its usual number for hatching in the same spot. This property does not seem to belong to our domestic fowls. A hen, when she wants to sit, will as readily do so upon one egg as more, and so will a turkey. This latter bird is of a very torpid nature, and will continue to sit for many months together, on a very scanty supply of food.

It appears difficult to assign a reason why birds of the same size and species should produce eggs of a different shape and color. The hedge-sparrow's egg is blue; while that of the robin, who lives on the same sort of food, and is like it in various particulars, produces an egg of a darkish brown and white color, ornamented with yellowish brown spots. The cormorant has pale green eggs, while the egg of the gannet is white: both these birds feed on fish. The eggs of the rook, magpie, and lapwing, are nearly similar in size and appearance. Those of the pigeon, owl, and kingfisher, are white; and those of the blackbird, of a bluish green. In like manner, the eggs of the land tortoise are of a dusky, brownish white; and those of the crocodile, of a bluish white. Even hens in the same poultry-yard, and fed on the same food, produce eggs of a different color, some being much darker than others. I have also observed that some ducks of the same breed have white eggs, and others bluish ones. Hens sometimes produce eggs with a double yolk in them, and others have been found with a double shell. It is a curious and interesting fact, mentioned by Blumenbach, that the part of the yolk of an egg in which the future chick is placed, is so much lighter than the opposite side, that in whatever position the egg is placed, this part is always uppermost, and opposed to the belly of the incubating bird.

Another wonderful fact respecting eggs is, that some birds have the property of either retaining their egg after it has arrived at maturity, or of suppressing altogether the further progress of those eggs which had arrived at a certain size in the ovarium. I have on several occasions purchased pullets for my farm-yard which had just begun to lay. Perhaps on their way to their new home they would drop one egg in the basket in which they were confined; but I have invariably found that, on arriving at a strange place, they have altogether ceased to lay any more eggs till they had become habituated to their companions, and had made themselves acquainted with the localities of their new situation. We know, on opening a pullet who has just begun to lay, that there is a regular succession of eggs of different sizes in the ovarium. Some are nearly complete, others are as large as a marble, and others of the size of a pea. The circumstance of birds being endowed with the extraordinary property of preventing the eggs from arriving at maturity, when their usual habits or place of abode have been changed, is one of those facts in natural history on which little light has yet been thrown. If the leg of a pullet is broken after she has laid two or three eggs, and she is thus prevented from seeking enough of that substance which is necessary to be taken into the stomach with her food, for the purpose of encrusting the egg, she will perhaps drop one without a shell, and then cease altogether from laying any more

till the bones of her leg are knit, and she is able to go about as usual. She then begins to lay again, but the number is regulated by those she had previously laid. Suppose, for instance, that she had laid four eggs before her leg was broken, and that the quantity in her ovarium when she first began was sixteen, she would, when she resumed her laying, only produce the remaining twelve. From this it is clear that a certain quantity of some material—lime and chalk probably—is necessary to enable a hen to produce a perfect egg, and that the want of it retards the process going on in the ovarium, without producing any immediate injury to those eggs which were in a gradual process towards maturity. In the instance already mentioned, of hens ceasing to lay on being brought to a strange place, it was probably occasioned by their restlessness, and not knowing at first where to go in search of what was necessary to enable them to bring their eggs to perfection. It is much to be wished that this curious subject should engage the attention of naturalists more than it appears to have done.

MANUAL OF MANNERS.

CONDUCT AT TABLE.

St. Peter enjoins the practice of "hospitality one to another without grudging." When people invite company, they ought not to be niggardly, as if they were afraid of the expense; nor yet should they be unsuitably extravagant, as if they wished to make a display. Above all, they should not show themselves over-anxious on the occasion; if they desire their guests to be satisfied, they should let them perceive that they are satisfied themselves.

To young married people this advice may be given:—When you have a house of your own, and see company, do not be giving your orders in an imperious tone, as if you were resolved to show your friends that you are master in your own house, which no one doubts. Neither get angry, or betray displeasure at any thing, before company. Nothing spoils the comfort of the party so much as misbehavior of this kind. An easy and unconstrained manner will free the guests from all restraint. Overlook any little fault that may be committed by the servants; but if it should be necessary to notice it at such a time, do it gently and with forbearance. This will put the company at their ease, instead of rendering them uncomfortable; which a contrary demeanor never fails to do.

Too great a display of plate, or too dazzling a show of crystal, unless upon some particular occasion, is in bad taste. Simplicity is the soul of good-breeding, as it is the essence of natural beauty; and to put your visitor on a footing with yourself is the best compliment you can pay him. When you see company therefore, let the table be set out tastefully, but not ostentatiously;—in a manner suitable to your station, but not, as it were, to exhibit your pride and wealth, more than your hospitality and social feeling. Remember that your guests are, for the time your adornments, and not your vessels of silver and gold; and let the honor be given to the former, for whom the feast is spread, without any vaunting show of the latter. Do not invite your friends that you may display your riches; but rather render your riches subservient to the honorable reception and well-treatment of your friends.

Scarcely any thing can be more objectionable than the system of pressing, which some unthinking persons are guilty of at table. It is no sign of hospitality, though doubtless meant for such, or of good-breeding, to force people to eat or drink more than they have a mind to do, or than they feel will do them good.

To be the first to praise your own viands, is a certain mark of vanity, if not of vulgarity. If you wish to show your good-breeding, content yourself with a simple approval, should occasion require you to do so. If you are complimented on the excellence of your dishes, or the choiceness of your wines, receive such praise with a modest acknowledgment, and with no affected airs.

At table the conversation ought to be general, not only before the servants, but after they have retired. There are certain unbefitting topics, there more particularly than anywhere else, not to be spoken of to "ears polite,"—such as those subjects which are apt to affect the stomach, or raise repulsive ideas in the mind.

To rise from table before the cloth is removed, on any account whatever, except when overtaken by sudden illness, evinces a want of good-breeding, or an intentional neglect of the company, which is highly reprehensible. In the host it is unpardonable, and in the guest unmannerly in the extreme. For the master of the house to be the first to quit the table, is an insult to his guests. To rise from your chair at all, even to assist yourself in carving, is a mark of low breeding. To reach across the table is equally contrary to good manners.

The hour of dinner varies in different

families, and with different ranks. Among friends the precise time is generally known; therefore a call at that hour is understood as an intrusion, and, unless when people are on the most intimate footing, or are really in quest of their dinner, is unusual in genteel society.

The conduct in the drawing-room, both before and after dinner, belongs rather to etiquette; but there is one practice to which, in general, literary and studious men are addicted, upon which a remark may not be thrown away:—that is, seizing upon a book and reading, when the person so offending ought to be engaged in conversation with the lady or gentleman seated beside him. It is a sure mark of the want of knowledge of the world to be guilty of such a practice: it exhibits also an undeniable preference of the book to the company, for which the person who shows himself so devoid of good-breeding is either unsuited, or he is desirous of arrogating to himself a privilege allowed to none—namely, the privilege of being rude. On this ill-bred custom of reading in company something farther will be said in the chapter on Amusements.

It is not necessary that any thing should be said here regarding the mere etiquette to be observed at table—that being more readily acquired from observation in society than from the precepts of a book like this; but, while upon this head, it may be remarked that there is one thing which those who give parties should keep in view, and that is as to the *number* of guests invited to an entertainment,—a point which ought to be as much attended to as their quality, or breeding. A crowded table should always be avoided. According to Marcus Varro, who wrote a treatise on the subject, the number present should not be less than that of the Graces, nor more than that of the Muses. This principle of hospitality was well understood by George the Fourth, who usually limited the number of those invited to his table to eight persons. Such a number enables the host to see and converse with every one present, and to attend to the individual comfort alike of all his guests. A larger company would distract his attention, and is, besides, subject to confusion and noise.

This book is intended for English readers, and the author of it would wish to be understood as desirous of improving English manners. The flippancy and frivolity of the French he considers beneath his standard; and their gayety and graceful ease of manner, even when these really spring from the heart, are so different from English politeness and suavity, that he need not enter upon a comparison between them, the contrast being sufficiently strong of itself; and it does not come within the scope of this work to introduce any dissertation on foreign manners or peculiarities. The writer only interrupts, as it were, the course of his regular subject, to say, that something like the following scene, as related by Madame de Genlis, must have been witnessed at an English party, although its features perhaps were not so strongly marked, nor—had he himself described such a scene—would he have depicted it in such strong terms. In England, as in France, political discussion has been the bane of society. It is introduced everywhere, even where least expected. Surely when people meet to pass the evening in enjoyment and social ease, all topics of either an exciting or displeasing nature ought to be carefully eschewed, and general harmony and good-fellowship prevail. What a slight upon the gentler sex it is for the gentlemen to enter upon the discussion of questions in which the ladies take no interest, to the exclusion of all other subjects, or sources of general entertainment and information!

"Towards the end of June, 1821," says the Countess de Genlis, in her lively memoirs, "I dined with thirteen persons, amongst whom were four peers, four marshals of France, and three generals: amongst the peers there were two dukes. I was seated betwixt two peers at dinner; I had no trouble in taking my share in the conversation, for they spoke of nothing but politics, and addressed their conversation to their friends at the other end of the table. We returned to the drawing-room after dinner, and at the moment I was sitting down, I saw with surprise that all the dukes and peers had escaped from me; each of them took hold of an arm-chair, dragged it after him, approached his neighbor, and thus formed a circle in the centre of the room. I was thus left quite alone, with a semicircle of backs turned towards me; to be sure, I saw the faces of the other half of the party. I thought at first they had seated themselves so, to play at those little games that require such an arrangement, and found it very natural and proper; but it was no such thing—it was solely for the purpose of discussing the most difficult questions of state policy. Every one became a noisy orator, bawled out his opinions, interrupted his neighbor, quarrelled and talked till he got hoarse. They must all have been in a precious state of perspiration. It was a correct picture of the Chamber of Deputies; in fact, it was a great deal worse, for there was no president!"

As the way a person conducts himself at table, when invited out to a dinner party, is often taken as a criterion of one's general

breeding, you should endeavour to attain to an ease and gracefulness of manner on such an occasion, which you will find to be much in your favor. Every thing like flippancy or self-sufficiency, pertness or assumption, is to be avoided. These are positive proofs of ill-breeding, and are even more disagreeable and annoying than awkwardness or stiffness, on the part of either guest or host.

THE WHOLE DUTY OF WOMAN.

MARRIAGE.

Hast thou taken to thyself an husband after the institution of heaven, hast thou consented to be bone of his bone, and flesh of his flesh?

Love him as the partner of thy happiness, as the sharer of the pleasures and pains of mortality.

Without love the husband is a tyrant, and the woman is a slave.

The matrimonial vow, without affection, is a commercial contract, it is the shadow of marriage, and not the substance thereof.

Doth he respect thee; do thou nourish and improve his affections.

Art thou perverse and froward, so shalt thou extinguish the flame of love, and raze the traces of kindness from his bosom.

Art thou enamored with his accomplishments, yet let not thy affections outrun his desires, lest thy fondness too openly disgust him.

Neglect not the little arts of endearment, but let the charm which captivated the lover, secure the attachment of the husband.

Forget not the elegance of thy virginity, but appear every morning as at the morning of the bridal day.

Let not jealousy come near thy bosom: it is the monster that feedeth upon its own entrails.

It is called the child of love: but as the viper whose birth is the death of its parents, so is the conception of jealousy the destruction of the mother that bears it.

Be thou cautious to destroy suspicion in the breast of thine husband, lest it prove as fatal to thy peace as if the fruit of thine own conception.

Suspicion goeth about whispering lies, she will fill thy brain with waking dreams, thy sleep shall forsake thee, and thou wilt have no rest night nor day.

Her companions are wrath and anger, and malice and revenge, for jealousy is the rage of a man, and the madness of a woman.

Hath thy husband deceived thee, doth he proclaim it aloud, doth he publish it in the streets, and boast his shame as an act of glory; pour not vinegar on nitre, neither apply corrosives where the balsam of tenderness is wanting.

Neither the thunder, nor the storm of hail, closeth the openings of the dry earth, but the soft dew and the gentle showers of heaven.

Return his injustice with mildness of reproof, that his guilt may not have to reproach thee with bitterness; so shall thy meekness sting him deeper than the sharpest venom of the clamorous tongue.

The roaring of the stuck swine exciteth not our pity; but the patience of the bleeding lamb awakeneth to compassion.

Art thou suspected, yet hast thou been solicitous to approve thyself virtuous; patience will heal the wounds of his unkindness.

Tempt not the weakness of his suspicion by unwonted levity; thou shalt but inflame him the more, for his mind is distempered.

Wouldst thou urge a madman when he stareth, wouldst thou give him a sword that he may wound himself?

Make not thine husband a stranger to thy friends, lest the fashion of the times make you strangers to each other.

Be thou obedient, for the law of superiority is given to man from above, and subjection is the portion of the daughters of Eve.

The imperious woman raiseth a storm for her own shipwreck, and she that affects dominion should be made the slave of her husband.

As rebellion lifteth up its head against its sovereign, and thereby adds weight to the yoke it attempted to shake off, so the subjection of a wife when she usurpeth to govern, should be converted into servitude.

Expose not the infirmities of thine husband, neither contemplate on his imperfections; cast thou a lustre on his virtues, for the beauty of his conduct is an honor to thine own head.

Be not luxurious nor extravagant, lest thou convert the riches of thy husband into toys that avail not, and trinkets that are of no profit.

Affect not beyond thy sphere, nor think the honor of thy family is in the appearance of great things.

Preserve thy vow inviolate, for the strayings of thy husband absolve thee not.

EDUCATION.

Art thou a mother, let thy child be the darling of thy affections, let the fruit of thy womb be the first partaker of thy tenderness.

Are thy pleasures dearer than thine offspring, dost thou become cruel like the ostrich of the wilderness, art thou hardened against thy young ones as though they were not thine; they shall live to look coldly on thee, they shall not regard thee as a mother in the days of thy widowhood.

Dost thou refuse them nourishment from the fountain of their life, the sea monsters draw out the breast and give suck to their young, but the milk of human kindness is denied to her children.

Dote not on the idol of thy womb, for the extreme fondness of a mother is as dangerous as the violence of her hate.

Thy darling shall be taken from thee in the excess of thy love; or if it live, it shall grieve thine eye and consume thine heart, it shall bring a curse upon thee, and not a blessing.

In the morning of infancy, when the dawn of reason appears, learn thy child obedience.

On this foundation thou mayest build high towers; this clay thou mayest mould into what form thou pleasest.

An obedient mind is ductile and tender, but a stubborn breast taketh no impression.

As the young osier groweth as it is bent, as the shoot of the vine curleth as we list; so is a young child in the hands of its mother.

Correct betimes; lest thy indulgence be cruel, and evil become habitual.

Trust not a servant with the education of thy son, nor a maid servant with the tuition of thy daughter.

Study the temper and capacity of thine offspring, and model thy reproof and severity in proportion thereto.

Let not the austerity of a parent deny complacency to its own child; lest it descend to familiarity with servitude, and listen to mischiefs of flattery and insinuation.

Make thy daughter thy companion, so shall she become thy friend, the yoke of duty will be light, and the obligations of the child become the voluntary offices of goodwill towards thee.

Is thy daughter beautiful, lead her not into the public haunts for admiration; for the way of a virgin, just rising to the estate of woman, is a path where the nicest foot will slip, if the hand beareth not on the staff of education.

Let not the bowels of the mother petrify against her child, let her not cast off her daughter to misery.

Sell her not; neither make a sacrifice of her youth to the power of gold.

As those who offer immolations to Moloch, so are the idolaters of Mammon.

Let not thy conduct be a reproach to thy precepts; lest thy daughter disregard thee, and say, thou teachest others, but teachest not thyself.

AUTHORITY.

Art thou supreme in thine own house, or art thou second, in delegated authority; trust not the concerns of thy family to a servant.

Tempt not thy domestics, by putting confidence in them; give them not room to be merely eye servants.

Dost thou raise one above the rest; let him be such whose merit is conspicuous; so shalt thou excite commendable emulation in his fellows.

Let not the number of thy servants exceed the business of the day; for the hand that wanteth employment is ready to lay hold on mischief.

An unprofitable servant is a scandal to his master, he bewrayeth the hand that provideth him bread.

The vice of thy servant will be a reproach to thine house, for he goeth by the name of his mistress.

If he serve thee faithfully, cast not off thy servant in distress; neither let him ask thee for his wages.

The detention of the price of the hireling is injustice, and exciteth him to be his own pay-master.

Let not the deserving feel the weight of his servitude; neither bid the best of thine household sit down at thy table.

The reward of a good servant should be much favor, but familiarity will bring thy kindness into contempt.

The Milky Way.—The Milky Way, were it supposed to contain the same number of stars throughout its whole extent as have been observed in certain portions of it, would comprise no less than 20,191,000 stars; and as each of these stars is doubtless a sun, if we suppose only fifty planets or worlds connected with each, we shall have no less than 1,009,550,000, or more than *a thousand millions* of worlds contained within the space occupied by this lucid zone. Here an idea is presented which completely overpowers the human faculties, and at which the boldest imagination must shrink back at any attempts to form an approximate conception. The brightest and most expansive human intellect must utterly fail in grasping all that is comprehended in this mighty idea.—*Dick.*

The Plough, the Loom, and the Anvil.

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COMPARATIVE IMPORT OF FOOD BY GREAT BRITAIN AND THE UNITED STATES.

In our last number we gave a comparative view of the export of food by Great Britain and the United States, in which it was shown that the former, having only three-tenths of her population engaged in the work of cultivation, exported of food alone at least fifty per cent. more than the whole export of food, cotton, tobacco, and all other agricultural products, by the people of this country, at least seven-tenths of whom are engaged in agriculture. It was also shown that she was enabled so to do by aid of that wonderful condensing machine, the human stomach, by aid of which the food and wool are converted into cloth, and the food and ore into iron, thereby reducing the whole into the compact form required to fit it for cheap transportation to distant markets; and that if the people of this country desired to find a profitable demand for their surplus of food,—always large, and tending rapidly to increase,—they must imitate the example of England, and bring the consumer to take his place by the side of the producer, thereby saving the labor now employed in the work of transportation and exchange, and the manure now wasted on the road and in distant markets.

Small as is the proportion of her population engaged in the labor of agriculture, England supplies herself almost entirely with food, and the day is now not far distant when she will probably cease to look abroad even for a single bushel of grain. Enthusiasts in the cause of that system which is called free trade, and which *compels* men to waste labor in raising pounds of cotton, or tobacco, when, had they a market near at hand, they might have as many bushels of potatoes and turnips; and bushels of wheat where they might have twice as many hundred weights of beef and mutton; of that system which *compels* men to fly from their fellow men and seek the West, there to raise food, when they would prefer to stay at home and consume it:—enthusiasts such as these, we say, point to the vast import by that country in 1847, and confidently predict that her power of consumption must go on to increase with our power of supply, and that all we need to enable us to dispose of our surplus, is the total abolition of protection to our farmers in their effort to induce the loom and the anvil to come and take their natural places by the side of their ploughs and their harrows. How far all this is true may best be judged by a comparison of the quantity of food imported into Great Britain in 1847, when so large a proportion of the labor power of the country was turned to the making of roads by men who were thus converted from producers of food into consumers of food, and when the potato rot produced a vast demand of food *for* Ireland, *from* which had previously been furnished immense supplies to the English market, with that imported in the year just now closed, as shown in the following table:—

		1847.	1848.
Animals	No.	198,000	174,000
Beef	cwts.	109,000	98,000
GRAIN,			
Wheat	qrs.	2,418,000	2,058,000
Do. meal	cwts.	6,296,000	1,157,000

Indian corn . . .	qrs. 3,500,000 .	1,397,000
Do. meal . . .	cwts. 1,437,000 .	210,000
Other kinds of corn . .	qrs. 2,962,000 .	2,315,000
Do. meal . . .	cwts. 2,285,000 .	255,000
Rice	cwts. 1,357,000 .	944,000

Converting the whole of this mass of vegetable food into quarters, allowing four hundred weights of flour and rice to be the equivalent of five hundred weights of grain, we obtain an import of above eleven millions of quarters for 1847, and one of only 6,300,000 for 1848; and even this is very far beyond the average that can be needed, as the almost total exhaustion of the granaries in 1847 had produced a vacuum that required to be filled, and farmers who had obtained high prices in the previous year, not being compelled to force their stocks upon the market, were enabled to fill it.

Great, however, as is the reduction in regard to the general import, how infinitely greater is it when we restrict our examination to that portion in which the farmers of this country are particularly interested. Poland and Russia, Sicily and Egypt, supply grain, for they are deficient in the means of converting it into flour, having kept themselves poor by making no market in the land for the products of the land. This country alone, we believe, supplies flour, and it is to that part of this table such of our farmers as desire to speculate upon their future prospects should chiefly look. Doing so, they obtain the following results:—In 1847, the import of wheat flour exceeded six millions of hundred weights. In 1848, it had fallen to little more than one! In the former year, that of all other kinds of meal was 3,700,000 cwts. In the latter, it had fallen to 465,000! Summing up the whole, we obtain above ten millions for the first, and little more than a million and a half for the last; and even this is far beyond any probable future average.

Admitting, however, for a moment, that the whole quantity should continue to be equivalent to four millions of quarters, or thirty-two millions of bushels of grain of all descriptions, how small is it compared with the food imported by this country, and how infinitely small when we consider the exceeding difference in the proportion which the population of Great Britain engaged in the labor of agriculture bears to that of the United States. We consume annually about 110 millions of dollars of foreign products, nearly the whole of which large sum represents food. For the production of some portion of this our climate is unfitted, and coffee and tea, and some other articles, may be produced elsewhere at less cost of labor than here. Striking these out, and making every other allowance, we shall find at least sixty millions of dollars of food that we could produce at less cost of labor than any other people in the world, were our system one that tended to promote concentration for the cultivation of the rich soils of the earth, instead of driving our people to seek the West, there to commence the work of cultivation on poor ones, and to waste in the work of transportation to market a large portion of their small returns.

The iron we import represents the food of the men who mined the ore and the coal, of those who built the furnace and made the machinery, and that of those who worked the furnaces and transported their products to market. The cloth we import represents the food of the Hindoo rice-grower, that of the Australian shepherd, and that of the numerous persons engaged in the work of transporting the wool, the cotton, and the rice, and converting them into cloth. We are thus perpetually engaged in the work of importing food, while we are everywhere seeking markets for the vast quantity that is rendered surplus by our pursuance of a course of policy that prevents our farmers from obtaining a market on the land for the products of the land. *We are the largest importers of food in the world,* and yet our farmers are taught

that if they would find a market for their surplus in the form of food, it must be by importing foreign food, duty free, in the forms of cloth and iron.

"We exported last year," says the Secretary of the Treasury, "$130,203,709, in value of domestic products and fabrics, exclusive of specie, and under low duties this must go on augmenting. But how can foreign countries pay for these exports if we will take no imports, or very few, in return? Clearly, our exports must in time cease, or fall to a very small sum, the foreign markets must be destroyed, and the price of our staple exports of cotton, of rice, of tobacco, of breadstuffs and provisions, must decline, for we cannot take the return in specie from abroad without exhausting those markets in a single year, nor can we consume at home this augmenting surplus."

It is here assumed that free trade tends to increase the price of our staple exports. If it does so, it must increase our powers of consuming the articles we are accustomed to receive in exchange for them. If it is so, then protection to the farmer, in his effort to induce the owners of looms and anvils to come and take their places by his side, must tend to diminish the prices of those staples, and must diminish the power of consuming cloth and iron, and all other of the commodities that he is accustomed to receive in exchange for his food, and of course to diminish the market for his surplus. How far these views are correct may, we think, be ascertained by an examination of some of the tables appended to the Secretary's report. In the following one, which we have compiled therefrom, are given—first, the population in each year, and, second, the total amount of imports, exclusive of specie, consumed in the Union. To these we have added the amount of consumption of foreign merchandise, per head, in each year.

	Population.	Total consumption.	Per head.
1830	12,856,165	$49,575,000	$3 87
1831	13,277,415	82,808,000	4 23
1832	13,698,665	75,327,000	5 50
1833	14,119,915	83,470,000	5 92
1834	14,541,165	86,973,000	6 00
1835	14,962,415	122,007,000	8 20
1836	15,383,665	158,811,000	10 40
1837	15,804,915	113,310,000	7 00
1838	16,226,165	86,552,000	5 40
1839	16,647,415	145,870,000	8 70
1840	17,068,666	86,250,000	5 00
1841	17,560,082	114,776,000	6 50
1842	18,051,499	87,996,000	4 90
1843	18,542,915 (9 mos., Sept. 30 to June 30,)	37,293,000	*2 67
1844	19,034,332	96,390,000	5 00
1845	19,525,749	105,599,000	5 40
1846	20,017,165	110,048,000	5 50
1847	20,508,582	116,258,000	5 70

It will be observed that the fiscal year now ends with June 30, and that this last one includes the last half of 1846 and the first half of 1847, when the power of consuming foreign products remained in the position in which it had been placed by the action of the tariff of 1842, under which the farmer enjoyed full protection, and was enabled to draw to his side the consumers of potatoes, and turnips, and hay, and milk, and veal, and all other of the commodities of which the earth yields largely, and was therefore not forced to depend exclusively upon those articles that would bear transportation to distant markets.

* The consumption in 9 months was at the rate of $2 per head, equal to $2 67 for the year.

The whole amount of foreign merchandise consumed in the Union from 1821 to 1829, a period of nine years, was $516,000,000; and as the average population was about 11,200,000, it follows that the consumption per head was almost exactly five dollars. In 1830 it had fallen, from causes which we are unable now to ascertain, below the average; but in the three following years, ending Sept. 30, 1833, a period of perfect protection, it attained a greater height than it had reached in any two successive years of the previous period,—thus proving that protection to the farmer and planter had not diminished their power of consumption, nor had it produced a necessity for draining other nations of their specie.

In the year ending September 30, 1835, at which period the Compromise Act had scarcely become operative, the power of consuming foreign merchandise rose to $8 20 per head, a greater height, we believe, than it had ever before attained,—affording new proof that the farmer and planter were not compelled to drain the world of specie.

In the following year, vast quantities of capital were forced into the country, in the shape of cloth and iron, to be applied to the making of roads, and the consumption reached $10 40 per head, but the consequence in the next succeeding one was a drain of our own specie, and the stoppage of all the banks in the Union.

With each successive year, we now find an increasing approach to perfect freedom of trade, with a gradually diminishing power to consume foreign merchandise, which we see to have fallen in 1838 to $5 40; in 1840 to $5 00; in 1842 to $4 90, and in the period ending June 30, 1843, to only $2 67 per head, a lower point than in any previous period of peace from the organization of the government, the power of consumption having been almost destroyed in the effort to reach perfect freedom of trade.

As the Tariff of 1842 comes gradually into action, we find a change in the contrary direction, and the power of consumption rising gradually, until, in the year ending June 30, 1847, it attains $5 70, being nearly the point which it had reached previous to the passage of the Compromise Act.

We now desire the attention of our agricultural friends to the wonderful difference resulting from an increase in the consumption of foreign food in the form of cloth and iron manufactured in distant lands, and that which follows an increase in the consumption of food grown at home, and eaten at home by the men who convert food and wool into cloth, and food and ore into iron, enabling the producer to return to the land the refuse of its products, and to pass successively from the cultivation of wheat, and oats, and rye, of which the earth yields by bushels, to that of potatoes, and turnips, and carrots, of which it yields by tons, but which are therefore worthless when a market is not made on the land for the products of the land.

The total excess of consumption in the eight years following 1834, over the average of the four previous years, was only the small amount of 250 millions of dollars, although the population had grown in that period from fourteen to eighteen millions. Small, however, as it was, it caused such a drain upon the resources of the country as to involve it in almost utter ruin. Factories and furnaces were closed, farms were abandoned, States were rendered bankrupt, and the Union itself was reduced to the humiliating necessity of soliciting aid in foreign lands, to meet the demands upon the Treasury in a time of profound peace! Such was the result of using foreign food in the form of cloth and iron.

Let our readers now compare with this the result of the following years of protection. The manufacture of iron grew, between 1843 and 1847, from 350,000 to 700,000 tons, worth, on an average, in its various forms of stoves, and railroad iron, and axes, and machinery, little short of a hundred dollars

per ton. The consumption of cotton rose from 300,000 to 600,000* bales, worth, in the form of cloth, at least a hundred and fifty dollars per bale. The manufacture of woollen cloth doubled in the same period. The *increase* in the home production of *the single year* 1847 over that of 1843, in these three species of manufacture, was at least a hundred millions, being almost half as much as the increased import of *eight years* under the gradual reduction of the Compromise Act; and what was the result of this consumption of home-grown food? Did it leave the nation in a state of prostration? Was it necessary to send abroad to negotiate loans even for carrying on an expensive war? It was not. The system diffused universal prosperity. Mills, and furnaces, and rolling mills, were built. Farms increased in value. States were enabled to resume payment, and the Union negotiated large loans without difficulty; and all this was the result of the universal demand for labor produced by the tariff of 1842, by aid of which the farmer and planter were gradually attracting to their sides the looms and the anvils and the men who employed them: *and with every step in this progress our power to consume foreign merchandise increased*, having risen gradually from $2 67 per head in the free-trade year 1842–3, to $5 70 per head in the year of protection, 1846–7. To this great fact we beg the special attention of our free-trade readers, and ask them now to say if it does not afford some evidence that the nation which is enabled to return to the land the refuse of the products of the land, as was then the case, is not likely to be a better customer to its neighbors than such a nation as existed here in 1842, when mills and furnaces were closed, and when tens if not hundreds of thousands were forced to seek the West for want of employment in the East.

We have been, and we are, the greatest importers of food in the world, and therefore it is that our farmers and planters are perpetually seeking abroad that market which the policy of the nation denies to them at home. We drive to the West, there to become producers of food, the men who would desire to remain at home to be consumers of food, and thus produce that surplus, constantly augmenting, which the honorable Secretary insists that "we cannot consume at home." Had the tariff of 1828 remained undisturbed, that surplus would long since have ceased to exist, and our planters, dividing their attention between food and wool, would have experienced no necessity for holding meetings to devise measures for reducing their great surplus. The consumption of this country, alone, would *long since* have reached a million of bales, and they would be receiving more for the balance that they could spare for foreign markets than they now receive for the whole. They now raise cotton, because they can sell nothing else, and they send it abroad because they have destroyed the men who would have manufactured it at home, while eating the corn for which they have now no market; and this they call freedom of trade. Had the tariff of 1828 remained unaltered they would now be surrounded by producers of cloth and iron, who would already have attained that point predicted by the Secretary, when the manufacturers themselves, as is now the case in England, would be clamorous for perfect freedom of trade.

Let every farmer and every planter endeavor to engrave upon his mind the idea that "population makes the food come from the rich soils," and that if they would cultivate such soils, they must unite with their neighbors in obtaining the pursuit of such a course of policy as will enable them to stay at home to be his customers, instead of flying to distant lands, there to become his rivals.

* See page 469 of our February Number.

CULTIVATION OF FOREIGN GRAPES IN THE UNITED STATES NOT TO BE ATTEMPTED SUCCESSFULLY.

CHANGE OF PLUMAGE IN FOWLS.

Paterson, Feb. 3, 1849.

My Dear Sir—You ask me for my experience in the culture of European grapes, by open culture—that is, without glass or artificial heat. I agree with Mr. Longworth, of Cincinnati, and Mr. Samuel E. Perkins, of Boston, that it is in vain to hope, in this country, or at all events in my district, to raise fine fruit from European grapes by open culture. I have tried it effectually for seven years—the first and second year of bearing I had some fine grapes—Black Hamburgs, Black Clusters, and Chasselases: but the third year of little value; the fourth, of no value; and last year so bad that I have dug up 700 vines, and will give them to any person who wants them. The truth is, I would not accept of the vines of any foreign grapes as a gift, to raise in open culture. Under glass, as you know, with or without fire, we raise fine grapes. For the table, or for wine, I would manure my vines differently: for the table I would give my borders a food of flesh, of bones, of charcoal, of cow-dung, of good turf from an old pasture, of oyster shells, and some salt, some lime, and some plaster of Paris, and, if there was no iron in the soil, some common copperas, and then to all these add some wood ashes. Wherever a border has been long made, give it a top dressing of bone dust, plaster of Paris, and wood ashes. I have found that a weak decoction of potash dissolved in water, once or twice in the season, did great good; it is upon this principle I use whale-oil soap for all my fruit-trees and grape-vines, and more than any man in the country.

We had a discussion about color in birds and animals. Some time since, my friend, N. Biddle, gave me a pair of white Guineas—the cock died before I had any increase. I got a common slate-colored cock—part of the chickens were white, part gray—I killed the gray—the next season all were white—this year all white but one. Again, I had a very fine and prolific breed of white turkeys—I kept none other—all the progeny for three years were white; but this last year two of the chicks were black, and one, a cock of most magnificent proportions, is the handsomest black one can see.

My man Nicholas has caponized for me eighty cocks—I lost but seven; and as they bled to death we eat them. They are of double the weight of those not altered, and far more tender. I had one turkey caponized; this I will keep until you come on and eat it with me. Next year I will alter several turkeys. Why should they not improve as pigs and sheep do? Who ever tried a duck or goose? R. L. C.

In the physiology of birds there is nothing more curious, and, if susceptible, worthy of investigation, than the laws which influence the color of their plumage. It may be that medical men, whose business it is to study these things, understand all about it. We confess our ignorance. It is asserted, for instance, that "it is by no means a rare occurrence among game-fowls, blacks, blues, and reds, to change their plumage and become spangles and whites." Why is it said particularly among game fowls? There is a coincidence which gives significance to this remark; leading us to inquire whether this change of plumage has been observed in regard to fowls that have never felt the touch of cold steel? In the Old Turf Register and Sporting Magazine, the first periodical of its kind established in the United States, we recorded the case that occurred in 1807, of a milk-white cock, raised by Mr. Philips, of South Hampton, Va., who won a fight at Bellefield; and the next spring he was a red spangle, and lost at Halifax. Allen J. Davie, well known and respected among agriculturists and sportsmen in all the south, bred a game cock in Madison county, which, in 1821, was a blue-gray; in 1822 he was still a blue-gray. In 1823, he

was milk-white, or smock, as the English term it; and in 1824 he became sky-blue. This old bruiser won a match for each change, conquering under whatever flag he fought.

The color of plumage and of hair, &c., is attributed to the influence of some peculiar coloring matter in the system. What produces in these cases the alteration of that coloring matter? Who in the country has not wondered, as he rides along the road, or as he looks at his own herd of cattle, at the exact similitude which is often observable in the marks of the *cow and her calf!* Truly, "There are more things in heaven, Horatio, than are dreamed of in our philosophy." And this is one of the things regulated by laws beyond our ken.—*Editors P. L. & A.*

LUCERNE.

To those who are acquainted with the great value of this plant, especially for house-feeding, or soiling, as it is called, it has been a matter of just surprise that so few farmers have entered upon its cultivation. Their neglect to do so can only be imputed to ignorance of its advantages, or to that aversion which farmers are too apt to entertain towards any thing which requires more pains than usual in the preparation of the land; for, in that, after all, consists the sole difficulty in *establishing* a crop of lucerne—for, once well established in the ground, it will yield four or five heavy crops of the most succulent and palatable green food for stock of all kinds, every year, for at least six or eight years. Moreover, it may be cut two weeks earlier than clover, and would meet with remunerating prices at all our livery stables, long before clover can be had.

The soil most suitable for Lucerne is that of a deep, dry nature—the richer of course the better; but so it be *dry*, it may be loamy or gravelly, or even sandy land, if rich. No grass equals it, when once established, for standing drought; for it sends down its large root to a great depth, and therefore needs, or is benefited, by deeper tilth than usual; but the great desideratum is to have the soil clean of all extraneous vegetable matter, so that the lucerne may get early and complete possession of it. The farmer will do well, then, to select a spot which has been last in a *cleaning* crop—such as carrots, cabbages, tobacco, &c. Before the seed is put in, the soil must be rendered perfectly fine by ploughing, as often as need be, and breaking it well down by harrowing. If manure be used, it should be *well rotted* manure, perfectly free from seed of all kind; for the object to be kept constantly in view, is to render the land perfectly free from weeds, and at the same time mellow and friable.

The seed is of rather lighter color and larger than that of clover—and the fresher the better. If sown broadcast, 18 or 20 pounds of seed will be required to the acre; less, of course, if drilled. In drills 18 inches or 2 feet, six to nine pounds. If 12 inches apart, then ten to twelve pounds; but nine inches apart drills will be best, and will take say sixteen pounds.

As to the time of sowing, the sooner the better in spring, to give the plant every chance against its enemies. The seed should be lightly covered, say not more than two inches, and therefore best done with a light brush harrow. It is estimated that one acre will support from four to six horses, or cattle, through the summer months; but care should be taken not to give it in too large quantities, especially if damp, as cattle are liable to be *hoven* or *blown* with it, as with clover. We have known a lot of it to afford four good crops a year, for eight or ten years, and give the notice now, that no time may be lost in the preparation of the land.—*Model Am. Courier.*

To preserve apples for domestic use a long time, place first, a layer of *chaff* on the bottom of the barrel, sprinkled with quicklime, and then a layer of apples, and so on till full.

FRIENDLINESS OF THE FRIENDLY.

Annexed are extracts from two letters recently received. We give them from a desire to show the kindliness and the liberality of feeling that exist among many of our subscribers, differing so much as it does from that so frequently found by other editors, and sometimes by ourselves. It is the true spirit. Men should be willing to read doctrines opposed to those which they have been accustomed to hold as true, for unless they do so, how can they be certain that they have the truth? The first teachers of Christianity—of the great law which teaches "peace on earth, and good-will to all men,"—preached to men who were as firmly convinced of the truth of other doctrines as are now the opponents of that of protection; and if those who heard them had treated them as men now treat editors, what would have been the progress of true religion? Let an editor broach an idea in opposition to one held by any of his subscribers, and the effect is felt in an order to "stop my paper;" whereas if his reader desired to be *assured* of the truth of his own views, his true course would be to read the arguments opposed to them, and satisfy himself of their weakness. The main difficulty experienced by editors who desire to act independently, and to teach what they believe to be true, is that so many of their readers have adopted the ideas of others, upon which they have not themselves reflected, and then when contrary ones are presented, being unable to prove their falsehood, while unwilling to admit their truth, they become dissatisfied with themselves, and stop the journal to prevent a recurrence of the unpleasant sensation. Far different from such men are the writers of these two letters. Being men of sense, they are not afraid to have presented to them ideas in opposition to their own. They know that if our arguments are weak, they can do them no harm, and that if they are strong—such as cannot be answered—they may do them good. After careful examination of the facts presented to view throughout the world, we have arrived at the conclusion that the plough has never thriven when distant from the anvil and the loom, whereas it has always thriven when near to them. Here is a very simple, but very important proposition—one in which every farmer and planter of the country is directly interested in seeing fairly and fully examined; and every such man should feel himself indebted to those who would take the trouble so to do, thereby enabling him to form an opinion for himself, after a full view of both sides of the question. Throughout the whole South newspapers abound in which are taught the doctrine that farmers prosper most who depend most on foreign markets; and if we administer poison, the antidotes to it are so numerous that we can do little harm.

Knoxville, February 5, 1849.

My Dear Sir:—I received your very kind and friendly letter in due time. Enclosed is one dollar for a copy of your work published on "Sheep Husbandry," you spoke of. When I receive a copy I can judge whether it will be successful at the South. At least I can prejudge it if it is interesting as some of your agricultural addresses.

Though a young man, I am truly a friend and well-wisher of yours, and therefore take the liberty to suggest whether you would not succeed better in enlarging your subscription, and interest, and usefulness, and influence, by avoiding prejudices of men by trenching rather too close upon the Tariff question, which is political, and which the blind prejudices of many, particularly of the South, where there is more need of enlightenment upon agriculture and political economy, take alarm at your writings and turn against you, as your last paper shows Mr. Ritchie has done. Will you be good enough to send me the January number, as I have not read it, as it miscarried, or I have lost it, and I wish to read it and keep it and all numbers, very carefully.

Very respectfully, S. R.

The next extract is from a highly enlightened and independent farmer, residing not far from Fredericksburg, Virginia. It is in the spirit which it seems to us ought to animate every lover of truth, and every friend of toleration. He overpaid for "The American Farmer" enough to cover a year's subscription to "The Plough, the Loom, and the Anvil." The following remarks were merely incidental.

I take it for granted you are fully aware that I utterly repudiate the political doctrine of "The Plough, the Loom, and the Anvil," but having lived long enough to have my confidence in men and their opinions shaken, (I include myself with others,) I am not only willing but anxious to hear both sides of every important public question.

Yours, very respectfully, W. P. T.

Finally, in the way of general explanation, as well as of respectful reply to our Knoxville friend, we are free to confess, that incorrigible as has ever been our partiality for all that relates to agriculture, and pressing as was the necessity for turning our hands to something for bread, we should yet not have again undertaken to establish a new journal solely to illustrate *practical agriculture!* For that purpose, there were already in existence many periodicals as ably conducted as they were badly supported. This was not the case when we established the first one of the kind, thirty years ago. Then there was necessity to elicit and promulgate for the public use, the knowledge and experience locked up in the minds of individuals; and we are not sure that were it now our object exclusively to communicate the processes and results of the best systems of field-practice, in all the various branches of agricultural industry, we could do better than go over and winnow the fair and sound grain from the immense mass of valuable matter in the old volumes of that work. What subject has been lately discussed and presented with more ability than there? What root crop or grain crop, for which we are continuing to give premiums, is exceeded by those registered in "The American Farmer," twenty-five years ago? But casting about now for what has ever been the object of our humble ambition—to see how we could make our own employments and the pursuit of our own subsistence, agreeable, instructive, and useful to the public, it did occur to us, and every day's reflection confirms us in the belief, that what is now needed most, to place *practical agriculture* on a prosperous and stable foundation, is to lead the farmer and the planter to study the *political economy*, as well as the scientific principles that belong to his profession. Instead of being the most indifferent, they of all classes should be most vigilant and alive to the *proceedings of government*, as they are calculated to benefit or to injure *the great landed interest of the country!*—and in scanning the spirit of the laws, the great test, as it seems to us, is to see whether they tend to *draw together or to separate the producer and the consumer.* We believe that the policy which draws them together, diminishing the cost of transportation and exchange, between the producer and the consumer—the producer of cloth and of iron to be consumed by the farmer, and the producer of wool and of food to be consumed by the manufacturer of cloth and iron, is that which will most contribute to individual wealth and national independence—so believing, though entirely depending for support on the success of this journal, would it not be faithless in us not to preach what we believe to be the true doctrine, even though gentlemen choose, as they have a perfect right to do, to reject the whole work, with all its other forty or fifty pages of practical matter, on account, not of its *party*, but of its political economy? After all, we may be wrong. We make no pretensions to infallibility; but—show us that we are so! "Strike, but hear!"

EFFECTS OF THE TARIFF OF 1846

UPON THE MAKERS OF GLASS AND IRON.

We take the following from one of our exchanges:

"The following is a list of the window-glass workers who have determined to discontinue their operations one and a half months before the usual time, in consequence of the surplus of glass in the market, from excessive importations and the stagnation of domestic industry:—

Peter Shreve & Co.,	of the	Waterford Works,		New Jersey.
John G. Rosenbaum,	"	Malaga	"	"
Richards & Brother,	"	Jackson	"	"
Hay, Bowdie & Co.,	"	Winslow	"	"
Mulford, Hay & Co.,	"	Millville	"	"
James M. Brookfield,	"	N. Columbia	"	"
—— Vangilder,	"	Marshallville	"	"
John H. Coffin,	"	Hammonton	"	"
Jesse Richards,	"	Batso	"	"
Benjamin Wilkins,	"	Medford	"	"
Daniel E. Estell,	"	Estellville	"	"
Baker & Brother,	"	Baltimore	"	Maryland.
A. R. & S. H. Fox,	"	Sand Lake		New York.
	"	Durhamville		

"This will diminish the manufacture of window-glass about 100,000 boxes, and throw out of employment nearly one thousand persons.

"The conviction is fast obtaining ground among the glass-makers, that the American markets, under the present tariff, must be given up to the foreign manufacturer, unless the cost of making the article can be materially reduced.

"On the first of March, Messrs. Cooper & Co., of Trenton, will stop the manufacture of railroad iron, and six hundred worthy men, with families dependent upon their daily labor, will be thrown out of employment. The manufacture of railroad iron will be wholly abandoned in this country, and the large numbers who have been comfortably sustained, and at good wages, will be beggared. Foreign iron—4000 tons of heavy T rail—have been contracted for by the Lancaster and Harrisburg Railroad, at $45 per ton, delivered at New York, the making and delivery of which would cost the American manufacturer $52 50 per ton."

Every farmer should recollect that whenever cotton-mills are closed, furnaces abandoned, rolling-mills and glass-houses discontinued, the persons who have been accustomed to consume food while producing cloth, and iron, and glass, are compelled to seek to produce food for themselves. They go West, and there they raise wheat, and corn, and pork, that are to seek a market in Europe, and in seeking it they overwhelm the farmers of the East. The tobacco planter of Maryland is crushed by his rival in Ohio and Kentucky. The cotton planter of South Carolina is crushed by his rivals in Alabama and Mississippi; and the farmers of Pennsylvania, New York, and New Jersey, are crushed by their rivals in Illinois and Wisconsin. The necessary consequence of this is, that men are compelled to fly from the vicinity of rich lands, uncultivated, in the old States, to commence the work of cultivation upon others, which are of inferior quality, in the new ones, and every man thus driven abroad tends to compel others to follow his example. Had South Carolina and Georgia turned their attention to manufactures, thousands who have been driven abroad to raise cotton in Alabama and Mississippi, would be now engaged in raising food at home, the price of cotton would never have fallen so low, and those States would now be advancing in wealth and population more rapidly, perhaps, than any others in the Union; for they now need nothing but population to give them wealth. So with Virginia and Maryland. Their people fly West to raise tobacco, and

the constant increase in the supply from the West, breaks down those who have thus far remained at the East. Let every man in those States examine the facts for himself, and he will find that we have here presented the true view of the case. If he be a land-owner, let him satisfy himself that it is "population that makes the food come from the rich soils," and let him unite with his neighbors in the endeavor to bring about that system of legislation which will enable men to remain at home, combining their efforts for the cultivation of the rich soils and thus improving their physical and moral condition, instead of flying from home to barbarize and impoverish themselves among the wilds of Texas, Arkansas, Oregon, or California. The plough never has flourished but in connection with the loom and the anvil, and it never can do so, for the waste of labor and manure, when they are separated, is greater than the value of all the cloth and iron that can be consumed. Let every man, then, put his shoulder to the wheel in aid of the measures required for bringing about that connection, and let every one recollect that protection is emphatically *a planter's and farmer's measure.*

ON THE COMMON DEFICIENCY OF AGRICULTURAL IMPLEMENTS.

To a close observer of the state and practice of American agriculture, nothing is more apparent than the want of thorough *tillage*, or preparation of the ground, for the reception and production of crops. There is not one person, or one crop in a hundred, with or for which that preparation is thorough. The ground is left full of weeds, or the roots of weeds and clods, which prevent the access of air and of moisture, and of the roots in search of what air and moisture only can supply for the growth of the plant. This slovenliness and imperfection in tillage, proceeds from various causes—too often from ignorance, thoughtlessness, and downright want of care on the part of the cultivator, but more frequently for want of the *necessary implements.* It would be quite safe to assert that there is not in the United States one farm in one hundred that is not lamentably deficient in the number and suitableness of its implements of culture—and this is more especially the case in the South, where population is sparse, and where the loom and the anvil, the manufacturer and the machinist, are not to be found in the neighborhood of the plough. Long convinced of the truth of what is here said, we are prompted the more readily to select the following from a late number of "The English Farmer's Magazine."

OBSERVATIONS ON THE IMPLEMENTS OF AGRICULTURAL TILLAGE;

And a description of an Improved Implement, by which the operation of tillage may be efficiently performed, at a great saving of labor, time, and expense.

BY JOHN EWART, LAND-SURVEYOR, ETC., NEWCASTLE-UPON-TYNE.

An indispensable preliminary in estimating the efficiency of any instrument is a careful examination of what is sought to be effectuated by its operation; as it is only by comparing the effect produced with the object in design that we can with certainty pronounce upon the extent of its usefulness.

The operation of preparing the ground for the growth of cultivated plants is what is intended to be understood in the subsequent observations by the term "tillage," by which three objects are sought to be attained: first, reversing the surface of the soil; secondly, dividing its mass so as to present the greatest number of particles to the contact of air and moisture, or rendering the earth operated upon capable of ready absorption of these elements; and thirdly, to remove whatever spontaneous vegetation may be present, that the soil may not be exhausted of nutritive principles required to promote the growth of plants designed to be cultivated

The purposes above-mentioned are, perhaps, as perfectly accomplished by the operation of the spade as can be desired; but an insurmountable

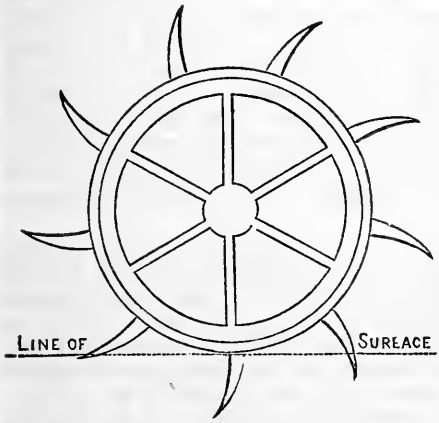
obstacle to the use of that implement in tillage on an agricultural scale arises from the difficulty of the requisite number of laborers to prepare a sufficient space of ground for the reception of any crop in due season. And supposing a sufficiency of workmen to be procurable that might be required at one season, the difficulty, or rather impossibility, of finding them with profitable employment during the remainder of the year, will confine the use of the spade to the tillage of horticulture, or of very limited extents of ground, in the production of agricultural crops.

In reviewing the different implements in use in agricultural tillage as to the extent to which each is adapted to accomplish the purpose intended, and commencing the notices with the plough, it will be found, on very slight examination, that the capability of that implement is confined to the first of the objects of tillage previously named—the turning or reversing the surface of the soil. In doing which, when it lays the furrow-slice in a proper position without waste of power by undue resistance in passing through the soil, it is all that can be looked for in an implement of the kind. In the performance of its office in the best manner of which the implement is capable, the tillage operation of the plough, limited as it is, is very imperfect in effect; as it not only compresses, but by its sliding action it also smoothes the surface by filling up the interstices between the particles wherever any part of the implement comes in contact with the soil; thus rendering all descriptions less capable of absorbing, and that of a clayey nature almost impervious to air and moisture, especially when the latter mentioned kind is in any degree approaching to a state of wetness. So that in the ordinary mode of agricultural tillage, by the compression and glazing, as it were, of the subsoil by the action of the sole of the plough, the pasture of plants is limited in depth to the depth to which the plough acts, and it requires the mass of the furrow to be pulverized by the action of other implements before the stirred earth (especially clayey soils) is capable of saturation with air and moisture—a condition of the soil, independent of all others, indispensable to vigorous vegetation.

The implements of agricultural tillage designed for cleaning and pulverizing the land are the harrow in various modification of form, and the roller, with either a plane, spiked, or notched surface. Most, or perhaps all of the implements just referred to, are efficient in the purposes they are designed to accomplish. The simple harrow, with its straight teeth, is only capable of—as in fact it is all that it is intended to accomplish—stirring the earth in a horizontal direction. Many of the modifications of the harrow, such as Finlayson's patent self-cleansing harrow, Ducie's drag, Biddell's scarifier, &c., are adapted for a more extensive operation; for they not only stir the earth in a similar manner to the common harrow, but also at the same time bring weeds and clods from the depth to which they act to the surface, so that the former may be gathered by the harrow or rake, and the latter crushed by the action of the roller. Of implements of the roller kind having plane surfaces there is nothing in regard to them requiring notice, except that those formed of hollow cast-iron cylinders in two separate parts in their length are the best; and of those having spiked or notched surfaces, Crosskill's patent clod-crusher is the most effective in its operation of any that has hitherto been invented. Yet on clayey land, when in a state of any degree of toughness, the action of this implement kneads and moulds the particles of the clods into lumps about the size of hens' eggs, still more compact than the masses it has broken, so as to require, in frequent cases, after its use, the action of a smooth-surface roller to produce a tilth of soil sufficiently comminuted for the reception of turnip or other small seed. The defect pointed out in this very excellent implement may perhaps be

easily rectified by some trifling alteration in the arrangement of the points, as the evil seems to arise in a great measure from the points being too closely set.

The economy in the use of improved cleaning and pulverizing implements is very great, as by it repeated ploughings—the most expensive and tedious of all tillage operations in agriculture—may be dispensed with, or, at any rate, become less required. In illustration of what has just been advanced, it may be instanced that in the working of a fallow with the common straight-toothed harrow and the plane-surface roller, it is necessary, from the operation of the common harrow being limited to the mere gathering and raking together of the weeds brought to the surface in ploughing, to plough so often as any foulness remains in the soil. Pulverization of coarse clayey land being chiefly effected by the crushing action of the roller, the process of cleaning is quite as efficaciously performed by the use of the improved implements previously mentioned as by the plough, and at a saving of time, labor, and cost, in proportion as the breadth of land covered by the breadth of such implement exceeds the breadth of the furrow turned by the plough. Were an implement to be used combining a simultaneous action of cultivator and roller, without much increase of power being required, labor and time would be thereby still further economized in the operation of agricultural tillage.



The advantages spoken of would probably result from the use of a roller formed of separate wheels, having rims about four inches wide, revolving independently on a round common axle, the peripheries of such wheels being furnished with curved coulters, of a length suitable to the depth of surface-soil in which the implement is intended to work—say from six to seven inches. Twelve wheels of the above-mentioned breadth would form a roller four feet long, of which a diameter of twenty-four to thirty inches would be commodious in point of size. The accompanying diagram represents a vertical section of the implement above described.

The operation of the implement described above will be as follows:—Whilst the rims of the wheels act as a powerful plane surface roller in crushing the clods, the curved coulters stir the earth to admit air, and, at the same time, bring to the surface all weeds and clods there may be throughout the depth of tilled soil, the former to be gathered by a horse-rake, and the latter to be reduced by a subsequent operation of the implement.*

* The principle of the revolving cultivator was suggested to the writer by Mr. Joseph Laycock, of Lintz Hall, in the county of Durham, who has already adopted it in combination with a horse-hoe, with the most unqualified success in stirring and pulverizing the soil, and at the same time throwing the weeds severed by the hoe to the surface. The revolving principle was also applied upwards of a year since by Mr. Anthony Hall, of Prudhoe, Northumberland, to a subsoiling implement possessing advantages over any other that has hitherto been invented, and which, with some trifling modifications, will be every thing that can be desired for the purpose.

Of all descriptions, soil of a clayey nature is that in which the use of the revolving cultivator will be attended with the greatest and most important advantage, as may be understood from the observations to follow in suggesting a mode of tillage by means of that implement, which mode of cultivation will render the occupation of clay land farms, especially, much more advantageous, by the saving of both time and labor, than the practice usually pursued.

In describing the mode of tillage referred to, the land is supposed to be previously thorough drained, when the following will be the process to be pursued :—The division of the land, which, according to the course of cropping adopted, falls in course to be fallowed, must be thoroughly and cleanly ploughed in autumn, with furrow-slices so disposed as to expose the greatest possible surface to atmospheric influence. Having ploughed as directed above, the land must remain untouched throughout winter until spring; during which season, and when perfectly dry, it must be repeatedly worked by the revolving implement, so often as any foulness or coarseness may remain. After each working, the land must be gone over with a light harrow, or, what is better, a horse-rake, for the purpose of gathering the weeds. The land by the means just mentioned will be perfectly cleaned and pulverized without being touched by the plough during spring.

In the mode of tillage herein recommended, "Greg's System of Managing Heavy and Wet Lands without Summer Fallow," promulgated during the existence of the Board of Agriculture upwards of thirty-five years since, will not fail to be recognised. Such being the case, it will be unnecessary herein to dilate on the advantages to be derived from the practice of such a system of tillage; and to those who may be desirous to enter into a particular comparison of it, and the usual mode of tillage, it will be sufficient to refer them to Mr. Greg's pamphlet on the subject, or to the Library of Useful Knowledge—"British Husbandry," vol. ii. page 66—in which last-mentioned work, an abstract of, and commentary on Mr. Greg's system will be found. The only additional observation which it appears necessary to make on the subject of the present paper is, that whatever may have been the advantages of the system referred to by means of implements already in use, such advantages will be greatly increased by the use of the revolving cultivator herein treated of; and that the rapidly increasing application of scientific knowledge to the practice of agriculture will banish summer fallowing from every system of husbandry on all descriptions of arable land, and substitute a green vegetable crop as equally conducive to the cleaning of the soil, and which in itself, whilst yielding a profitable return in the production of beef, will also be the means, by raising an abundant supply of farm-yard manure, of the progressive melioration of the soil, and of increasing its power of production of grain.

Wines.—We have not altered our opinion about British grape wine. No doubt you may make a strong, palatable wine simply with grapes, sugar, and more or less water; but it would not be a wine that we should esteem. You will find the following a good receipt for making still grape wine: To 3 pecks of grapes, picked and heaped, put 3 stones of moist sugar, and 9 gallons of water. Bruise your grapes carefully before you mix them with the sugar and water. Put the whole into a large open vessel, and stir them daily for ten days or a fortnight. When the fermentation ceases, pass the whole through a fine sieve and put it into your cask; be sure that it is quite filled; then bung it down and keep it twelve months before you bottle it.—*English Paper.*

THE TRUE AND PROFITABLE MODE OF DIMINISHING THE SURPLUS PRODUCT OF COTTON.—No. 2.

"*Nashville, February* 13, 1849

"V. K. Stevenson, Esq.—Dear Sir: In answer to your note of this date, asking me to furnish to you (for the use of a friend who desires it) such information as I may possess with regard to the cotton manufactories of this State, I have to remark, that the knowledge which I possess extends only to those establishments situated within the 'middle division' of the State; and even that is too superficial to be entitled to much consideration.

"There are probably now in operation, within the bounds of 'Middle Tennessee,' some twenty different mills for the manufacturing of yarns and cloth. From the best data I have at command, I estimate the number of spindles in operation at not less than 18 or 20,000. There are but few of these mills which as yet are making cloths, though several more, I understand, are preparing to do so. The article manufactured consists chiefly of cotton yarns, varying in sizes from number 3 or 4 to number 13 or 14. Some two or three of them also manufacture a heavy article of wool and cotton goods, used for negro clothing.

"In addition to the mills alluded to, there is now being erected, and very near its completion, another one at Lebanon, 30 miles distant from Nashville, and which, in point of construction and machinery, is believed to be *fully equal to any one in America of its size*—the buildings all being of the best material, and on the most approved plans—fire-proof throughout. The engines for propelling it, as well as its operative machinery, embrace all the latest American and European improvements. The buildings (which are in greater part four stories high) cover an area of very nearly or quite three-fourths of an acre. When finished, it is designed to contain 6000 cotton and 2000 woollen spindles, and 240 looms, capable of producing from seven to eight thousand yards of cloth daily; and as the goods which it is intended to produce will be of the heaviest description, the quantity of cotton which it will require for a year's operation will be about 2500 to 3000 bales, with a proportionate amount of wool. So you will perceive that within a short time there will be in operation in this division of the State, certainly not less than 25,000 spindles; and as these spindles will all be engaged in producing the very heaviest description of yarns, the entire amount of cotton required for them will not be short of 8000 bales.

"In the eastern, and also in the western division of the State, there are many other small mills, of which I know too little to enable me to give to you, for your friend, any information of a character sufficiently reliable to make it valuable to him. I hesitate not, however, to assert that, together, the two other divisions possess not less than 10,000 spindles, and consequently increase the quantity of cotton manufactured annually to not less than 12,000 bales in all—more likely exceeding than falling under this number.

"As to the names of the different mills, their owners, and the post-offices nearest to them, I regret that I am unable to give them to your friend with that degree of accuracy which I would otherwise be pleased to do. The enclosed memorandum will give you all the information I possess at present on this branch of the subject—remarking that I do not submit it to you as being any thing more than a mere approximation to the number of spindles operated in each mill—with, however, the further remark, that I am satisfied that I have not over-estimated them in the aggregate. In great haste, your ob't serv't,

S. D. Morgan.

"P. S. You will observe that in the list of mills I have included two which are barely beyond the boundary of Tennessee—in North Alabama. I have included them because a large proportion of their manufactures are consumed in this State; and one of them at least is more intimately connected with Tennessee than with Alabama."

We copy the above letter because we desire that the people of other States should see what is now being done in Tennessee, and satisfy themselves why it is that they cannot do the same. South Carolina has food and cotton in abundance, and Virginia has food and wool in abundance, yet both are becoming depopulated because of the absence of that employment for the surplus labor of their men, their women, and their children, their wagons and horses, that would be afforded by mills and furnaces; and both are being impoverished by reason of the waste of labor in the work of transporting the raw material to foreign markets, losing on the road and in those markets the manures that should restore the exhausted lands, enabling them to

increase their products, and thus obtain the means required for the clearing and drainage of their richest lands, that yet remain untouched.

We have taken this letter from the Nashville Union, whose editor urges the extension of manufactures, in an article filled with bitter denunciations of "the infamous, plundering, protective policy," which renders it necessary that the planters of Tennessee should surround themselves with consumers of food and cotton, a measure that would not be required of them, could they only enjoy the blessings of the free trade policy of "the southern democracy," enabling them to "have the world for a market for their agricultural products." Were that the case, he thinks it would be "to the advantage of the south and west to turn their whole attention to the cultivation of their most prolific soil, and to procure such manufactured articles as they might need in exchange for the products of their farms. But Whig politicians," he continues, "step in and prohibit this exchange. They will not let the Tennessee farmer exchange his corn, cotton, and tobacco with the English manufacturer, unless he will consent to pay *a tax* of fifty per cent. for the privilege—this fifty per cent. tax being imposed for the benefit and 'protection' of certain lordly loom-owners of New England."

We are glad to have, on any terms, assistants in the great work of bringing together the plough, the loom, and the anvil, and it especially gratifies us to obtain them from among the men who have heretofore held that the time had not yet arrived for manufactures, nor could it arrive while we possessed so much unoccupied land. What have been the views of this particular journal on this subject, we do not know, but we doubt not it has followed in the wake of the English political economists who have desired to teach us that we were unfitted for manufactures, and must remain so until our population became more dense, while insisting upon precisely that course of action which compels men to scatter themselves throughout the west, there to become producers of food, instead of remaining at the east, there to be consumers of food. The system they advise is in full accordance with the policy pointed out in a letter given in our February No., page 505, showing the importance of promoting the dispersion of the population of the colonies, lest they should become rivals of the English manufacturers.

The editor is apparently of opinion that if the "plundering protective policy" were abandoned, the demand for cotton would grow so rapidly that the people of the south would grow rich. In reply to this we would ask him whether, if it had been abandoned in 1846, hundreds of thousands who are now consumers of food in the Northern and Eastern States, would not at this moment be in the west producing food—whether the price of food would not now be so low that the planter would buy it in preference to raising it—and whether the effect of such a course of operation would not have been to compel the planter to give his attention more exclusively to cotton, filling the world to repletion, and forcing down the price to such a point as would have totally ruined the whole planting interest of the south?

We also ask him to look at the effect upon their interests of the adoption of this "plundering, protective policy," in the tariff of 1842. The number of consumers of food was greatly increased, because iron and cloth were made at home, and the consumption of cotton rose from 300,000 to 600,000 bales in the short period of five years—and it did so rise because the whole people prospered by reason of the demand for labor that had been produced in the east and north, diminishing the necessity for flying to the west and south, and thereby diminishing the competition with the farmer and the planter, to the infinite advantage of all.

He will, however, say that if we had had perfect free trade, we should have obtained our clothing cheaper, and the consumption of cotton would have

been thereby greatly increased. In regard to this, we now ask him to turn to page 470 of the February No. of this journal, and see what was the increased demand for English cottons, made of India and American wool, produced by the substitution of the tariff of '46 for that of '42. Doing so, he will discover that it was, in the first six months of 1848, less than twelve million of yards, being equal to 15,000 bales per annum, and very little more than the amount required to supply the few factories now existing in Tennessee, which consume American wool alone.

The editor of "The Union" will probably, however, regard as incomplete this evidence of the effects of an apparent approach to free trade in the increased demand for cotton, and will continue to maintain that perfect free trade would be attended with different results. We propose, therefore, to give him a sample of the results of freedom of trade so perfect as not to be interfered with in the slightest degree by custom-houses, and in a very small degree indeed by the distance of the producer from the great market which our friend in Tennessee desires to see fully opened for the corn, tobacco, and cotton of his neighbors.

The manufacturers of Ireland, before the union in 1801, were to a certain extent protected against English competition, and much of the cloth and iron consumed in that country was made by men who consumed on the land the products of the land. At the date of the union, her exports to Great Britain amounted to £3,270,350. With the union all protection ceased, and with each succeeding year it became more and more necessary to seek a market abroad for the productions of the earth that could no longer be consumed at home, and the export to Great Britain rose gradually, until in 1825 it reached £7,048,936. But did the power of the people to consume cloth rise with the perpetually increased necessity for exporting the produce and exhausting the land? Let us inquire.

The whole import of cotton into Ireland from all parts of the world, in the twenty years from 1802 to 1821, both inclusive, amounted to 538,542 hundred weights, or about 150,000 bales, being an average of 7,500 bales per annum, and the whole import of cotton yarn, to 19,995,350 pounds, or about a million of pounds per annum, the product of about 4000 bales, making a total of 11,500 bales.* The amount of cloth imported is not given.

In 1825, the year of great expansion everywhere, with an export to Great Britain of agricultural products amounting to almost thirty-five millions of dollars, we find the import of cotton-wool to have been 4,065,930 pounds, and the import of cotton cloth to have been 4,996,885 yards, making in the whole about six millions of pounds, or about 18,000 bales of cotton, in all its forms, required for the supply of almost eight millions of people; being about three-quarters of a pound per head.

In subsequent years, no information can be obtained, owing to changes in the mode of keeping the custom-house accounts; but in a general report on the state of the trade of Ireland, made by a committee whose object would not have been promoted by under-estimates, it is stated that the import of cotton cloth into that kingdom was, in 1835, 14,172,000 yards, being equal to about four millions of pounds of cotton, or half a pound per head. What quantity of cotton-wool, or yarn, was imported at that time, cannot be ascertained, but it is elsewhere shown that some of the largest establishments for manufactures, of a period somewhat earlier, had disappeared, and that the calico printers were in a state of bankruptcy.†

We beg our friend of "The Union" to remark that with all her greatly increased exports, the power of Ireland to be a customer to the cotton

* Ireland before and since the Union, by R. Montgomery Martin, pages 56 to 60. † Ibid.

planters did not grow, and that the whole quantity of cotton cloth imported into the kingdom in the year 1835, for the supply of eight millions of people, required for its production a smaller number of bales of cotton than will be consumed by the few mills now started in Tennessee.

If he desire to trace further the effects of perfect free trade, he may do it in following out the history of Ireland to the present hour. He may see a vast population idle for more than half the time for want of the regular demand for labor that results from diversity of employment. He may see them, when employed, cultivating fields that have been exhausted because of sending from the land all the products of the land, and flying to seek refuge, or to starve, in the cellars of Liverpool or Manchester, leaving behind millions of acres of the richest lands in the world, requiring drainage alone to enable them to support quadruple the present population. He may see them passing gradually from bad to worse, the potato becoming almost the sole food of the people, until at length the potato rot is followed by famine and pestilence, death, and revolution, and if he then desire to trace these events upwards to their great cause, he will find it in the colonial system which he would now fasten on this country.

Ireland is almost exclusively agricultural, and yet she has recently afforded us a large market for food. South Carolina is exclusively agricultural, and yet she imports hay and wheat from the north. Both abound in rich soils untouched, in lime and marl, and iron ore, and in all other of the natural elements of prosperity, and yet both go backward, while all the world advances. We beg our friend of "The Union" to weigh all these facts, and satisfy himself if there is not a hole in his politico-economical theory.

Should he, after full examination of the facts thus far given, have any doubts on the subject, we would ask him to look with us to Canada. That country has perfect free-trade with England, and, as a necessary consequence, she has no manufactures. The consumer and the producer are widely separated. The land is exhausted because nothing of what is yielded by it goes back upon it, and its owner is exhausted by the payment for wagons and horses, ships and seamen, commission merchants, and all others of the numerous genus that live by the profits of transportation and exchange. She imports her cloth and iron, and all others of the numerous articles of manufacture, and the total value consumed by almost two millions of people is only three millions of pounds, or about fifteen millions of dollars. Allowing even one-fifth of this to consist of cotton goods, and taking the average cost of those goods, fine and coarse, at five pence per yard, the quantity would be thirty millions of yards, requiring about seven and a half millions of pounds of cotton, or about 20,000 bales, and giving less than four pounds to each person, and that is, we believe, very far above the truth. The present consumption of this country exceeds 600,000 bales, being three times as much per head, under the "plundering protective system," as in the adjacent provinces under the beautiful one of perfect free trade. Can our friend of the Union account for this? If so, we would be glad to have his explanation.

In conclusion, we would beg him to favour us with a reply to the following questions:

I. Is there not annually wasted in Tennessee, for want of a regular demand for it, more of the labor of men, and women, and children, and wagons, and horses, than would, if properly employed, produce all the cloth and iron consumed in the State?

II. Is there not more labor wasted in the work of transportation and exchange than would pay for it?

III. Is there not more labor wasted in cultivating poor land than would if applied to the rich land now uncleared and undrained, pay for it?

IV. Is there not more manure wasted on the road and in distant markets than would pay for it?

V. Had the tariff of 1828 been adopted as the settled policy of the country, would not the State be now studded with factories and furnaces, filled with men, and women, and children, employed in consuming food while converting cotton into cloth and ore into iron?

VI. Were this now the case, would not the State be twice as rich as she has become under our past variable and uncertain system?

VII. Were the government now to adopt the principle of *perfect free trade*, would it not close every factory in the State?

VIII. Would not that increase the waste of labor and manure, and would not that diminish the value of property throughout the State?

IX. Would not the re-enactment of the tariff of 1842 increase the number of factories and the demand for labor, and would it not enable the planter to save much of the cost of transportation and exchange, to the advantage of all, laborer and landowner, farmer and planter?

X. Would it not increase the home consumption of food and cotton, to the great advantage of all?

HORTICULTURAL.

Although able works dedicated expressly and exclusively to the dissemination of Horticultural knowledge and literature have since come into existence, we have abated none of that anxiety to see the estimation and knowledge of horticulture take deeper root and spread more widely, which we felt when thirty years ago the subject was placed prominently in the title and prospectus of the old American Farmer.

There is, indeed, between Agriculture and Horticulture a kindred so near, that it is not easy to discern the line of separation—of the two pursuits, we would sooner take our chance with a skilful and experienced gardener, to make a good farmer, than the reverse. Our present purpose, however, is only to make sure of preserving the following as a memorable event in the history of the most distingnished Horticultural Society in the Union, with which our memory must fail when it has ceased to preserve agreeable associations:

MASSACHUSETTS HORTICULTURAL SOCIETY.

The first stated meeting of the year, of this society, was held at Horticultural Hall, on Saturday last. Col. Wilder took the chair, and introduced his successor, Samuel Walker, Esq., with the following happy and very appropriate remarks:

Gentlemen of the Massachusetts Horticultural Society:

The duty of introducing my successor, your President elect, devolves on me under very happy auspices. Your suffrages have fallen on a man who is worthy of the office, and well qualified for it—on one who has served the society in various capacities, with fidelity and ability; and whom you now reward with the highest honor in your gift.

Gentlemen, I rejoice with you in this event, and in the prosperous condition of our association—in the friendship and unanimity that prevails among us, and especially in an opportunity, before taking final leave of the chair, to thank you once more, most sincerely, for the distinction which you have bestowed on me—a distinction for which, at my first election, I had not presumed to hope, but which, having been so often conferred, and by those whose approbation I highly appreciate, I shall ever regard as above any earthly preferment.

During my administration, it has been my desire and endeavor to discharge the duties of my office with impartiality, and with a view to the best

interests of the society. How well I have succeeded, I leave for others to judge; but whatever success may have attended these efforts, for you, my official associates, with whom I have had such long and pleasant intercourse, and from whom I have received uniform and cordial support, I shall ever entertain an affection next to that for family and home.

Gentlemen, may a kind Providence bless you, in your persons, in your families, and in all your laudable efforts to extend the usefulness, and to increase the resources of this institution; and may he who is now to occupy this chair, prove more worthy of the confidence and respect you have so liberally bestowed on me.

Mr. Walker replied in the following very appropriate address:

Gentlemen of the Society:—The very kind manner in which my friend, Col. Wilder, has introduced me, and his determination, if it were possible, to lay me under further obligations by his courtesy, and his avowed approbation of my past services, happily, afford me an opportunity to state how much I value his friendship—the pleasure it has given me to serve the society under his administration, and to tender to you, gentlemen, my thanks for the honor you have conferred upon me.

I cannot plead that I am ignorant of the duties or the responsibilities of the office to which you have elected me, but, in the same spirit of frankness permit me to say, that I have many misgivings as to my ability to discharge them in such a manner as may be acceptable to you, gentlemen, or that I should be able, in any way, to aid or promote the progress and prosperity of the society.

When I turn to the records of the society, to read the doings, and remember the talents of those who have heretofore occupied this chair, and more particularly the eminent practical services of my immediate predecessor, I have good reason for fear as regards my own services. But, with you, gentlemen, I have been accustomed to labor; it is therefore almost unnecessary for me to say, that for the future I shall hope and expect to receive the same indulgence you have so often and so kindly extended to me, during a period of nearly twenty years. With these expectations I enter upon the duties assigned to me, with a determination on my part, to co-operate with you in as liberal an administration of the society as may be consistent with strict economy and its future interest.

I shall take an early opportunity to submit for your consideration and action, an outline of such measures as shall appear to me calculated to promote the further consolidation and usefulness of the society.

United as we now are as members, still encouraged by the co-operation of friends, and enjoying the liberal benefactions of our honored donors, I trust our future will be full of usefulness, and that our efforts may advance the object for which we are associated.

Gentlemen—when the time shall arrive that these new relations, which are formed to-day, shall be dissolved, may it find us the same united and prosperous society—strong in mutual friendship and esteem.

The meeting was then organized by the appointment of Rev. Daniel Leach as Secretary *pro tem.*

Hon. B. V. French, Vice President, presented the following resolutions, which were unanimously adopted:

Whereas, Marshall P. Wilder, Esq., has, during a period of eight years, discharged the duties of President of this society, to the satisfaction of its members; and

Whereas, Mr. Wilder's administration has been marked with energy and zeal in disseminating horticultural science; and

Whereas, We believe the interest of the society has been greatly advanced by his services, and its influences extended by his practical skill, and the many specimens exhibited by him from his garden and conservatory, of almost all the varieties of fruits and flowers; and

Whereas, We also fully believe that the public, as well as the members of this society, are indebted to him for his practical and successful labors; therefore,

Voted, That the thanks of this society be tendered to Marshall P. Wilder, Esq., for his services during the period he was president thereof; and also,

Voted, That a committee of three be appointed by the chair, to purchase a piece of plate, not exceeding in value ONE HUNDRED AND FIFTY DOLLARS, and cause a suitable inscription to be placed thereon, and to present the same, with the above vote of thanks, to Mr. Wilder, in behalf of the society, as a tribute of the regard and esteem of its members.

Messrs. B. V. French, C. Newhall, and J. S. Cabot, were appointed this committee.

Mr. C. M. Hovey presented the following vote, which was unanimously adopted:

Voted, That the society's gold medal be presented to Gen. H. A. S. Dearborn, the first president of this society, for the essential services he rendered to the science of horticulture and the interest of the society, during the period he presided over its affairs; and that a committee of three be appointed by the chair to carry out the above vote.

The chair appointed Messrs. C. M. Hover, C. Newhall, and E. M. Richards, as the committee.

The following resolutions were presented by Dr. E. Wright, which were unanimously adopted:

Resolved, That this society hold in high estimation the eminent attainments of James E. Teschemacher, Esq., in the various departments of literature and science.

Resolved, That the thanks of this society be tendered to Mr. Teschemacher for his valuable services as corresponding secretary for many years, and as chairman of the committee of publication.

Resolved, That as a token of approbation and respect, and in consideration of these services, that a piece of silver plate, *of the value of fifty dollars*, be presented to Mr. Teschemacher; or such other article of like value, as he may please to designate.

Resolved, That a committee of three be appointed by the chair to carry these resolutions into effect.

Messrs. Wight, Stickney, and Dutton, were appointed this committee.

A committee of arrangements for the annual exhibition was elected, consisting of the following gentlemen:—Joseph Breck, chairman, F. W. Macondry, D. Haggerston, A. D. Williams, Jr., J. S. Cabot, Otis Johnson, P. B. Hovey, Jr., E. Wight, J. F. Allen, Josiah Lovett, Capt. Austin, A. D. Weld, H. W. Dutton.

After transacting other business, the meeting adjourned for two weeks.

Large Poultry.—At a show held in England under the direction of the late Earl Spencer, the following were the dressed weights of some of the poultry exhibited: the best turkey weighed 20 lbs. 4 oz.; capon, 7 lbs. 14½ oz.; goose, 18 lbs. 2½ oz.; couple of ducks, 15 lbs. 10 oz.

MANUFACTURE OF COTTON GOODS AT THE SOUTH.

[From the Augusta (Geo.) Chronicle, March 9.]

"We chronicled a few days since, that the Augusta Manufacturing Company had increased its capital from $160,000 to $200,000, by the unanimous vote of the stockholders. Having many applications for their stock, and being allowed by their charter to increase their capital to $500,000, the board have recently decided to open new books, and receive subscriptions to the amount of $160,000, with a view to build a new mill by the side of the one now in operation.

"A fair share of the stock in this new establishment is now open to the public, for the benefit of such as desire to invest money in a sure and profitable business. No subscription will be called in, or payment asked, till the whole sum is subscribed.

"The new factory will reap the advantage of all that the company has learned by experience in building a pioneer mill; so that every dollar will be turned to the best possible account. One general superintendent, and one salesman, office, &c., will answer for both factories. This, of itself, will be quite a saving in the contingent expenses.

"The present mill is turning out 32,000 yards of cloth a week, which will soon be increased to 50,000. The demand for these goods greatly exceeds the supply. Each loom gives a product of forty yards a day. There is a full supply of worthy females, and of males, who seek employment at this important mechanical pursuit. Their wages are good and satisfactory. *All classes are beginning to appreciate the wisdom of bringing the loom and the spindle to the cotton, the bread, and the meat;* all see the folly of being at the useless and the enormous expense of carrying Georgia cotton, breadstuffs and provisions, to Old or New England, to be wrought into common goods, for Georgia consumption.

"Georgians can do their own carding, spinning, and weaving. They will soon make their own shoes and boots, saddles and harness, and tan more leather than they wear out. Nor shall we stop at the point which will barely meet the home demand for manufactured articles. Already a gentleman of wealth from another State, who made his money in a cotton mill, is taking preliminary steps to erect one in this city, with a view to spin yarn for export. As there is no lack of water power, no want of laborers and raw material, we may reasonably expect that capitalists will not overlook so promising an opportunity for making money. The processes for picking, carding, spinning and weaving our great staple, are among the most simple in the whole range of the mechanical arts. Falling water propels all the machinery; children tend it. Whatever capital, skill, and industry can do in the way of manufactures, the citizens of Augusta are bound to accomplish."

From every portion of the south and west we have indications of a growing determination to make a market on the land for the products of the land, and we rejoice in the belief that the day is not now far distant when the agriculturists of the land, throughout its whole length and breadth, will unite with us in the assertion that protection is a farmers' and planters' measure. It may, however, be asked, "Why should they desire protection, if they can even now obtain the results given above?" By way of answer, we would ask, "To what do they owe the existence of these mills?" Did they build such under the free trade system of '41, when our whole consumption was under 300,000 bales? They did not, nor could they now build them, but that the tariff of that year gave to the farmers and planters that protection which was essential to the promotion of concentration, without which mills and furnaces cannot be built. In the few years that have since elapsed, the consumption has doubled, and the more mills we build, the faster grows the power of consumption.

It will be said, however, that this is being done under the tariff of '46, which is less protective than that of '42. Granted—but it is far more protective than that which existed in '41 and '42, at the close of the compromise system. The country enjoyed four years of protection, during which it grew in wealth and strength, and at the close of those years, although a reduction was made, it did not go back to the system which had produced the disastrous effects that were witnessed in '42. The feeling of the

necessity for protection had grown, and even the ultra free trade secretary did not venture to go below 30 per cent.

The people of the south *can* manufacture coarse cloths more cheaply than those of the north, and therefore those of the north must turn their attention to finer ones, and the more rapid the progress of the south in the production of the one, the more rapid will be the increase in their power to consume the other. There is, therefore, an abundant field for the people of the north, who will thus profit by all improvements at the south; but to enable them so to do, adequate protection is essential. It is not to the interest of the south that those who are now making coarse cloths in Lowell should be compelled to fly to the west, because such a course of action would tend to increase the supply, and diminish the prices, of all agricultural products, and to diminish the power to consume cotton and wool. Every man retained in the factories of Lowell, or in the furnaces of Pennsylvania, is a customer of the farmer and planter, and every man driven from them to seek the west must of necessity become a rival. Wherever men are enabled to combine their exertions, their labor becomes more productive, and they become larger consumers. Wherever they are forced to fly from each other, their labor becomes less productive, and they become smaller consumers. The power of this country to consume food and cotton was never smaller than in 1841 and '42, the period of the nearest approach to perfect free trade, and never greater than in 1846, the period of the most perfect protection.

ON STONE FENCES.

Peter Minor, of Virginia, was a man of rare modesty, and of very rare merit, both in his disposition and his example—in his pursuit of useful knowledge, and in his perspicuous manner of imparting, unreservedly, what he knew for the benefit of others.

On the 1st of October, 1819, a paper was read from him to the Albemarle Agricultural Society, on the subject of *Stone Fences*. He maintained that the cost of keeping up timber fences, would, in thirty-three years, amount to more than the worth of the land, supposing it to be worth $20 an acre. The view he presented was this:—

An inquiry naturally presents itself on this subject:—What is the relative value of a farm fenced with stone, compared with one fenced with dead timber? Take the following data.

From the best accounts I have been able to obtain from others, and from my own experience, it may be fairly stated that one full month of the whole annual labor of every farm is consumed in the various operations of cutting, mauling, hauling, and putting up fences. This is one-twelfth of the year, or one complete year in twelve, that is devoted exclusively to making and repairing dead fences; and as the expense is annual, it is clear that the condition of such fences is no better at the end of any year than at the beginning. Again—I think it may be fairly stated, that when the materials are in place, the expense of erecting a stone fence does not exceed that of erecting one of rails, including the various operations above-mentioned. The value of the timber (which is not taken into the account above) and the advantages of having the land cleared of stone, will balance the expense of moving the stone three or four hundred yards. So that on a farm abounding with stone, and where the transportation does not exceed this distance, I think a fence of stone will in the first instance be as cheap as a rail one. Suppose, then, two farms of 500 acres of arable land each, in all other respects equal, except that one is fenced with stone, and the other with dead timber. Each of them employs twelve laborers at $100 a piece per annum. One is at no expense, while he who fences with timber consumes one month in every year, in making and repairing his fences. This is an expense of $100, being the labor of one

hand during a complete year. At annual compound interest, this would amount in less than 33 years, to $10,000, which is the entire price of the land, supposing the farm to be worth $20 per acre. Thus in 33 years, the one farm would be able to buy the other, from the expense saved by the different mode of fencing. It is true there are not many farms capable of being entirely fenced with stone, but there are scarcely any that do not admit of it in some degree, and the advantages would be derived in a similar ratio to any part which could be thus enclosed. P. MINOR.

PAPER-MILLS OF THE SOUTH.

[From the Mobile Herald, March 7.]

"THE Tuscaloosa paper-mill has finally got into operation. We mentioned the receipt, the other day, of a sample of wrapping paper, the first product of the mill, and a very excellent specimen it was. The last Tuscaloosa Observer contains an extended notice of this new enterprise. The editor and citizens generally, male and female, were present at the first start of the machinery, and witnessed with deep interest the process of converting the unsightly mass of pulp into even and consistent sheets of wrapping-paper. In a short time the manufacture of printing-paper for books, newspapers, &c., will be commenced. We predict full and complete success for the company, and we doubt not all the publishers in the southern and middle portions of the state will procure their supplies from the Tuscaloosa mill. We promise them our patronage—at least till our mill gets into operation; that is if they will furnish us with a passable article. There will, however, be no difficulty in making paper every way equal to that sent to us from the North. The water of the Warrior is as bright and pure as northern streams, and the raw material, in a much better condition than that used at a distance, can be procured in abundance on the spot.

"It has been clearly demonstrated that we can undersell the northern manufacturers of coarse cotton goods. There is one case in point. The Virginia, Georgia, and Alabama osnaburgs have entirely driven out of this and the New Orleans market the similar fabrics heretofore supplied by Lowell. So it will be in the manufacture of paper. We can erect mills at less expense, procure the raw material more cheaply and in better order, and although labor may be higher, these and other advantages will enable our Tuscaloosa friends and others who may engage in the business, to furnish all kinds of paper on as favorable terms as the northern and eastern mills. Indeed, we feel confident that in a few years Alabama printing paper will be exclusively used in many of the West Indian, Mexican, and South American printing-offices.

"It will not be out of place to mention here that a gentleman of this city is arranging to erect a paper-mill in our immediate vicinity. Success, we are sure, will follow. Some may doubt the practicability of such an enterprise, especially as a similar one failed in New Orleans. In the neighborhood of Mobile is a number of never-failing, bold running streams, as clear as crystal. In New Orleans the Mississippi water was found to contain rather too much earthy matter, and hence the failure."

Alabama has rags in abundance, but they are almost valueless because of the want of a home demand. She wastes far more of them annually than would suffice to produce all the paper she consumes. She wastes more food than would feed all the people employed in converting all the rags into paper, and more labor than would pay for all the cloth, and paper, and iron. If this is so, and all who doubt may satisfy themselves that so it is, the paper thus produced will be all pure gain, and will add to the power of consuming commodities of a superior order. Every increase in the circulation of newspapers, consequent upon the diminished price, will produce a demand for more school-books, and Bibles, and Testaments, and every increase in the consumption of school-books will produce a demand for more books of higher character. With every step in the progress of concentration, men will be enabled to read more and better books, and to have more and better schools, and thus will intellectual, and moral, keep pace with physical improvement. Let every man, then, unite with his neighbor man in the determination that the loom and the anvil *shall* come and take their places by the side of the plough and the harrow.

WOOL AND SHEEP HUSBANDRY.

In early numbers of this journal, we evinced the sensibility that is felt in regard to the great importance of *sheep husbandry* in the United States, both as a *provision* staple, and as an element of one of the most important manufactures. We hold it to be the grossest neglect of a great resource of national wealth, that we should be importers either of *wool or of cloth*—a blind surrender of a great interest to an absurd abstraction popularly called "free trade." No! let the American who wears the cloth be proud to say that its woof and its warp are the produce of *American flocks*. Let the man who weaves the cloth get *American wages and eat American flour and mutton*. Let the loom in which it is woven be brought as close to the wool as possible, instead of sending the wool to Leeds and Manchester, in England, to be woven by men, women, and children, who are forced to labor sixteen hours a day *to keep soul and body together!* It is not against such people and such misgovernment that free-born Americans should be *forced* to contend by the policy of their own government, in obedience to old '98 notions about "free trade!"

Our object will be to keep the public advised in relation to our capacity to *rely on ourselves* for all the materials and all the art that are essential to a self-supply of every woollen fabric of every description.

If, as a nation, we put our foot down and say, we WILL *manufacture for ourselves*, the consequence will be, as in all other similar cases, capital, assured of a steady market, will go into that channel; and after a little the farmer will get his cloths cheaper than he now gets them from abroad; but not if we open our custom-houses to every bankrupt concern in Europe, who, whenever a revulsion occurs in England, will flood our markets with his goods, *at his own valuation*. The following letter is from one of the best informed men in the Union on the whole subject:—

SHEEP HUSBANDRY IN VIRGINIA.

To the Editor of the Agricultural Department of "McMakin's Model American Courier:"

Wechaw, near Summit Point, Jefferson County, Va., March 6, 1849.

Sir:—Enclosed is a copy of the last shearing of the flock of Richard K. Meade, deceased, late of the county of Clarke, (then Frederick,) Va. It has been my intention, for some time past, to forward to you this paper. I can testify to its correctness; as, with the assistance of a friend, and in the presence of a numerous assemblage of gentlemen, I weighed most of the fleeces. I particularly remember weighing the fleeces 16½ and 16 lbs; 32½ lbs. of wool of quality, I suppose, equal to ¾ or ⅞ merino. These fleeces were clipped from two bucks about sixteen months old.

If you feel disposed to lay these facts before the agricultural world, they are at your service. Before I close my letter, allow me to ask if you can inform me where the shepherd's dog or mastiff can be procured; as the curs are committing sad havoc upon the flocks of our neighborhood.

If these dogs (puppies of the stock, I mean) can be procured, you will very much oblige me by letting me hear from you.

I am, Sir, very respectfully, your obedient servant,

J. F. Nelson.

Note by the Editor.—The facts are indeed highly interesting on various accounts, and on two particularly. They demonstrate, in the first place, what valuable results may be accomplished by giving the force of a clear and determined mind to the attainment of improvements in any particular branch of agriculture, as Mr. Meade did his to that of *wool and sheep husbandry*—and then these facts demonstrate what, however, really needed no demonstration, that the climate and soil of Virginia is *well* adapted to the highest development of that animal for all its useful purposes. The fact is, that if the Old Dominion would review the past, see to what condition her abstractions have reduced her, and take a new departure, sheep husbandry in all its agricultural and manufacturing relations and capabilities ought to be among her most productive sources of wealth. She ought not to

send a pound of wool beyond her own borders, nor a dollar out of the State for the purchase of clothing of any sort, or of iron in any form.

As to shepherds' dogs, we do not know where they are to be had. We have been long expecting some from France. But it may here be mentioned as a fact, lately derived from Mr. Gray, who learned it by personal observation, in Mexico, that there they make the best sheep dogs in the world, by taking a pup of any good large breed when whelped, and putting it to be suckled and brought up by a *ewe*. Mutual attachment grows up between him and the flock, while he obtains the mastery, which he exercises for their protection and safety. The trial may be easily made. We have no doubt of the fact.

We here condense the statement of the *weights* of Mr. Meade's fleeces:—

Seven year-old rams, averaged $13\frac{9}{16}$ lbs.; 2 two year old, 9 lbs.; 2 two year old wethers, $9\frac{3}{4}$ lbs.; 8 one year old wethers, $9\frac{1}{4}$ lbs.; 10 yearling wethers, $9\frac{1}{2}$ lbs.; 14 ewes averaged $6\frac{5}{7}$ lbs.; 21 ewes, $6\frac{1}{2}$ lbs. Summary.—Average of 29 rams, wethers, and yearling ewes, was $10\frac{6}{16}$ lbs.; ditto of 35 ewes was $6\frac{1}{16}$ lbs.

Have these weights been equalled by any other flock in the United States?

THE WOOL MARKET.

Cortland Village, March 5, 1849.

My Dear Sir:—The wool market of the United States has labored under a depression for the past year, for reasons obvious to every observer. The financial crash in France, and the tightness of the money market in some other European countries, compelled their manufacturers to throw their woollens into the market at all events, and they sold at ruinous sacrifices—often, it is said, for less than the first cost of the wool. Immense quantities of foreign cloths were thus disposed of in this country. Here, as in Europe, their price was below what any manufacturer could afford to sell them at. They threw down the prices of American cloths, and the manufacturer could not pay former prices for wool, with this injurious competition.

How long are these causes to operate? I believed from the beginning that they could not exceed two years, and from present appearances, wool will nearly or quite regain the prices of 1847, during the coming spring. It is not impossible—it *may* even rise considerably above those prices. The demand for it now is far more active than last spring, and the prices better.

There are many reasons why wool should soon rise higher than it has been for several years. When the surplus cloths of Europe, in the hands of the manufacturers last spring, shall have become exhausted—shall cease to glut our market—this rise will, I think, take place. The French and German manufacturers have suffered too severely by the monetary and other disasters of the past season, to get any surplus of cloths on hand for the American market. I have no statistics on the point, but such *must* be the fact. Indeed, there is ground for a reasonable doubt whether they will meet their own home demand! Does any one say, "Then the raw material of this surplus, hitherto worked up in Europe, will come here, and have the same effect with the manufactured woollens, on the *wool grower?*" With freight and duty added to the original cost, *fine* foreign wools cannot now be sold here short of a good round price. Besides, the storm which has broken on the European manufacturer has fallen with equal violence on the wool grower. Hostile armies are ravaging the fields, and doubtless breaking up, scattering, and subsisting on the flocks of the most important wool-growing region of Europe—Hungary. If a general war should break out in Europe, (which God avert!) we shall, beyond all doubt, have to supply Europe with a considerable portion of her woollens! In addition to the probable diminution of the staple in Austria, (and more particularly Hungary,) the accounts from Australia, (which furnished England most of her fine wool,) are not, so far as I learn, very favorable for the incoming crop of wool. It is said that

the past season has been an unfavorable one for sheep in that singularly precarious climate for them.

Thus you see that all looks bright for the American wool grower. The people of this and some other of the Northern States, encouraged by the remarkable price borne of late by dairy products, and discouraged, *as usual*, by a few months' depression in wool, have still further sacrificed their flocks, and it is difficult to say where our manufacturers are to obtain their fine wools in a short period. That the home supply has *never* equalled the demand, *you* are perfectly aware, notwithstanding the common impression to the contrary.

Such are my views on the subjects embraced in your inquiries.

I am, dear sir, very truly yours, in great haste, HENRY S. RANDALL.

J. S. SKINNER, Esq.

WHO PAYS ENGLISH TAXES?

Is any portion assessed on the Wabash corn-grower, who, after expending seventy-five cents on every bushel he sends to Liverpool, is there subjected to every species of imposition from foreign factors without the power of redress? What toll does he pay in the commercial mill in which he allows his corn to be ground? He may think himself well off if he gets back one peck out of the four.

Does the Michigan wheat-grower ever think of the amount he pays in "dock and town dues" to the Liverpool corporation dinners?

And what does the Kentucky grazier lose by not having a home market? Here is a *bonâ fide* account of sales of 366 tierces of beef shipped to Liverpool by one of our Louisville houses, who are familiar with the business, and who have every facility of doing it on the cheapest terms :—

Cash for 366 tierces beef, due by average, March 16, 1848, net					£1769	12 2
CHARGES.						
Warehousing entry	£0	6	0			
Freight from New York, (and *not* including freight and charges to New York)	153	14	4			
Insurance and policy	23	7	3			
Landing, wharfage, housing, and delivering	15	5	0			
Washing, capping, and re-pickling	50	5	0			
Washing, and opening to show	2	18	0			
Rent, £11 8 3; fire insurance £4 6 3	15	14	6			
Bill stamps, 18*s.* 6*d.*; Incidentals, 5*s.*	1	3	6			
Interest on freight	3	18	10			
Brokerage, 1 per cent	17	15	5			
Commission, 4 per cent	79	15	8	355	3	6
Net proceeds				£1414	8	8

At this point the beef is "*in bond*," and before it can be released from bondage it must pay part of the pension of "The Iron Duke."

If the beef spoils on the voyage, does the intended consumer pay any part of the loss? And if the consignee finds it convenient to fail, will the Fayette consignor oppose the discharge of his debtor under the English bankrupt laws?

Does not the Western buyer of Sheffield cutlery pay a part of the Hallamshire poor rates? And do not we all who eat on Staffordshire plates pay a proportion of the cost of English bayonets in Ireland?

We have no intention of preaching a crusade against foreign commerce, and have no desire to be isolated from the rest of the world. We do not call on the government to offer such a bounty on the growth of June apples in Kentucky as would make their cultivation in green-houses a profitable business, but we do desire to see the consumer of our corn and beef drawn nearer the producer, instead of paying or losing the expenses of transportation, which fall on us when the supply of our produce is greater than the demand. We would invite the hands to come here and work up our own iron and temper our own clay.

Corn.—Some days since we gave the results of a shipment of beef from this country to England. We now annex a copy of an account of sales of 1800 bags of Indian corn shipped to and sold at Liverpool on account of the New Orleans agents of one of our Louisville houses:—

By sales of 457 135–480 qrs.	£649	14	8		
1800 empty bags, at 2¼*d.*	16	17	6	—666	12 2
To freight from New Orleans	367	3	2		
Primage	18	7	2		
Dock, town, and trade dues	6	13	8		
Cartage, porterage, and rent	48	5	2		
Fire Insurance	1	11	6		
Postages and interest on charges	5	1	9		
Brokerage	3	4	7		
Bank commission	1	13	4		
Commission and guarantee, 3½ pc.	23	6	7	—475	6 11
Net proceeds, cash, Nov. 26, 1847				£191	5 3

E.E. Liverpool. R—— & B——.

Proceeds equal to				$929	86
Including 9½ per cent. exchange.					
Now add cost of 1800 sacks at	0	14			
Transportation to New Orleans		30			
Shelling, sacking, and drayages		7			
Commissions and charges at New Orleans		3			
Weighing		2			
	1800×56			=1008	00
Net proceeds here on the wrong side, or a net loss of				$78	14

What say you, gentlemen corn-growers of the West? Will you risk the Liverpool market? Is it policy to exchange your products for the wares of Manchester, Birmingham, and Sheffield?

Free trade means that you are free to send your corn and wheat where there are "dock, town, and trade dues," and on "English bottoms;" and this year you can have the advantages of the "sliding scale." These Liverpool factors, with their commissions, and charges, and interest on charges, must grow fat on your corn. Do you think they would subscribe liberally when you would put up a new school-house, or build a bridge, or pay your preacher?—*Louisville Journal.*

Ah! but without these enormous taxes on every thing in England—taxes on knowledge and on the light of heaven itself—on newspapers and on window-glass, (what is it that is not taxed?) how could the people be made to pay to the Archbishop of Canterbury, John Bird Sumner, $85,000 a year; to the Bishop of London, $55,000; to him of Winchester, $50,000; to the Archbishop of York, $50,000, and so on?—*Editors P. L. & A.*

STRICTURES ON DR. BALDWIN'S NEW THEORY.

(POSTPONED FROM LAST NUMBER.)

MESSRS. EDITORS:—With due deference to the superior capacity and attainments of your valued correspondent, Dr. Baldwin, we propose to make a few remarks in regard to his "New Inductions in Agriculture," that appeared in the last number of "The Plough, the Loom, and the Anvil."

They are made with no desire to criticise—no wish to engage in a controversy; neither from any presumed qualification on our part, of competency to enter into a rigid analysis of the opinions he advances; but are offered simply as some reflections that were suggested by a perusal of his interesting, and, in our humble opinion, very valuable article, notwithstanding we differ materially from him in many points, and if it were pardonable to introduce political phraseology in an agricultural dissertation, we would say that we consider him decidedly '*ultra*' in his views.

The first deduction seems to be rather indefinite, but the evident design of it is to convey the impression that vegetables are NOT dependent upon the atmosphere for their nourishment, for he says, "No plant can exist in an impoverished soil without manure at the root."

In a subsequent assertion he states that "no manure can be made of *any substance* without the aid of the putrefactive process." If this be true, all manures owe their origin *exclusively* to organic matter, for it would be absurd to speak of inorganic matter as undergoing putrefaction, the terms disintegration and decomposition being applied to changes in their form and composition.*

Therefore manure could not have existed previous to the creation of organic matter, and as plants, according to his assertion, are doomed to instantaneous death when deprived of it, we would ask what sustained vegetable vitality when it first made its appearance on earth?

From the induction of Dr. Baldwin we must infer that it would have perished, and this sphere would have rolled on in its circuitous orbit *ad infinitum;* but its beautiful robe of verdure would never have embraced it—the science and art of culture would have been unknown, and in fact animal creation could not have existed, for it is dependent for its support upon vegetation, that being the great and important agent that is intrusted with the exalted function of transforming the raw material into nutritive compounds.

But this is not the only dilemma we find ourselves in, for if we admit that plants *do not* draw largely upon the carbonic acid gas of the atmosphere for their carbon, how can we explain the origin of the immense deposits of coal that are found diffused over both continents, and also those extensive accumulations of peat, that are often many miles in length, and feet in thickness? If we were wafted upon the wings of imagination through an infinite number of years long past, and could gaze upon one of those valleys that is now the receptacle of mountain masses of peat, and behold it when its primitive verdure luxuriantly waved throughout its entire extent, and then watch it each succeeding year, and see the annual product fall down, decay, and add to the amount of organic matter—thus continually accumulating, until a mighty volume of carbon is congregated together; think you

* The French chemists do not admit that inorganic matters are manures—they term them *ameliorators.—Editors P. L. & A.*

that we would then assert that plants *do not* draw nutriment largely from the atmosphere?

These, and many other circumstances, confirm *us* in the opinion of numerous individuals, that plants receive a large amount of their support from other sources than the soil. In fact, if they did not consume the carbon of the carbonic acid formed by combustion, the natural decay of organic matter, and the respiration of animals, the atmosphere would eventually become surcharged with it, when the earth would be uninhabitable.

That plants *do* absorb carbonic acid is not only a plausible conjecture, but an *established fact*, and reveals the beautiful connection and mutual dependence of the animal and vegetable kingdoms upon each other.

The doctor is of the opinion that the analytical investigations of learned chemists are not only valueless, but that they have proved decidedly injurious to the best interests of agriculture.

Now we would ask if he denies the accuracy of those analyses, and if so, we would class him among those skeptical ones who still doubt the rotundity of the earth, and would at once omit any further remarks. But that they are rigidly correct cannot be denied, for they have been repeatedly verified. Presuming that he admits they *are* reliable, we will next refer to the 3d clause, in which he asserts that "it is *not* true that different vegetable matters during their growth, extract different fertilizing salts from the earth." And in proof he says, "for lands exhausted by continued cultivation in one kind of grain will not produce a more remunerative crop of *any other kind*." In this he does not say directly that plants absorb the inorganic constituents in *different* proportions, but it amounts to the same thing, and the proof he offers, if correct, equally sustains both. If we admit that they all absorb the same elements, yet in very *unlike* quantities, it would be in direct opposition to the last sentence quoted, therefore his meaning is clear.

Now, according to the analyses referred to, plants *do possess* these elements in *very different* proportions. For example, let us compare the inorganic constituents of the oat with that of the potato, and we find a wide difference, the latter containing by far a larger quantity of potash and soda, while the silica is much more abundant in the first.

A multiplicity of such comparisons might be made, all tending to establish the same important fact, that plants *do absorb the inorganic elements in very different proportions.*

Here then is a collision, and the sweeping assertion of Dr. Baldwin must either be erroneous, or the results obtained by Liebig, Berzelius, Sprengel, Mulder, Prout, and a host of other scientific investigators, must be incorrect and unreliable. But his assertion not only conflicts with the settled principles of science, but also with the views, as we had supposed, of all thorough agriculturists, and, if true, will do away with the necessity of a rotation of crops, which we had thought was acknowledged by both theoretical and practical men to constitute the basis of an enlightened system of agriculture. Now if it can be maintained that no advantage is derived from an alternation of crops, (and it certainly can, if it can be demonstrated that different plants absorb the same inorganic elements in precisely the same proportion,) it will not only detract from the utility of scientific research, but will also destroy all confidence in the "careful observation of the operations of nature, and the inductive reasonings drawn therefrom;" for all the experiments that we have ever heard, tend *emphatically* to establish the principle that a judicious rotation is indispensable to good husbandry.

Again, he places very great stress upon the efficacy of shade, regarding it as the great fertilizing agent, for that alone "is capable of developing the fertilizing principle that exists in every particle of earth as naturally con-

stituted." And in proof of this position, he says, "the difference in the fertility of the soil in our native forest lands arises *solely* from the circumstance of the surface-soil being more or less densely shaded." Here he appears to regard the organic matter, which is known to exist in very variable proportions in all virgin soils, as of *no value* whatever to vegetation, for the difference in their fertility is *not dependent* upon its presence or absence, but *solely* upon the intensity of shade; and if decomposed organic matter does not exert the slightest influence on plants in this case, we are unable to see why it can in any other, and his deduction, in our humble opinion, is equivalent to a promulgation to farmers of the doctrine that the refuse matter of their barn-yards could as profitably be scattered in the highways as on their fields, (unless it have the effect to shade it to some extent,) which is certainly a novel idea. This appears also to be at variance with the last clause of assertion No. 6, that we have already quoted, for there he states that ALL manure is the result of putrefaction, which term we have already remarked is applied exclusively to the decomposition of organic matter.

Now, if "shade is the great fertilizing agent, and in this consists the perfection of agriculture," it is all-important that it be clearly demonstrated. If it be so, we would ask why it is that a field that has produced a luxuriant crop of any kind of grain is not greatly enriched by it, for it must have been very much shaded? But instead of being improved, science, and so will the practical experience of every farmer, answer, that the reverse is the case.

We regret that Dr. Baldwin did not give his reasons for the opinions he advances, and frankly acknowledge that these remarks are made more for the purpose of eliciting information from him than imparting it to others. Feeling deeply interested in the welfare of agriculture, which is the leading pursuit of our country, we are desirous of having every thing that will promote it fully sustained; and if agricultural writers would give with their abstract principles, the reasons of their adoption, a great favor would be conferred, and the necessity of all articles like the present avoided.

In conclusion, we would remark that we differ essentially from all those who underrate the labors of scientific men, and instead of considering that they have been and are detrimental to the interests of terraculture, we think they have done more to elevate the noble calling, and bring it into its proper and exalted estimation, than any other class, and have made many valuable suggestions. Still we would not recommend that the dictations of science, which is but yet in its infancy, where they are at variance with repeated and multiplied experiments, should be adopted; but such instances are NOT numerous, and for the most part, there is an admirable coincidence between them—one confirming the other.

But in what manner has science elevated and advanced agriculture? It has suggested many improvements of great pecuniary value, such as the application of sulphuric acid to bones, the giving of alkalies to hoven cattle, and ultimately, the analysis of soils will be an object of paramount importance, and will precede every attempt at renovation; but besides this, it has diffused a flood of light upon the subject, that enables culturists to experiment with clearness, and the promise of success.

Some men estimate its value exclusively by the dollars and cents that they receive directly from its hands; but in our opinion the greatest public benefits are not to be counted in coin, though they will eventually and indirectly greatly increase national wealth.

Yours, respectfully, P.

Germantown, Pa.

DIRECTIONS FOR CUTTING AND WHITENING STRAW,

FOR HATS, BONNETS, ETC.

Cut rye near the ground, when the grain is in the milk; tie it in small bundles, cut off the heads, dip it in boiling water, (if you cannot dip it, pour boiling water over it, though dipping is best,) dry it in the sun thoroughly, taking it in at night, so that no dew falls upon it. Cut out that part under the husk, and tie it in small bundles, to make fine braid for nice bonnets; for coarse hats, the whole length between the joints may be taken and braided without further preparation.

To Bleach or Whiten Straw.—Take a barrel with one head out, take the bundles of straw you have cut, and wet them thoroughly with hot soap-suds, tie them in the barrel as near the head that remains in, as you can. Dig a hole in the ground, a few inches deep, a little larger than the barrel; put some ashes in the middle of the hole. Heat some iron vessel, put some coals upon the ashes, and put the hot iron vessel upon the coals, and put in two ounces of sulphur (or brimstone) for every pound of straw. Set the open end of the barrel over it, and heap up some dirt around it to make it tight; let it remain all night. If it is not as white as you want it, repeat the operation, taking care to wet the straw every time you smoke it, or the smoke will do no good.

Old hats or bonnets may be whitened in the same way, if thoroughly washed with a brush or sponge and soap-suds.

Straw must always be wet when it is braided, to prevent its breaking. Ingenious persons may learn to braid by taking a piece of an old hat or bonnet—which can be readily procured at the bonnet-maker's or milliner's—and picking it open, soaking it in water, to prevent its breaking.

REMARKABLE PRODUCTIONS OF A SMALL STATE.

The Delaware Republican's Correspondent says the old "Blue Hen" exhibited lately in Washington, from among her small brood of chickens—the Secretary of State, in the person of the Hon. J. M. Clayton, of "*Buena Vista*,"—the largest wheat-grower in all Delaware, Major John Jones, of *Wheatland*, and—the *largest and finest mutton* ever seen in the Washington market, being one of Major Reybold's Oxfordshire breed, weighing 148 pounds, or 37 pounds to the quarter. In John Barney's time, 25 pounds to the quarter for Bakewell was regarded as extraordinary. The *old* Southdown mutton used to weigh 12 pounds. The fact is that every thing is on the advance, and so it was designed by an all-wise Providence. That mankind should be happy, we must be kept on the *qui vive*. Were things at once put at the maximum of improvement, the next thing would be to grow rusty and die of *ennui*. What is wanting now is, to establish courses of education, and application of the sciences expressly adapted to *agricultural improvement*—and then we shall witness as much improvement in the machinery, the practice, and the art of cultivation, as we have witnessed in the medical art, which has so much prolonged the average of human life—or in the art of printing, painting, manufactures, &c. Let the farmers and planters of the Union insist on the appropriation of a large portion of the taxes *they pay*, to the purposes of education, with express reference to a better understanding of all sciences that bear upon the use of the plough and the harrow—and this determination will be accelerated by bringing into their immediate vicinity, the loom and the anvil—because that will be followed by increase of wealth, of leisure, and of self-command, and the power of combination for common benefit.

[Written for "The American Courier," by the Editor of "The Plough, the Loom, and the Anvil."]

THE COST OF BUILDING AND REPAIRING THE FENCES IN THE UNITED STATES,

Is enormous, almost beyond the power of calculation, and forces the inquiry, whether Legislatures ought not to be called upon to compel every man to keep his stock to himself. Then no man, who did not choose to do it, would be forced to enclose his land against the ravages of his neighbor's stock.

Mr. Biddle, a few years since, in an address before the Philadelphia Agricultural Society, stated that the cost of the fences in Pennsylvania amounted to $100,000,000, and their annual expense he estimated at $10,000,000. A distinguished writer on National Wealth, says: "Strange as it may seem, the greatest investment in this country, the most costly production of human industry, is the common fences which enclose and divide the fields. No man dreams that when compared to the outlay of these unpretending monuments of human art, our cities and our towns, with all their wealth, are left far behind. In many places the fences have cost more than the fences and farms are worth. It is this enormous burden which keeps down the agricultural interest of this country, causing an untold expenditure, besides the loss of the land the fences occupy."

Estimating a chestnut post-and-rail fence to last 18 years, and including inside fencing and repairs, the *annual* tax to the farmer holding 150 acres, will be $130 to $140, and judging from present appearances, the tax is perpetual, and there seems but little hope of escape from it.

Did the intelligent farmer reflect a moment, and estimate the annual tax which his fences impose upon him, he would not rest till the system was abolished, or else the live hedge took the place of the present expensive fence of timber.

The system of compelling every landholder to enclose his property is peculiar to the United States, with only the exception of England, where the fence nuisance appears again under the form of the hedge; and although these hawthorn hedges, when they are well tended—and not more than half of them are so—are beautiful objects, and answer all the purposes of protection against the inroads of cattle, still the public voice is beginning to cry out against them, because of the enormous amount of land required to support them. Each hedge is five or six feet wide at its base, and taking into account the amount of land they exhaust on either side, the whole space cannot be less than twelve or fourteen feet wide. When it is recollected that the divisions and subdivisions of land in England are very numerous, the amount of arable land abstracted from the purposes of agriculture is very great. It has been estimated at several million bushels of grain.

Distemper in Dogs.—As few escape, every one ought to have a remedy on which he can depend, instead of waiting until the poor dog's life is in imminent jeopardy, and then running about asking here and there—"Can you tell me what's good for distemper?" Here it is:—

For a half-grown dog, and more or less in proportion to age,

Opium	3 grains.
Tartar Emetic (a capital medicine)	5 "

To be given every third night, until a cure is effected. Keep him in a warm place, and always fed with warm liquid diet, such as broth, gruel, &c.

If there be much discharge at the nostrils, have them washed or syringed twice a day, with a lotion of alum or sugar-of-lead, putting about half an ounce of either to a pint of water.

THE AGRICULTURAL SCHOOL-BOOK.

EIGHTH LESSON.

OF MANURING THE SOIL.

1. ANY thing that furnishes food to plants may be called a manure.

2 Of manures there are three principal kinds—vegetable, animal, and mineral.

3. Vegetable manures are those parts of plants which are usually buried in the soil to make it more productive.

4. The most important vegetable manures are grass, clover, straw, hay, &c.

5. The soil is manured with green grass when grass-land is ploughed up.

6. In ploughing up grass-land, the sods should be buried so deep as not to be disturbed by the after-cultivation of the crop, yet not too deep for the roots to reach them early in the growing season.

7. Clover, buckwheat, oats, and rye, are also ploughed in to enrich the soil.

8. Green crops are usually ploughed into light and sandy soils, and into such as contain very little vegetable matter.

9. Sea-weed or sea-ore is a valuable manure, and wherever it can be obtained in large quantity it is found to enrich the soil very much.

10. Sea-ore is either spread over the land and allowed to rot and sink in, or it is made into a compost, or it is put into the furrow in a fresh state; care is taken, if potatoes are the crop, to prevent the sets from touching the sea-weed, by putting a little earth between them.

Note.—When the potato sets are allowed to touch the sea-weed they are often observed to rot.

11. When used in a fresh state, sea-weed will give large crops of potatoes, but they are not of the best quality.

12. The best way to use sea-weed is in the form of a compost of earth or marl, and the mixture should be turned over once or twice before using it.

13. Hay is usually fed away to the horses or stock, and afterwards put upon the land in the shape of their dung.

14. Straw is either fed away or used as litter, and then hauled out in a more or less fermented state.

15. For light land, the manure made from straw should be pretty well fermented: for stiff land not so much so.

16. The most important animal manures are the blood, flesh, bones, hair, wool, and the dung and urine of animals, and the refuse of fish.

17. In this country as yet very little use has (notwithstanding its great value) been made of blood as a manure. In other countries it is dried, and is then applied as a top-dressing, or is drilled in with the seed. It is one of the most powerful manures.

18. The flesh of dead horses, cows, and dogs, buried in saw-dust or soil, with a little marl, makes a most enriching compost.

19. Bones are crushed in mills, and then sifted into the various sizes of inch bones, half-inch bones, and dust.

20. Bones act most quickly in the form of dust, but they do not act for so long a time.

21. Bones are most profitably employed on light, or on well-drained lands, instead of the whole or of a part of the farm-yard manure. They are often mixed with wood ashes.

22. Bones have been found very beneficial to grass-lands that are pastured for dairy purposes or for stock generally; even where these lands are wet, bones have produced remarkable benefits.

23. Bones consist of glue or gelatine, which may be partly extracted by boiling them in water—and of bone-earth, which remains behind when the bones are burned.

24. Bone-earth consists chiefly of phosphoric acid and lime.

100 lbs. of *bone-earth*, as it is obtained by burning bones, contain about 45 lbs. of phosphoric acid.

QUESTIONS.

1. What is manure?
2. How many principal kinds of manure are there?
3. What do you mean by vegetable manures?
4. Name the most important vegetable manures.
5. How, or when is the soil manured with green grass?
6. At what depth should the sod be turned under?
7. What other crops are ploughed in as green manure?
8. What description of lands are most benefited by green manures?
9. What of sea-ore?
10. How is sea-ore applied?
11. What is said of sea-ore when used in a fresh state?
12. Which is the best way to use sea-ore?
13. What of hay?
14. What use is made of straw?
15. What is said of the degree of fermentation in straw manure?
16. What are the most important animal manures?
17. How is blood managed?
18. How is the flesh of animals made into manure?
19. How are bones prepared?
20. How do bones act most quickly?
21. How are bones most profitably employed?
22. On what lands have bones been found beneficial?
23. What do bones consist of?
24. What is the composition of bone-earth?

NINTH LESSON.

OF MANURING THE SOIL. (*Continued.*)

1. As all plants contain, and therefore require for their healthy growth a certain quantity of lime and phosphoric acid, bone-earth must make a good manure.

2. Dairy pastures—milk and cheese contain bone-earth. If these be carried away and sold off the farm for a number of years, the land is robbed by degrees of its bone-earth more than of any other substance. Only those grasses can then grow which require little bone-earth.

Every ten gallons of milk contain about half a pound of bone-earth. A cow, therefore, which gives twenty quarts a day, takes about two pounds of bone-earth from the soil every week. To return these two pounds to the soil, three pounds of dry bones, or four pounds of common bone-dust are required.

3. As the bones supply the bone-earth of which the land has been robbed, new grasses spring up which contain much bone-earth, and these, when eaten by the cow, produce milk in greater abundance, and richer in cheese.

4. Bones are sometimes dissolved in sulphuric acid (oil of vitriol) previous to being applied.

5. To dissolve bones, about equal weights of bone-dust and sulphuric acid are taken. The acid is diluted with three times its bulk of water, and poured upon the bones, and the mixture is stirred occasionally for two or three days.

The teacher may show how this is done, and explain that the liquid or *paste* may either be further diluted with thirty times its bulk of water, and applied with a water-cart, or may be dried up with powdered charcoal, peat, saw-dust, or soil, and

drilled in, or used in the hill as bones usually are. The relative proportions of bones and acid may also be varied—two or three of bones being sometimes used to one of acid.

6. One of the chief advantages of dissolving bones is, that the substances of which the bones consist are very minutely divided. They can thus enter more readily into the roots of plants, and a smaller quantity produces an equal effect upon the crop.

7. Hair is generally too expensive to be used as a manure. But in China, where the people's heads are all shaved, the shavings are collected for manure. There are many small tanneries far in the interior of our own States where large quantities of hair is wasted.

8. Wool is used as a manure in the form of woollen rags. Mixed with earth, woollen rags make an excellent compost. They are much used for manuring the hop grounds in England.

The teacher may here describe the hop-plant, and explain the purpose for which it is employed by the brewers.

9. Of animal dung the most commonly used are night-soil, horse-dung, cow-dung, sheep's-dung, hog's-dung, and bird's-dung.

10. The most valuable of these are night-soil and birds'-dung; next to these is horse-dung; after that, pig's-dung; and, lastly, cow's-dung.

11. Night-soil is most valuable, because men generally live upon a mixture of animal and vegetable food, which renders the dung richer.

12. The solid part of horse-dung is richer than cow-dung, because the horse voids little urine compared with the cow.

13. Hog-manure is said to give a disagreeable taste and smell to the crops raised from it.

14. The best way to use hog's-dung is to make it into a compost or mix it with the dung of other animals.

15. Cow-dung is cooler and less liable to ferment than most other kinds of dung, because the large quantity of urine voided by the cow carries off a greater proportion of that which would otherwise cause it to ferment.

16. The mixed dung of animals differs from the food on which they live, principally in containing a less proportion of carbon, and a greater proportion of nitrogen.

17. The dung contains less carbon than the food, because animals throw off a large quantity of the carbon of their food during breathing.

18. The carbon of the food comes off from the lungs in the form of carbonic acid gas. (See figs. 9, 10, 11, and page 551.)

19. A full-grown man gives off from his lungs about half a pound of carbon in a day, a cow or a horse eight or ten times as much.

20. Nearly all the nitrogen of the food remains in the dung and urine, mixed with a smaller quantity of carbon than was in the food.

21. This greater proportion of nitrogen is one of the principal causes of the greater activity of the dung of animals.

22. During the fermentation of the manure, nitrogen for the most part assumes the form of *ammonia*.

QUESTIONS.

1. Why does bone-earth make a good manure?
2. What is said of bone-earth in reference to dairy pastures?
3. How does the application of bones affect these pastures?
4. What preparation do bones sometimes undergo before being applied to the land?
5. How are bones dissolved for this purpose?
6. What is one of the chief advantages gained by this?
7. What is said of hair as a manure?
8. What of wool?
9. What kinds of animal dung are most used?

10. What is the relative value of the different kinds of dung?
11. Why is night-soil the most valuable?
12. Why is horse-dung richer than cow-dung?
13. What is said of the effects of hog-manure?
14. How is it recommended to use hog-dung?
15. Why is cow-dung less liable to ferment than other kinds?
16. In what does the dung of animals differ from their food?
17. Why does the dung contain less carbon than the food?
18. In what form does the carbon of the food come from the lungs?
19. What quantity of carbon is given off daily by men and horses?
20. What of the nitrogen contained in the food?
21. What is one of the principal causes of the greater activity of animal manures?
22. What form does the nitrogen assume during fermentation?

TENTH LESSON.

OF MANURING THE SOIL. (*Continued.*)

1. Ammonia is a kind of air that has an exceedingly strong smell, and possesses alkaline properties—the common hartshorn of the shops is merely water impregnated with this gas.

Here the teacher may exhibit a bottle of hartshorn or of smelling salts, (carbonate of ammonia,) and make his pupils acquainted with the smell of ammonia. He may likewise show that hartshorn restores the blue color to vegetable blues that have been reddened by an acid, and is therefore alkaline.

The teacher may also at this stage take the opportunity of examining his pupils on the properties of *all the six* kinds of air described in the Catechism—namely, hydrogen, oxygen, nitrogen, chlorine, carbonic acid, and ammonia. He may ask in what properties they agree, and in what they differ from each other, and so on.

2. Ammonia is produced in fermenting compost or manure-heaps, and in fermenting urine, and it is the cause of the smell perceived in hot stables.

3. To detect the presence of ammonia, take a feather, dip it in vinegar, and hold it over the manure-pile or compost-heap—if ammonia is present in the air, white fumes will become visible.

The teacher will show this experiment by dipping a glass rod or feather into vinegar, or into muriatic acid, and holding it over the mouth of his hartshorn bottle, when white fumes will become visible, showing that ammonia is escaping in the form of gas.

4. Ammonia consists of the two gases, nitrogen and hydrogen.

14 lbs. of nitrogen and 3 lbs. of hydrogen make 17 lbs. of ammonia.

5. The ammonia of the manure is dissolved in the soil by water, and is then sucked in by the roots.

6. The gluten and other substances containing nitrogen, are formed in the plant by the aid of ammonia.

7. As nitrogen, in some shape or other, is absolutely necessary to the growth of plants, it follows that ammonia is a very important ingredient in manures.

8. The liquid parts especially of cow's manure produce the most ammonia.

9. As most of the ammonia is produced by the liquid parts of the manure, it is of the greatest importance that this should be carefully saved, and not allowed, as is too often the case, to run to waste.

10. A large tank or cistern should be made in every farm-yard, to collect the liquid manure.

Note.—The tank should be separated into two divisions by a partition wall, built in the middle of it. Each division should be capable of containing one or two months' supply of the liquid. When the one is full the stream should be turned into the other, and when this also is full, that which is in the first division will be fermented, or ripe enough for laying upon the land.

11. The liquid manure should be occasionally pumped upon the manure-heaps to promote fermentation; or it should be poured upon the compost.

12. A good way to apply liquid manure during spring and summer, is to dilute it with once or twice its bulk of water, and after it has fermented for some time, it can be put upon grass land, young clover, or other young crops, with a water-cart.

13. There is this difference between the fermented urine of cows, horses, and sheep, and the drainings of manure-heaps—the first contains potash, soda, and ammonia, while the last almost always contain phosphates.

14. The ammoniacal liquor of the gas-works, diluted with four or five times its bulk of water, should be collected and employed in the same way as the liquid manure of the farm-yard.

15. The manure from birds is especially rich; and the dung of sea-fowl has lately been introduced into this country under the name of guano.

16. Guano is employed as a top-dressing—is ploughed in the land before seeding, and is composted with woods earth.

17. Care should in all cases be taken to prevent the seed or potato-sets from coming in immediate contact with guano.

18. Guano should never be mixed with quick-lime, because the lime sets free the ammonia contained in the guano, and causes it to escape into the air.

Here the teacher may mix a little slacked lime with a spoonful of guano in a wine glass, and let his pupils smell the ammonia which will come off. Or he may hold over it a feather dipped in vinegar, and show the white fumes. If he have no guano he must use a little *sal-ammoniac* or a little *sulphate of ammonia* instead; and may explain that *quick*-lime will, in the same way, drive off ammonia contained in liquid manure and in horse or farm-yard dung, if it be mixed with any of these.

19. In manuring potatoes, turnips, beets, &c., it is better husbandry to mix the guano with one-half common manure.

20. Guano used alone does not supply a sufficient quantity of organic matter to maintain the soil in its most productive state.

QUESTIONS.

1. What is ammonia?
2. How is ammonia produced?
3. How is the presence of ammonia detected?
4. Of what does ammonia consist?
5. How is ammonia taken up by the roots?
6. How is the gluten and other substances containing nitrogen formed in the plants?
7. Is ammonia an important ingredient in manures, and why?
8. What parts of the manure produce the most ammonia?
9. What is said of the importance of liquid manure?
10. How is the liquid manure to be saved?
11. How is liquid manure managed?
12. How is liquid manure applied?
13. What is the difference between the fermented urine of animals and the drainings of manure?
14. What is said of ammoniacal liquor?
15. Is the manure from birds rich?
16. What is guano, and how is it applied?
17. What caution is to be used with guano?
18. Should quick-lime be used with guano—if not, why?
19. What about the application of guano to potatoes, turnips, beets, &c.?
20. What is the objection to the use of guano by itself?

ELEVENTH LESSON.

OF MANURING THE SOIL. (*Concluded.*)

1. Two cwts. of guano per acre for top-dressing wheat and grass, and three cwts. mixed with manure for corn, potatoes, turnips, &c., is about the proper quantity of guano to apply.

2. Fish in some districts are largely used as manure.

3. The best way to use fish is in the form of compost with earth, and with marl if to be had.

4. The most important mineral manures are nitrate of soda, sulphate of soda, common salt, wood-ashes, kelp, and lime.

5. Nitrate of soda is a white salt-like (saline) substance, which is found in the earth in some parts of Peru, and is often applied with great advantage as a top-dressing to grass-land and young wheat.

Note.—To show the difference between nitrate of soda and common salt, with which it is often adulterated, sprinkle a little of each on a red hot cinder. The common salt will crackle and leap in the fire, (*decrepitate,*) while the nitrate of soda will cause a bright flame or burning, (*deflagration.*) Saltpetre (nitrate of potash) will do the same as nitrate of soda.

6. Nitrate of soda consists of nitric acid and soda.

54 lbs. of nitric acid and 31 lbs. of soda form 85 lbs. of nitrate of soda.

The teacher may take this opportunity of verbally explaining the terms by which chemists denote combinations of the nitric, sulphuric, phosphoric, and carbonic acids with potash, soda, lime, and magnesia—thus, when carbonic acid combines with any of these substances it forms a carbon*ate*, phosphoric acid a phosph*ate*, sulphuric acid a sulph*ate*, nitric acid a nitr*ate*. Hence, that *phosphate of lime* denotes a combination of phosphoric acid with lime, *sulphate of soda* a combination of sulphuric acid with soda, and so on.

7. Nitric acid is a very sour corrosive liquid, called also aquafortis. It consists of two gases, nitrogen and oxygen.

14 lbs. of nitrogen and 40 lbs. of oxygen form 54 lbs. of nitric acid. It may be shown, 1°. That it stains the fingers yellow. 2°. That when poured upon a bit of copper, (a cent,) it becomes hot and of a deep blue color, and gives off red fumes.

The teacher may here also interrogate his pupils as to the difference between the three powerful and common acids—the nitric, muriatic, and sulphuric, mentioned in this work. The *sulphuric* being oily, becoming hot when mixed with water, charring wood or straw, and giving off hydrogen when poured upon zinc or iron—the common *muriatic* acid giving off fumes into the air, forming a white cloud when a feather dipped in hartshorn is held over it, and giving off chlorine when it is poured upon oxide of manganese—the *nitric* having the properties above stated.

8. The benefit of nitrate of soda depends upon its supplying nitrogen and soda to the growing crops.

9. From 1 cwt. to 1½ cwt. of nitrate of soda is applied to the acre.

10. Sulphate of soda is the substance commonly called Glauber salts, and consists of sulphuric acid (oil of vitriol) and soda. It sometimes produces good effects when applied as a top-dressing to grass-land, to turnips, and to young potatoes.

40 lbs. of sulphuric acid with 31 lbs. of soda form 71 lbs. of dry sulphate of soda.

11. Common salt may either be applied as a top-dressing, or it may be mixed with the farm-yard or other manure, or with the water used in slaking quick-lime.

12. Salt is most likely to be beneficial in places that are remote from the sea, or are sheltered by high hills from the winds that pass over the sea.

13. Lands near the sea do not require salt, for the winds bring with them a portion of the sea-spray, and sprinkle it over the soil to a distance of many miles from the sea-shore.

14. Gypsum is a white substance composed of sulphuric acid and lime; it forms an excellent top-dressing for red clover, and also for peas and beans.

40 lbs. of sulphuric acid and 28½ lbs. of lime form 68½ lbs. of *burned* gypsum, which contains no water.

40 lbs. of acid, 28½ lbs. of lime, and 18 lbs. of water, form 86½ lbs. of native or un-

burned gypsum. Native or unburned gypsum loses about 21 per cent. of water when heated to dull redness, becoming burned gypsum.

The teacher may heat a little unburned gypsum on the end of a knife, (fig. 14,) or in a tube over a candle, and show, *first*, that it becomes opaque and milk-white; *second*, loses water and becomes lighter; and, *third*, that after heating, it readily crumbles to a fine white powder.

This fine white powder is the plaster of Paris, which is used for making casts, and for the cornices of rooms.

15. These substances ought to be applied in calm weather, in order that they may be equally spread—and soon after or before rain, that they may be dissolved.

16. A mixture of nitrate and sulphate of soda usually produces a much more beneficial effect upon potatoes than either of them alone, and the same is often the case with a mixture of common salt and gypsum when applied to beans.

17. Kelp is the ash that is left when sea-weed is burned in large quantities.

18. Kelp may be used to top-dress grass-lands and young wheat—mixed with ordinary manure, it may be used with great advantage on turnips, potatoes, &c.

19. Kelp so far has been but little used as a manure, though there is no good reason why it should not be in many districts.

20. Wood-ashes make a valuable manure—of great benefit to all crops, but especially to the family of the grasses.

QUESTIONS.

1. What is the quantity of guano usually applied to the acre?
2. Are fish used as a manure to any extent?
3. Which is the best way to use fish as a manure?
4. Name the most important mineral manures?
5. Describe nitrate of soda?
6. What does nitrate of soda consist of?
7. What is nitric acid?
8. On what do the beneficial effects of nitrate of soda depend?
9. How much nitrate of soda is usually applied to the acre?
10. Describe sulphate of soda?
11. How is common salt used?
12. Where is salt most likely to be beneficial?
13. Why do not lands near the sea require salt?
14. What is gypsum?
15. How and when should these substances be applied?
16. Are mixtures of these substances sometimes more beneficial than any of them applied singly?
17. What is kelp?
18. How may kelp be used?
19. What other remark is made about kelp?
20. Are wood-ashes valuable as manure?

TWELFTH LESSON.

OF LIMESTONE, AND OF THE BURNING AND USE OF LIME.

1. Limestone consists of lime (*quick*-lime) in combination with carbonic acid.

28 lbs. of lime and 22 lbs. of carbonic acid make 50 lbs. of limestone.

The teacher may here revert to the properties of carbonic acid, and examine his pupils upon what they had previously learned upon this subject.

2. Limestone is called by chemists carbonate of lime.

3. There are many varieties of limestone: some soft, such as chalk—some hard, such as our common limestones—some of a yellow color, like the magnesian limestones, which contain magnesia—some pure white, like the statuary marble—some black, like black marble, and so on.

Here it would be advantageous if the teacher could exhibit some of these or of other varieties of limestone.

4. Marl is the same thing as limestone, namely, carbonate of lime, only it is often in the state of a fine powder, and often also mixed with earthy matter.

5. Shell-sand or broken sea-shells is also the same thing almost exactly as common limestone.

6. Marl and shell-sands may be applied with advantage, either as a top-dressing to grass-lands, and especially to sour, coarse, and mossy grass—or they may be ploughed or harrowed in upon arable fields—and especially they may be applied with advantage and in large quantity to peaty soils.

7. Lime and marl are largely employed in making composts.

8. To ascertain the presence of lime in a soil or in a substance supposed to be marl—put a little of either in a glass, pour upon it either vinegar or weak spirit of salt (muriatic acid.) If any bubbling up (effervescence) appears, you may conclude that lime is present.

9. This bubbling up is occasioned by the escape of carbonic acid from the carbonate of lime contained in the soil or marl.

Here the teacher may perform this experiment by pouring a little weak acid upon marl or powdered chalk in a wine-glass, and showing the bubbling up. He may further convince his pupils that the gas given off is really carbonic acid, by introducing a lighted taper into the glass, when it will be extinguished. (See fig. 2.)

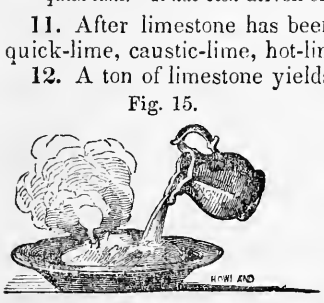
10. When limestone is burned in the kiln, the carbonic acid is driven off by the heat, and the lime alone remains.

The teacher may here pour diluted muriatic acid upon a few bits of limestone in a tumbler, and show that carbonic acid is given off, and therefore *is contained in the limestone.* He may then pour muriatic acid upon a piece of well-burned lime, and show that no gas is given off, and therefore that *no carbonic acid is contained in the quick-lime.* It *has been* driven off by the heat.

11. After limestone has been submitted to the action of heat, it is called quick-lime, caustic-lime, hot-lime, &c.

12. A ton of limestone yields about $11\frac{1}{4}$ cwts. of quick-lime.

Fig. 15.



13. When water is poured upon quick-lime the lime drinks it in, becomes very hot, swells up, and gradually falls to powder.

The teacher may exhibit this effect of water upon lime, and may satisfy his pupils that the heat produced is great, by showing that it will sometimes set fire to gunpowder placed upon a dry portion of the lime, or will heat a cold baked pie when put in the middle of it.

It requires a piece of very good and well-burned lime to fire powder in this way; but the experiment will be more sure to succeed if sulphuric acid, diluted with one or two waters, be used, instead of pure water. The mass will become so hot as readily to fire gunpowder. In this case, however, it will be *gypsum,* (plaster of Paris,) and not merely *slaked lime* that will be produced.

14. Pouring water upon lime so as to make it fall is called *slaking* the lime, and the lime is called slaked or slacked lime.

15. One ton of quick-lime becomes 25 cwts. of slaked-lime.

This may be shown by slaking a weighed piece of lime, and weighing it again after it has fallen to a fine powder.

16. Quick-lime, when exposed to the air, absorbs water from it, and gradually falls to powder.

17. Besides water, quick-lime gradually absorbs carbonic acid from the air, and at length returns to the state of carbonate.

The teacher may here satisfy his pupils that lime does thus absorb carbonic acid from the air, by pouring a little lime-water into a saucer, and showing them that an insoluble film of white *carbonate of lime* gradually forms upon its surface. This

experiment may be exhibited for the purpose of showing two things: *first*, that carbonic acid exists in the air, and, *second*, that quick-lime absorbs it.

18. Limestone thus *returned* to the state of a carbonate is in the state of a far finer powder than it could be got by any other means, and can thus be more thoroughly mixed with the soil.

19. When quick-lime has returned to the state of a carbonate, it is usually called mild lime.

20. Caustic-lime acts upon land very much in the same way as mild lime, but more quickly.

21. The mild and the caustic both act by supplying the lime which all plants require as part of their food—by combining with acids in the soil, so as to remove the sourness of the land—and by converting the vegetable matter into the food of plants.

22. Lime should always be kept near the surface, as it has a tendency to sink.

23. To peaty soils, to heavy clay soils, to arable lands which are very sour, and to such as contain a great deal of vegetable matter, *quick* in preference to mild lime should be applied.

24. Mild lime, on hill pasture, is said to produce a better and more lasting effect when it has become wet—or *dabby*, as it is called—by exposure to the air and rain, than when put on in a dry and newly slaked state.

25. The same quantity of lime will produce a greater effect upon drained or naturally dry land, than upon wet land.

26. The quantity of lime to be applied depends so much upon various circumstances, that it is difficult to lay down rules for it. If the land is poor in vegetable matter, it should not receive as much lime as if it were rich in that substance—the quantity varies from 25 to 100 bushels—the smaller the quantity the sooner it will require renewal. In England, from 8 to 10 bushels a-year per acre is applied; it is not put on every year, but at every rotation, or every second rotation; sometimes only once in nineteen years.

27. Lime sooner or later requires renewal: *first*, because the crops eat up and carry off a portion of the lime; *second*, because a portion of it sinks into the subsoil; and, *thirdly*, because the rains are always washing a portion of it out of the land.

QUESTIONS.

1. What does limestone consist of?
2. How is limestone called by chemists?
3. Are there many varieties of limestone?
4. What is marl?
5. What is shell-sand?
6. How are marl and shell-sand used?
7. Is lime used in composts?
8. How is the presence of lime ascertained?
9. What occasions the bubbling up?
10. What occurs when limestone is burned?
11. What is limestone called after it has been submitted to the action of heat?
12. How much lime does a ton of limestone yield?
13. When water is poured upon quick-lime what occurs?
14. What is the act of pouring water upon quick-lime called?
15. How much slaked lime will one ton of quick-lime make?
16. What occurs when quick-lime is exposed to the air?
17. What else does quick-lime absorb from the air?
18. What is the advantage of limestone returned to the state of a carbonate?
19. How is lime then called?
20. How does caustic lime act?
21. How do all kinds of lime act?
22. How deep should lime be put?
23. To what kind of lands would you apply lime?
24. What of mild lime?
25. Will lime produce the greatest effect upon drained or upon wet land?
26. What is said of the quantity of lime to be applied?
27. Why does lime require renewal?

THIRTEENTH LESSON.

OF THE COMPOSITION OF THE CROPS WHICH THE FARMER REAPS.

1. The different kinds of grain consist chiefly of three substances, starch, gluten, and oil or fat.

2. 100 lbs. of wheaten flour contain about 50 lbs. of starch, 18 lbs. of gluten, and 6 lbs. of oil.

3. The principal constituent of potatoes and turnips is water.

4. 100 lbs. of potatoes contain 75 lbs. of water.

5. 100 lbs. of turnips contain 88 lbs. of water.

6. 100 lbs. of potatoes contain from 15 to 20 lbs. of starch.

7. The proportions of gluten and starch are not always the same. Some varieties of wheat contain more gluten than others, some varieties of oats more oil than others, and some varieties of potatoes more starch than others.

8. The wheat of warm climates is said to contain most gluten, and the potatoes and barley grown upon light or well-drained land, more starch.

9. When potatoes or grain are burned they leave a small quantity of ash.

10. The ash of potatoes and grain consists of the phosphates of potash, soda, lime, and magnesia, of common salt and other saline substances.

The teacher may here more fully explain the composition of the ash, by referring to Table on page 630, which exhibits the composition of the ash of different kinds of grain, and explaining that the ash both of grain and of the ordinary root crops contains a certain quantity of all the substances there mentioned, but that phosphoric acid, in combination with potash, soda, magnesia, and lime, are its *most important* ingredients.

USES OF THE CROPS IN FEEDING.

11. Vegetables are chiefly intended for the food of animals.

12. To maintain an animal in a healthy state, its food must furnish starch, gluten, oil or fat, and saline or inorganic matter.

13. Starch consists of carbon and water.

14. Animals require starch in their food to supply the carbon which they throw off from their lungs during respiration.

The teacher may here explain that gum and sugar, which also consist of carbon and water only, (page 624,) serve the same purpose when eaten as the starch of our food does, and what is for sake of simplicity here said of starch only, is true also of the sugar and gum contained in the vegetable substances we eat.

15. A man throws off from his lungs from six to eight ounces of carbon in a day.

16. A man will require to eat nearly a pound of starch in a day, to supply the quantity of carbon given off by his lungs in that time.

10 oz. of starch contain about $4\frac{1}{2}$ of carbon, (page 624).

17. Carbon is given off from the lungs of animals in the form of carbonic acid gas.

18. The carbonic acid gas given off from the lungs of animals is diffused through the air and is afterwards absorbed again by plants, in order that new quantities of starch may be produced from it.

The teacher may here appropriately draw the especial attention of his pupils to the beautiful cycle of natural operations above described. Even children may be made to see the beauty and bounty of the processes by which the same carbon is again and again transformed by the plant into starch, and by the animal into carbonic acid—as well as the purpose for which these changes are made to take place—namely, *to keep up the warmth of the animal body.*

19. An animal requires gluten for the purpose of repairing the daily waste of the muscles or lean part of its body.

20. Not only the muscles, but nearly all parts of the body suffer a certain waste every day.

21. The parts thus wasted, are carried through the body, and form part of the dung and urine of the animal.

22. Gluten repairs the waste of the muscles, because it is almost exactly the same thing as muscle.

23. The animal requires oil or fat in its food to supply the natural waste of fatty matter which takes place.

24. When the food given an animal contains more oil than is necessary to supply the natural waste, the animal may become fat.

25. Food that contains much oil is the best for fattening—of two samples that which contains the most oil will *generally* fatten most quickly.

26. To supply the daily waste of the bones, and the salts in the blood, it is necessary that the food should contain phosphate of lime, and other inorganic substances.

27. The gluten and the saline matter not only supply the daily waste, but they add daily to the weight of the animal's body as it grows.

28. A growing animal of the same size will require more of these kinds of food than a full-grown animal.

29. If the same quantity of food is given to a growing and to a full-grown animal, the latter will produce the richest manure.

30. A growing animal extracts and retains more substance from the same quantity of food than a full-grown one, because he has not only to supply the natural waste, but to add daily to his size, while the full-grown animal has only to supply the daily waste.

31. The manure from fattening stock is richer than that of growing stock or cows in milk, because they retain chiefly the oil and starch of their food, and reject nearly all the remainder.

32. To convert a given amount of food into the greatest quantity of beef or mutton, the cattle or sheep should be kept in a warm or sheltered place, where they might have wholesome air and but little light, and they should be disturbed as little as possible.

33. Merely to fatten a full-grown beast, keep it warm, disturb it little, and give it corn-meal, with plenty of turnips or beets and hay.

The degree of warmth and confinement under which animals will thrive, depends much upon the breed. The hardy and wild cattle from the Blue Ridge and Alleghany would pine away in the warm and confined sheds in which the short-horned thrives best. The Bakewell does better in confinement than the Southdown and common stock.

34. If the object is to convert a large quantity of hay or straw into manure, the animals should not be kept so warm, and should take more exercise.

35. To get the largest quantity of milk, feed with rich juicy grass, turnips tops and all, green rye, warm mashes, or other food containing much water —and a free supply of drink.

36. To get milk of the best possible *quality*, give as much as can be eaten of dry food—oats, corn-meal, beans, bran, and clover-hay.

37. To get milk particularly rich in *butter*, give the same food that is given to a fattening animal—flax-seed, oats, corn-meal, and some roots.

38. To obtain milk that will produce the most cheese, feed on beans, peas, clover or clover-hay, all of which make the milk richer in curd.

39. As a general rule in fattening animals, for cattle let the food be fresh and sweet, for hogs slightly sour.

40. It has been found that much more pork is obtained from green vege-

tables, or from corn-meal or boiled potatoes, when mixed with water and left to sour, than when given fresh and sweet.

41. Cleanliness, warmth with good ventilation, feeding at regular intervals, and at least three times a day, contribute much to success in fattening animals of all kinds.

While on this part of the subject the teacher may draw the attention of his pupils to the beautiful chemical connection which exists between the vegetable and animal kingdoms, and especially to the marked adaptation of *the living vegetable to the wants of the living animal, which is exhibited in the fact*, that the animal finds ready formed in the ripened plant, all the most important substances of which its own body is composed. The gluten of its food is nearly identical with the fibre of its muscles—the oil is similar in character to the fat of its body—while the bone-earth of the plant supplies materials for the bones of the animal, and the starch and sugar afford the carbon which is necessary for the purposes of respiration. Finally, he may also point out, that, when the vegetable food has discharged its office in the animal body, it returns to the earth in the form of dung—only to enter into the roots of new plants, and thus to produce new supplies of sustenance for other races of animals. The entire economy of vegetable and animal life, and all the changes experienced by dead matter, are parts of one system—express, as it were, but one idea, the offspring of ONE MIND.

He may thus engraft a course of instruction in Natural Theology upon the purely practical principles of this little book, and make it instrumental not only in the intellectual, but also in the *moral* training of his pupils.

QUESTIONS.

1. Of what substances do the different kinds of grain usually consist?
2. What proportion of each of these usually exists in wheat?
3. What do potatoes and turnips principally consist of?
4. What is the proportion of water in potatoes?
5. What is the proportion of water in turnips?
6. What is the proportion of starch in potatoes?
7. Are the proportions of grain and starch always the same in grain and roots?
8. Has climate any thing to do with the proportions of these ingredients?
9. Do potatoes or grain leave any ash when burned?
10. What does this ash consist of?
11. What purposes are vegetables intended to serve?
12. What substances must an animal derive from its food to maintain it in a healthy state?
13. What does starch consist of?
14. For what purpose does an animal require starch in its food?
15. How much carbon does a man throw off from his lungs in a day?
16. How much starch must a man eat daily to supply the carbon given off by his lungs?
17. In what form is carbon given off from the lungs of animals?
18. What becomes of the carbonic acid thus given off?
19. For what purpose does an animal require gluten in its food?
20. Are the muscles of animals really subject to waste?
21. What becomes of the parts thus wasted away?
22. How can gluten repair the waste of muscle or lean?
23. Why does an animal require oil or fat in its food?
24. Does it serve any other purpose?
25. Is food that contains much oil, then, the best for fattening?
26. Why must the food of animals contain phosphate of lime and other inorganic matters?
27. Do not the gluten and the saline matter serve a further purpose when the animal is growing?
28. Will a growing animal on this account require a larger supply of these kinds of food?
29. With the same food, which will produce the richest manure, a growing or a full-grown animal?
30. Why is this so?
31. Why is the manure from fattening cattle richer than that of growing stock or cows in milk?
32. How would you convert a given amount of food into the greatest amount of beef or mutton?
33. Merely to fatten a full-grown beast, what should be done?
34. If the object is to convert straw or hay into manure, how is the stock managed?

35. How do you get the greatest quantity of milk from cows?

36. How do you improve the quality of milk?

37. How do you feed to get milk rich in butter?

38. How will you get milk rich in cheese?

39. As a general rule in fattening cattle and hogs, would you give the food sweet or sour?

40. Why would you give the food sour to hogs?

41. What other rule would you observe in fattening stock?

AMOUNT OF WOOL FOR THE COMING CLIP.

"*The Wool-grower, and Magazine of Agriculture and Horticulture,*" is the title of a new periodical, of which the first number, dated March 1, has appeared at Buffalo, New York. The attractiveness and importance of the subjects—the locality of the journal, and the practical experience, ability, and patriotic aim of the editor—T. C. PETERS—ought to assure its success. It will be published monthly—sixteen pages, at *fifty cents a year.*

We find in this first number the following items. The Editor, who enjoys peculiar advantages to form a correct judgment, would seem to agree with Mr. Randall in this number of our journal, as he concludes his observations on the prospects of the wool-market by saying: "Our own opinion is that the prices will range considerably higher than last season."

"The whole number of sheep in the United States, as shown by the censuses in 1840, was 19,311,374; and the quantity of wool shorn was 35.802,114 lbs. Of the sheep, about one-fourth were under the age of one year; leaving, therefore, about 14,500.000 as the number shorn. This would give 2½ lbs. as the average weight of fleece, which is below the average in this State, as shown by the census of 1845. The average here was 3 lbs.

"The increase of sheep in this State from 1840 to 1845:—

1845	6,443,855
1840	5,118,777

Increase in 5 years, 1,325,078, or a fraction over 25 per cent.

"The increase of wool during the same time, was:—

1845	13,864,828 lbs.
1840	9,845,295 lbs.

Increase in 5 years, 4,019,533 lbs.

"This shows that the increase of wool was equal to the general average per head in this State of 3 lbs.

"Allowing for the same ratio of increase, as is shown in this State, and the whole number of sheep in the Union, in 1845, would be almost twenty-four millions. Of these, eighteen millions would be over one year old, so that the clip of that year was at 2¾ lbs. per head—about fifty millions of lbs.

"The whole number of sheep in the Union, in 1850, will not vary much from thirty millions, which, upon the above data, will give about seventy millions lbs. of wool for the clip of that year, and the clip of this year must be equal to about sixty-six millions—or only a trifle over 3 lbs. for each inhabitant of the Union.

"Of this quantity, not over one-fifth will be worked up at home; leaving upwards of fifty-three millions for the manufacturer, and with old stock which will be left over, making about sixty millions of pounds for the coming year. R. L."

The mange in hogs is cured with sulphur in food, and washing with suds, or feeding with poke-root; or it boiled and the liquor fed with meal or grain.

The mange in dogs is cured by washing them daily in tan ooze, and giving sulphur occasionally.

CALCULATION OF THE PRODUCE OF A SHEEP FARM

FOR TEN YEARS, COMMENCING WITH A STOCK OF FIVE HUNDRED EWES.

Years.	Annual Increase.	Total Number.	Quantity Wool.	Value Wool.	Annual Loss.	Annual Expense.
1	1,000	1,500	lbs. 1,500	$ 150		$ 150
2	1,000	2,500	4,500	450		200
3	2,000	4,500	7,500	750		250
4	3,000	7,500	13,500	1,350		500
5	5,000	12,500	22,500	2,250		800
6	8,000	20,500	37,500	3,750		1,200
7	13,000	33,500	61,500	6,150		1,800
8	21,000	54,500	100,500	10,050		2,000
9	34,000	88,500	163,500	16,350		3,000
10	45,000	133,500	265,500	26,550		4,000
	133,000	133,500	678,000	67,800		13,900

Deduct possible per centage . .	$10,700
	57,100
	13,900
Profit	$43,200

Capital Required for such a Farm.

500 ewes	$300
25 rams	250
4 yoke oxen	80
4 cows	40
1 bull	20
Horses	50
Hogs	50
Implements	50
Seed, and expense tilling first crop	50
Total	$890

The quantity of wool is estimated at the lowest rate, not allowing for the increased weight of fleece, consequent on the improvement of the Mexican breed by crossing with the Leicester ram. The value of the wool is estimated at the present price of Mexican wool, 10 cents: a very slight improvement in quality and care would raise the price to 15 or 20 cents per pound. The loss is estimated much too high; perhaps 5 per cent. would be too much.

F. B. O. Shay.

San Antonio de Bexar, Dec. 29, 1848.

PROSPECTS FOR THE EXPORT OF GRAIN TO ENGLAND.

"Letters have been received at Oswego from England, stating that contracts to some extent had been made to deliver first qualities Dantzic wheat at Liverpool on the earliest opening this spring of the Baltic navigation, at forty shillings sterling per imperial quarter, which brings the price (if it was shipped from New York) equal to eighty-five cents per bushel at New York. Dantzic wheat, of the best quality, says the Oswego Times, may be compared to our very best Genesee wheat."

We commend the above paragraph to the consideration of our farming and planting readers. Eminent men, like the late Governor Wright,* insist that it is impossible we should make a market at home for all our surplus food, and that we must prepare for competition in the great grain

* See December No. page 337.

markets of the world with the serfs of Russia, and the miserable fellahs of Egypt. The Hon. Commissioner of Patents assured his readers that he was fully satisfied we could compete with them, and the late Secretary, pointing with pride to the large export consequent upon the railroad mania and potato-rot of 1846, assured the nation that it must go on to increase, provided only that we persisted in purchasing largely of foreign food in the forms of cloth and iron, and yet we are now informed that contracts are being made for wheat at prices equivalent to eighty-five cents per bushel in New York!

It is time for planters and farmers to look for something approaching to certainty, and to make an effort to put an end to the system that thus converts farming and planting into mere gambling. As things now are, the man who sows or plants can form no estimate of what he will reap. At one instant corn is high, and he plants largely. By the time his crop is housed, the demand is at an end. At one moment there is a great demand for cotton, and the planter increases his force, anxious to get a large crop to market. By the time it is at market, mills are everywhere stopped, or working half-time, the demand for cotton has ceased, and his crop brings him in debt. Let him compare with this the steady growth of the home-market for all his products in the form of cloth and iron, during the five years that followed the passage of the tariff of 1842, and satisfy himself if efficient protection, adopted as a national, and therefore permanent measure, will not speedily give him certainty.

The nearer the market the greater is the value of labor and land; and the greater their value the greater is the power of consumption of food, and cloths and iron. The more distant the market the less is the value of labor and land, and the smaller their value the less is the power of consumption. Let every farmer and planter, then, exert himself to bring to his side prosperous consumers, with their looms and their anvils, and he will soon cease to be *compelled* to compete in the markets of England with the producers of Dantzic wheat or Hindoo cotton. Having made a market on the land for the products of the land, the price abroad will be fixed by the price at home, and certainty will then be attained.

COAL MINES OF THE SOUTH.

"The Mobile Herald speaks in high and hopeful terms of the coal now mined near Tuscaloosa, in Alabama. It says the coast trade there can be pushed to any extent, and urges the formation of associations of moneyed men for mining and transporting it at cheap rates down the river, for the supply of national mail and merchant steamers, plying on the Gulf. The British mail steamer of the 1st of February, it states, took 50 tons, and on her return from Vera Cruz 110 tons more, for experiment. The first parcel gave entire satisfaction, and, compared with the best Welsh coal, was found equal in almost every respect, and superior in some properties."

To mine coal and transport it cheaply to market are operations requiring combination of action, that can be obtained only by aid of concentration, and concentration can be obtained only by the pursuance of that course of policy which tends to bring the loom and the anvil to the side of the plough. Alabama abounds in coal, that is worthless for want of a market. She has corn in abundance to feed the men who would mine the coal, and she has cotton for which she needs a better market than that which she obtains by sending it to Manchester, there to be combined with the poor cotton of India, and returned to her plantations, to be worn by men, and women, and children, who waste more labour every year than would, if properly employed, pay for all the iron and cloth they consume. Let her learn to combine the coal, and the food, and the wool, and the ore, into cloth and iron, and she will speedily obtain cheap transportation for all her products, doubling the value of both land and labor.

DAIRY FARM.

[From "Transactions of the New York State Agricultural Society."]

Statement of Alonzo L. Fish, of Herkimer county, in relation to the general management of his dairy farm, which received the first premium of the New York State Agricultural Society.

A REPORT of the management of A. L. Fish's dairy farm, in 1844, and result of three years operation.

My farm contains one hundred acres of cleared land, which lies in Litchfield, Herkimer county, on the upland, eight miles south of the Mohawk, where it is subject to deep snows, bleak winds, large drifts, and cold long winters, which not unfrequently protract foddering season for cows to seven months and a half.

The soil is a yellow loam, mixed with clay and gravel; and so much inclined to pack as to make rather hard tilling. When a piece of ground is to be seeded to grass, it is ploughed in fall, so that frost may pulverize it. Manure is drawn on when convenient, in winter or spring, on snow, that the soil may not be packed by travel of team, and left in heaps to prevent its drying and evaporating till ploughing commences. It is then spread, and thoroughly mixed with the soil, by ploughing and dragging, as early in the spring as the season will admit, so that the grass may get a deep root while the soil is light, and grain and weeds get so large as to shade and keep it back. Spring wheat or rye are sown to seed with it, as they can be sown early, and shade less than other grain. Eight quarts of timothy and two of clover, are mixed and sown per acre. Strict care is taken that the young grass is not grazed the first season, as it would pack the soil and pull up many of the young roots.

It is a principle of Nature, fixed in the vegetable kingdom, that the root of a plant will not grow and flourish without the aid of atmospheric air, and leaves or top above ground to discharge their regular functions.

Hence my cows are not allowed to graze on my meadows, spring nor fall, to strip the roots of their natural clothing and pack the soil, to exclude the necessary circulation of air. Canada thistles, dock, and all foul weeds are cut below the surface, so that there is no top to aid the root to get out of its crippled condition; the operation is repeated a few times, if necessary, and they are dead.

Cows are kept from grazing pastures in spring for the same reason, and the first growth of the top is preserved to strengthen and invigorate the roots to get a firm, deep hold in the soil, while Nature is making her main effort. One bushel of plaster is sown per acre, as soon as the main bulk of snow is gone in April.

When the ground is settled and grass grown so that cows can get their fill without too much toil, they are allowed to graze an hour only the first day; the second day a little longer, and so on till they get accustomed to the change of feed before they are allowed to have full range of pasture. Shift of pasture is frequently made to keep feed fresh and a good bite. About one acre per cow affords plenty of feed till the first of August. If enough land was turned to pasture to feed the cows through the season, it would get a start of them about this time and be hard and dry the balance of the season. To avoid turning upon my meadows in fall, I take one acre to every ten cows, plough and prepare it the fore part of June for sowing. I commence sowing corn broadcast, about half an acre at a time, so that it may grow 80 or 90 days before it is cut and fed. I have found by experiment that it then contains the most saccharine juice, and will produce the most milk. If the ground is strong, I sow two bushels per acre; more if

the ground is not manured. The common yield is from 15 to 20 tons (of green feed) per acre. About the first of August, when heat and flies are too oppressive for cows to feed quietly in daytime, I commence feeding them with what corn they will eat in the morning, daily, which is cut up with a grass scythe and drawn on a sled or wagon to the milking barn, and fed to them in the stalls, which is one hour's work for a man at each feeding. When thus plentifully fed, my cows have their *knitting* work on hand for the day, which they can do up by lying quietly under artificial shades erected in such places as need manuring most, and most airy, by setting posts, putting poles and brush on top, the sides being left open. These shades may be made and removed annually, to enrich other portions of soil, if desired, at the small expense of one dollar for every ten cows. My shade trees are all cut down, so that if I have occasion to till the soil, there is no forest trees to drink up the nourishment that circulates in the air to a wide extent around them, before it reaches the weaker class of vegetables below, nor roots to prevent a thorough cultivation of the soil to get the benefit of its partial richness. At evening my cows are fed whey *only*, because they can feed more quietly with less rambling, and will give more milk by feeding most when dew is on the grass.

Saving and Application of Manure.—No one item enters more largely into the account of the economical farmer than saving manure; the means of which are simple, cheap, and in the reach of every one who has strength to till the soil.

The cheap method I have adopted to save manure, is by sinking hogsheads with one head, at the discharge of slop-drains and troughs that catch the urine from my stables. A hollow bass log, twelve feet long, is split, making two halves, which are settled into the earth, the two lowest ends meeting in the centre, under which point is placed a large tub as a reservoir. The earth is made descending to these troughs on each side, and bedded with clay, pounded down, to make it water-tight, to convey the liquid manure that drains from the heap into the reservoir. Four boards are nailed together and set into the reservoir, forming a stationary box to receive a cheap board pump, to raise the liquor whenever the heap needs moistening. Straw, coarse weeds, swamp-muck, ashes, lime, night soil, offal, carrion, and all surplus substances convertible into manure, are piled upon this platform (24 feet long) a sufficient quantity to absorb the urine caught from stables, chamber slops, strong suds, salt brine, and all kinds of slops of any virtue as manure; these are drawn with a vehicle fitted for it and discharged into one end of the bass trough, which conducts them to the reservoir to remain till needed; the compost-heap is kept covered to prevent being leached by excessive rains; this heap soon becomes a stinking mass, and when used is mixed with the soil to prevent its evaporation.

Cutting and curing Fodder.—All kinds of grass are cut for fodder, if possible, near the time when the blossom closes, as it soon after becomes too much like grain straw for milch cows. All kinds of fodder intended for cows are cut before the seed matures, and cured without being wet with dew or rain after wilting, and dried so that its color will not change in the mow; four quarts of salt per ton is used in packing hay when necessary.

Feeding and Management of Cows.—He who would be a successful feeder, and make large products with moderate means, must look well to the physical economy of the animal in feeding.

The capacity of cows for giving milk is varied much by habit. In fall, after the season of feeding is over, I feed four quarts of wheat bran or shorts, made into slop with whey, or a peck of roots per day to each cow till milking season closes, (about the first of December.) When confined in

stables and fed hay and milked, they are fed each one pailful of thin slop at morning before foddering, and at evening, to make their food more succulent, and they will not drink so much cold water when let out in the middle of the day. In cold weather, cows kept well attended in warm stables. No foddering is done on the ground. The supply of milk is kept up, while the cows get in good flesh, their blood and bags are left in healthy condition, when dried off. This flesh they hold till milk season in spring, without other feed than good hay. They will not get fleshy bags, but come into milk at once. About the first of April they are carded daily, till turned to grass. Wheat bran in milk, or whey slops or roots, are daily fed, as they are found best adapted to the nature of different cows, and most likely to establish a uniform flow of milk till grass comes.

Every possible means are used to keep perfect quiet among the cows, in order that their habits may become regular; when in heat, they are confined and fed until the excitement is over.

No dog is allowed to be kept on the premises, and no cow driven faster than a walk; they are let into a milking-barn at a whistle, as a sign that they may come in and take the whey—when they readily take their places, four feet apart, when one whole side, (twelve in number,) are confined with a single motion of a spring lever; and when milked, are released at once in a like manner, by means of a shaft, so that one or more may be confined or released separately, without interfering with the general arrangement. When standing on the milking floor, the fore feet are several inches highest, which brings the bag forward from the hind legs, so that it is easier of access, and makes her give her milk down more freely. None are allowed to milk, unless able to milk quickly and thoroughly, which is done at five o'clock in the morning and evening. When a cow's bag is hard and feverish, it is washed with salt brine, or salt and water made cold with ice. This is a sure remedy. The best preventive is thorough milking. Whey is fed morning and evening, through flush of feed, after souring twenty-four hours. Wheat bran is mixed to prevent cows from scouring. Strict regularity is observed in feeding at all times. Bran and roots are fed daily till grass gets heart enough not to scour the cows. Nothing is fed but whey from the first of June to the first or middle of July; the feed then increased as grass diminishes. If cows are allowed to shrink in milk in July and August, and their feed then increased after being with calf, they will not come back, but run to flesh. I feed with a view to keep up a uniform flow of milk from the first to the last of grazing.

Manufacture of Cheese.—Calves' rennets *only* are used, after being dried one year. There are less animal properties in them than in new rennets, and will not make cheese swell in warm weather, and on shrinking, leave them like honey-comb, full of holes, with a rank flavor.

Calves, whose rennets are designed for cheese-making, are not allowed to suck sick cows, or those giving bad milk, but are fed with plenty of good milk, from five to ten days old; twelve or fifteen hours after sucking, when the gastric juices are most abundant and pure, the rennet is taken out and stretched on a bow; as much fine salt is added as will adhere without draining, and hung in good air to dry. Milking is done in tin pails, strained through a large tin strainer into a tin vat, where it is not skimmed nor moved till the cheese is made. The pails are set into a common sap-bucket, which being light and smaller at bottom than top, a litle press on the pail will fasten the bucket to it so that it carries with the pail without any inconvenience. A light tap on the bucket will drop it, and leave the pail clean and not bruised. A tin vat, large enough to hold the whole milk, is set within a *larger wood vat*, with one inch space between the sides and

bottoms of the two, to admit water, which is cooled by ice and heated by steam, which water cools the milk to take out the animal heat, warms it to receive rennet, remains and heats whey and scalds curd. It is discharged by a cock to pass off into a tub, and scalds bran or meal for slop feed, when it is required. Scalded feed is required daily when cows are milked on hay feed. A large reservoir is built of stone and cement, to contain fifty hogsheads of rain-water from buildings, to discharge by a cock into the above described space into a steam generator or into a tub, or any other place in the lower rooms, where it is desired. A pump affords water to this apparatus in case of drought. Thus the same water is made to perform three distinct offices, by no more labor than to turn three cocks with thumb and finger.

After water in the reservoir is not wanted for cheese-making, a pipe conducts it into the top of the ice-house to freeze in solid mass in winter, for cooling milk the next season. No skimmer, pail, or dipper, is required about this apparatus, only to milk in, as the cream which rises over night is not separated, nor no dipping of milk, whey, or water. The heating is done daily, by a handful of chips, or four quarts of charcoal, and all shift of apparatus can be made with one hand while the other is employed in the milk or curd. A young man is hired at $11 per month, for eight months, to take the whole charge of nursing, feeding, making and taking care of milk and cheese through summer, and does no other business. He is required to keep a register, daily, of the variation (if any) of heat, salt, quality and effect of rennet, number of cows milked, quantity of milk from which cheese is made, condition of curd when put to press, when cheese is put on shelf that it is weighed and numbered upon the bandage, so that when cured the result of certain variations may be known. An inch pipe passes from the steam generator and discharges steam into water under the tin vat; in ten minutes the whole mass is warmed to 90° to receive rennet. The steam is then turned off (which would otherwise be lost) into a tub which stands high enough to discharge into the cheese vat and scald it after the cheese is made. Hot water is drawn at any time from the same to cleanse pails, cloth hoops, &c. Calves' rennets only are used, after being one year dry, they being less apt to make cheese swell in warm weather, and of better flavor. A piece of rennet, to bring curd in forty minutes, is pounded fine in an iron mortar, and soaked a short time in warm water mixed with a little annatto, drained, strained, and put into the milk. When come, the curd is cut in large pieces with a wood knife, thickest in the middle, to give it a slight pressure before there is much surface exposed to be rinsed by whey; after standing ten minutes, the pieces are cut smaller with the same knife, then broken up by putting the hands to the bottom of the tub, bringing them through to the top, with fingers spread, with a slow motion, to give it all a slight pressure without tearing fine while tender; heat is kept as high as 88° while working; steam let on; the motion and pressure with hands increased with increase of heat and toughness of curd; heat is kept up to continue the action of the rennet, as it is most active when warm; heat raised to 98°; the steam is then turned off; it is kept at that heat thirty minutes. The scalding is now done; the water and whey are discharged, one pound of fine salt to fifty of curd is added, while warm, to shrink the curd and prevent holes in the cheese. After getting cool it is put to press; the pressure is from five to seven tons; in six hours is turned into clean cloth, and again in twelve hours more is taken out of the press and put upon the shelf, weighed, bandaged, greased with oil of whey butter, turned daily. No greater heat is ever used in the operation than the natural heat of milk, (98°.)

My cheese are pressed half as thick as they are wide, because by contracting the base, the pressure is increased in pressing, which makes them more solid, less surface exposed to the flies, less also on the shelf to get rancid. They are turned on the shelf more easily, take up less room, and when packed are safer to ship.

Two hundred bushels of shorts, at nine cents per bushel, and twenty bushels of oat meal, at twenty cents per bushel, amounting to $22,00, has been fed since the first of May, with whey. No swine are kept on the premises; all coarse feed, such as roots, slops, apples, &c., (usually fed to swine,) are fed to cows, because I have proved by three years' experiment, that such feed will make more pounds of cheese when fed to cows, than pork when fed to swine; and as much flesh upon the cows as is made in pork, in addition to the cheese; and require less hay and pasture. A suitable portion of land is tilled annually to use up the manure of stock and compost, to keep meadows well seeded, and raise grain and vegetables for family use.

The average quantity of cheese (market weight) made from each cow, in 1842, was 714 lbs. Do. in 1843, with one quarter heifers, 650 lbs. Made in April, 1844, from scattering cows, 650 lbs.

Made this season, since the first of May, from 25 cows, three of which were three year old heifers . . . . . 14,163 lbs., an average of 4 lbs. per day for 4½ months. Add . . 650 lbs.

14,813 lbs., an average of 592 lbs. made this season, and with the usual quantity made the balance of the season, will make an average of 700 lbs. per cow. Annual average per cow, for three years, 680 lbs. sold; average price for three years, $6, delivered at canal. Average net per cow, $41.40.

In 1842 and '43 the farm and dairy was leased to a tenant, reserving three-fifths of the products myself, the tenant two-fifths. In 1844 I hired one man to make cheese and take care of cows, at $11 per month, for 8 months, and one for the same to work on farm. Extra help is hired in haying and harvest.

[From the Cultivator.]

HOW DO FLOCKS OF SHEEP RUN OUT?

EDITORS CULTIVATOR:—The opinion is quite prevalent among farmers, that flocks of sheep that are several years confined to one locality, deteriorate, or, as frequently expressed, "run out."

That flocks do sometimes deteriorate, when confined to one locality, I do not doubt; but when such an event actually occurs, I apprehend it would be quite as judicious, and would quite as effectually restore the health and vigor of the flock, to dispose of the *proprietor* and retain the *sheep*, as *vice versa*. That this running out is owing to bad management, and *not* to any other local cause, I have no doubt, and it may be mainly included under two heads: first, in *breeding;* secondly, in *feeding*.

The system of close, or "in-and-in" breeding, beyond a given point, and that point not *very* remote from the starting point, I believe to be very injurious to constitutional vigor. But, as the question has been discussed in your columns, I will not now enter into the argument.

Constitutional vigor in sheep, as well as in other animals, I regard as being of paramount importance; without it, light fleeces, deformity and disease, are constant attendants.

The form of a sheep should be as much the object of care and solicitude as the form of a horse; while the former with many is scarcely noticed, with the latter it is almost the only criterion of value. Who would undertake to say that a long-legged, thin-shouldered, narrow-chested, slab-sided, loose-jointed horse is possessed either of constitutional vigor or hardihood? Indeed, such an animal would be considered by every one as comparatively, if not utterly valueless; while thousands retain sheep equally faulty, from which to propagate, and at the same time, the well-shaped, the vigorous and hardy, which from these circumstances have a tendency to fatten, are sacrificed to the drover and the butcher's knife. Great care should therefore be taken, not only in selecting *bucks*, but in breeding *ewes*. We should look at the *whole* sheep—should have an image of perfection in our minds, and make every selection with a view to attain that object. It is not texture of fleece, or weight of fleece, or symmetry of form, separately considered, but the combination of the greatest number of desirable points and qualities.

The question arises in this connection, how shall we dispose of the refuse of the flock? I answer, a separation should be made soon after shearing; the choice lambs and breeding ewes, intended for preservation, should be put into good pastures; no buyer or butcher should be allowed to look "over" into their enclosures. The refuse, or those devoted to *destruction*, should be placed, if possible, in better pasture, and should be fed for a month or two in the fall with corn or meal, or with turnips, until fit for slaughtering.

As sheep increase in numbers, on a given number of acres, other things being equal, the amount of food per head of course diminishes. What would fully feed fifty, might barely subsist seventy. Now let us look at the comparative profits. Good keep and poor keep will make at least one pound difference in the weight of fleece. Say 70 head at $2\frac{1}{2}$ lbs. per head, $70\times2\frac{1}{2}=175$ lbs.—50 head at $3\frac{1}{2}$ lbs. $50\times3\frac{1}{2}=175$—making weight of fleeces equal. Loss by *winter-killing*, on account of poverty, from the 70 poor sheep, say 10 head; 50 in good condition, *no loss*. The account now stands 50 to 60. The *increase* from 50 good sheep would doubtless be greater than from 60 poor ones; besides the wool account would now foot up 25 lbs. in favor of the good-conditioned sheep. So that *well fed*, as well as WELL BRED, should be the wool-growers' motto.

Sheep are large feeders, and require, especially in winter, much care. Large flocks should, particularly at that season, be divided into smaller ones, not to exceed fifty or sixty in each; the weak and the strong, and the small and the large, being kept in separate parcels.

They can then receive care and feed severally, according to their respective conditions. A sheep in good condition has a better appetite, and will consume coarser food than one which is poor; but if suffered to run together promiscuously, they will crowd away the weaker ones, and appropriate to their own use the choicest of the food. Wool grows much faster in winter than in summer; therefore, as wool is formed or made of *feed*, and not of air, as some seem to suppose, it is necessary that keep and care be increased accordingly. Otherwise there will be an inevitable "falling away,"—the fat and muscle previously acquired will waste away to supply the growth of wool.

During the next twenty years, the western part of Virginia, the State of Ohio, the hilly portions of Kentucky and Tennessee, with perhaps Indiana and Michigan, are destined to be the great wool regions. The East cannot compete with us in this article, but will find more profits in the products of the dairy, beef, mutton, and the coarser grains.

Solon, O. CHAS. R. SMITH.

[From the Farmer and Mechanic.]

PROFITS OF HENS.

"'Dr. I. Barstow, of Chicago, kept an account of the expense and income of fifty hens, for one year. The cost of keeping on corn was about twenty-five cents for each hen. The hens averaged ninety-one eggs each. One of the editors of the *Prairie Farmer* states that he has kept forty hens the past year; that the cost was about the same as given by Dr. Barstow, but the fowls averaged only sixty-five eggs each. The fowls in both cases were confined to a yard, but one lot of them were allowed to have their liberty for a part of each day. They were fed with fresh meat occasionally.'—*Albany Cultivator.*

"Remarks.—The estimate of expense here given for fowls kept confined appears far less than it should be to maintain them in good growing condition. We have now more than one hundred on hand, and purchase food at prices ranging from one and a quarter to one and a half cents per pound. Meat, which is regularly given them, costs from two to three cents; potatoes less. The *average* range of prices is here given. The cost of keeping has never been less than one cent, or more than two cents, a head per week. Two cents each, if fed with all grain, will not be far from the amount, and it cannot well exceed this sum. One cent per head is not sufficient, and dry swill, such as pealings of potatoes, turnips, cabbage leaves, boiled potatoes, &c., together with meat, will be required to constitute good keeping. Our grain bill *now* is one cent for each fowl, corn being at present seventy-five cents per bushel: to which boiled potatoes, &c., are added to make up the deficiency. A final statement will be given when the stock of vegetables on hand are consumed. The hens are laying well considering the season of the year, and some *particularly bad management*, which we may allude to hereafter. We now (January 19) count two hundred and sixty-two eggs, commencing with one on the twenty-ninth day of November, the thirtieth of which month, together with the second and fourth days of December, are the only blank days; and, considering the uncertainty and difficulty of our new experiment, there remains the flattering hope that 'tis pretty well done.' B*."

[From the Model American Courier.]

HOW TO CATCH A SHEEP.

In catching sheep, never seize them by the wool on the back, as it hurts them exceedingly, and has in some cases been known to kill them, particularly in hot weather, if they are large and fat. Indeed the best way is to avoid the wool altogether, and to accustom yourself to take them by the hind leg, or what is still better, by the neck, placing one hand under the jaws, and the other at the back of the ears, when, by lifting up the head, a child may hold almost any sheep. But much depends on how a flock is treated. Few people are sufficiently gentle with sheep. In Maryland, and south of it, sheep are rarely approached near enough to touch or catch them, except as farmers are themselves treated, in all countries, and alike by tyrants and demagogues, when they are to be *sheared or slaughtered.*

When, for the first named purpose, sheep are to be caught in the region referred to, they are huddled up in the corner of a large pen, as often as there are sheep in the flock; each time frightened and worried, until the shearer runs in and grabs by the wool the first one he can catch. The residue of the flock is then left until that one is divested of his wool, and small bits of his skin here and there, and then turned loose, as the farmer is after the election, until the next shearing time. When brought up to

be slaughtered, the only difference is that the sheep is attracted by a grain of salt, or a handful of corn, while the farmer is charmed with the sound of the drum and fife, and liberty and glory!

By kind and gentle usage, and occasional salting, a man may have his sheep so tame that he may play with them, as every man that has a heart will sometimes do with his dog. At any rate, the feeling and thoughtful farmer will never suffer his sheep, or any thing else under his guardianship, to be unnecessarily terrified, or otherwise ill treated.

"I would not enter on my list of friends,
Though graced with polish'd manners and fine sense,
Yet wanting sensibility, the man
Who needlessly sets foot upon a worm."

Wheat Crop in South Carolina.—It is a gratifying fact that the planters in the middle country of South Carolina have this winter sown fully twice as much wheat as has ever formerly been put in, in one season, heretofore. We learn that in Fairfield, a district which has never grown a large amount of this grain, extensive fields have been seeded—one planter having sown three hundred acres. Others, diverting their labor from the cotton culture to grading railroads, have sown their surplus lands in small grains. Greater pains have been bestowed on the preparation of the soil than usual, and the crop, from this cause, as well as from the mildness of the weather, is very promising everywhere. The verdant fields promise an abundance to the industrious, which should make our citizens happy and contented, even in "*Old South Carolina.*"

Better all unite in a policy that makes it the interest of capitalists, with their machinery, to go there into the heart of their fine cotton and wool growing region, to work up their raw materials, and to demand the wheat when it is made.

To Wool Growers.—Why don't you give more attention to your sheep, and take that pride that every farmer should do, in preparing your clip for the market? You should have it clean, free from burs, and properly tied up, instead of sending it to market in the dirty, slovenly, careless manner in which a great portion of the western wool goes into the hands of the first purchaser. Do this, and you will obtain ten or fifteen per cent. more for it. Don't say you have not time. That is not the fact; you have time. The real cause is probably you have *too much land.*

You are too much like the southern planters, who think they are doing well just in proportion to the *size* of their cotton fields. They, like you, never foot up bills at the end of the season, and learn that a little more time spent in doing a few things well, would be more profitable than running over many things and leaving all but half done.—*Iowa Farmer.*

Kentucky.—The Frankfort Commonwealth publishes several extracts from the report of the second auditor of Kentucky, from which we glean the following facts:

No. of acres land	19,425,663	valued at	$127,631,871
No. of town lots	29,215	"	19,140,378
No. of slaves,	192,479	"	60,820,378
No. of horses,	353,349	"	11,297,606
No. of mules,	41,081	"	1,533,740
No. of cattle,	495,538	"	2,030,621
No. of stores	3,320	"	7,916,570

The number of qualified voters is 139,613, and total number of white males over 21 years of age 142,970. The total number of tavern licenses 452.

PREMIUM CROPS.

REQUISITIONS OF THE NEW YORK STATE AGRICULTURAL SOCIETY.

[Written for "The Model American Courier," by the Editor of "The Plough, the Loom, and the Anvil."]

THE list of premiums offered in New York has just been published. The minimum of crops fixed upon, *under* which no premium is to be awarded, is—of winter wheat, not less than 40 bushels per acre; spring wheat, 30; Indian corn, 80; barley, 40; rye, 35; oats, 70; buckwheat, 25; peas, 25; potatoes for the table, 200; potatoes, field crop, 300; ruta-bagas, (60 pounds to the bushel,) 800? sugar-beets, (60 pounds to the bushel,) 400; carrots, (60 pounds to the bushel,) 400; mangold-wurtzel, (same weight,) 400. We don't see that any premium is offered for hay.

These quantities being fixed as the minimum produce, when we look at the average crop of the whole State as her official returns show, what a wide margin we find to be filled up by higher skill and heavy manuring, as thus: in 1845, according to returns from each county by State authority, the averages were as follows: winter wheat averages 14 bushels per acre; oats, 26 · barley, 16; rye, 9½; Indian corn, 25; buckwheat, 14; peas, 15; beans, 10; potatoes, 90. Thus would it seem that the crops in most cases do not come to a third, in some cases not a fourth of the *smallest quantity*, which the Society have decided should be distinguished by a premium. This might leave some doubt about agricultural *progress* in the Empire State, were it not that the State Society, by its President, last year, reported "that the State of New York is improving its agricultural condition *every year testifies*." If it be improving every year, and has yet reached only to the averages we have stated—14 of wheat, 25 of corn, 9½ of rye, 90 of potatoes, &c.—how low must it have been twenty-five years ago? Yet, in 1821, Earl Stimson, of that State, made throughout his farm—of oats, 60 bushels per acre; Indian corn, on 8 acres, 112 bushels; on 10 acres, 90; spring wheat, 34; barley, 60. And we have accounts, before the Revolution, of 11,000 bushels of potatoes from 16 acres—being 687 bushels to the acre, on new red land on the Hudson river; third year, 8496 bushels of potatoes—being 531 bushels to the acre; fourth year, in wheat gave 37 bushels to the acre; fifth year, in barley gave 730 bushels, or 45 bushels to the acre; sixth year, 630 bushels of peas, or 39 to the acre. All this was without manure, and that by a miserable system of the most exhausting rotations, as—potatoes, wheat—potatoes, wheat, barley, peas: all in six years! Is it to be wondered at, that the crops throughout the State have been brought down to the miserable averages we have stated? Still we are told, on the highest authority, that the condition of New York agriculture is improving, as "every year testifies!"—and who knows how low it might have gone, if it had not been for the premiums distributed from year to year?

After all, these facts bring to mind the doubt once expressed by one of the wisest, wealthiest, and best men the Empire State ever boasted—James Wadsworth. Said he—"I am doubtful as to the expediency of small premiums for cattle. I think the raising of these animals may be left to self-interest. Suppose you take a hint from Napoleon, and offer *very liberal* rewards for great improvements in agricultural implements;" and might not crops be left to the dictates of self-interest, as well as cattle? The Agricultural Society of New York appears to entertain a very different opinion, for while they have offered some 150 or 200 premiums for cattle and sheep—and nearly 100 of the amount of $10 and upwards, many as high as $20 and $25—under the head of "*Farm Implements*," $10 is the highest for any single one, and that only in one case—a threshing machine. For the others they offered a "dip," and sometimes $2 or $3, or $5, besides the "dip;" but, done by such high authority, it must be "O. K."

FIRST COTTON FACTORY IN MONTGOMERY.

"The Flag & Advertiser" felicitates itself at the prospect of Montgomery becoming a manufacturing city. It says:—

"We are glad that Montgomery has at least made the first start. We have already a factory in various kinds of wood and iron. We understand that a movement is now being made to establish a cotton factory. It is proposed to organize a company with a capital of $100,000, to establish a cotton factory that will work 2,000 spindles. We understand that one or two gentlemen are ready to put up $10,000 or $20,000 to commence with. If the balance can be made up, the enterprise will be put in operation. It will be of incalculable benefit to this city and the surrounding country, and cannot fail to be profitable to those who undertake it. There never was a more favorable time to commence such an operation. The raw material is low, and to be had at the first cost at the door of the factory. Every thing is now at its lowest point, and every change must be for the better. It cannot fail to benefit the city also. Instead of that amount of capital lying idle, or being employed elsewhere, its benefits will be circulated right here. It will employ 200 operatives, and thus afford means of subsistence for 800 persons at least. This will serve so far to increase the population of our city, and enlarge the market for our farmers giving and returning reciprocal benefits to town and country. We trust that the gentlemen who have taken this matter in hand will go ahead. With ordinary judgment and prudence, they cannot fail to succeed. It will be a good thing for them—it will be a good thing for Montgomery—it will be a good thing for the State."

RESULT OF SABBATH-BREAKING.

A father, says Dr. Edwards, whose son was addicted to riding out for pleasure on the Sabbath, was told that if he did not stop it, his son would be ruined. He did not stop it, but sometimes set the example of riding out for pleasure himself. His son became a man, was placed in a responsible situation, and intrusted with a large amount of property. Soon he was a defaulter, and absconded. In a different part of the country he obtained another responsible situation, and was again intrusted with a large amount of property. Of that he defrauded the owner, and fled again. He was apprehended, tried, convicted, and sent to the State prison. After years spent in solitude and labor, he wrote a letter to his father, and, after recounting his course of crime, he added—"*That was the effect of breaking the Sabbath when I was a boy.!*"

Exodus, xx. 8.—Remember the Sabbath day, to keep it holy.

Onions.—The onions which were sown at an early season, with an expectation of their growing to a sufficient size the first year for table use, should now be perfectly cleared from weeds, and the plants thinned to about three inches from each other; some of them should be pulled out at an early period, and kept clear of weeds, from the first sowing, till they arrive at perfection.

Onion seed may be now sown broadcast, on rather a poor soil, to raise small bulbs for the next year's crop, and if the ground should be very dry, you may water them occasionally.

INSTINCT OF ANIMALS.

The captain of a trading vessel, who now resides at Brighton, picked up lately a dog at sea, more than twenty miles from land. This circumstance may throw some light on the fact of dogs, which have been sent to France or Ireland from England, finding their way back. The present Earl of L—— sent some drafted hounds from his kennel in Cumberland to Ireland, where they were safely received, and a receipt given for them to the person who brought them over. Three weeks afterwards two of these hounds made their appearance at Lord L.'s kennel, though in a very exhausted state. A gentleman also informed me that a pointer dog which had been left at Calais made its way over to England. But the most amusing fact of this kind that I know of is one that was related to me by a gentleman on whose veracity I can place most implicit reliance; and though it may appear to some of my readers to border upon the marvellous, I think it too entertaining to withhold it. He informed me that a friend of his, an officer in the Forty-fourth Regiment, who had occasion, when in Paris, to pass one of the bridges across the Seine, had his boots, which had been previously well polished, dirtied by a poodle dog rubbing against them. He in consequence went to a man who was stationed on the bridge and had them cleaned. The same circumstance having occurred more than once, his curiosity was excited, and he watched the dog. He saw him roll himself in the mud of the river, and then watch for a person with well-polished boots, against which he contrived to rub himself. Finding that the shoe-black was the owner of the dog, he taxed him with the artifice; and after a little hesitation he confessed that he had taught the dog the trick in order to procure customers for himself. The officer, being much struck with the dog's sagacity, purchased him at a high price, and brought him to England. He kept him tied up in London some time, and then released him. The dog remained with him a day or two, and then made his escape. A fortnight afterwards he was found with his former master, pursuing his old trade on the bridge.

Nor is a dog the only animal which has shown an extraordinary faculty in finding his way home. The following anecdote is mentioned in a note in Messrs. Kirby and Spence's Entomology, who state that they had it from Lieutenant Alderson of the Royal Engineers, who was personally acquainted with the facts.

In March, 1816, an ass was shipped at Gibraltar on board the Ister frigate, Captain Forrest, which was bound for Malta. The vessel having struck on the sands off the Point de Gat, at some distance from the shore, the ass was thrown overboard, to give it a chance of swimming to land—a poor one, for the sea was running so high that a boat which left the ship was lost. A few days afterwards, however, when the gates of Gibraltar were opened in the morning, the ass presented himself for admission, and proceeded to the stable which he had formerly occupied, to the no small surprise of its former owner, who imagined that from some accident, the animal had never been shipped on board the Ister. On the return of this vessel, to repair, however, the mystery was explained; and it turned out that Valiante (so the ass was called) had not only swum safely to shore, but, without guide, compass, or travelling map, had found his way from Point de Gat to Gibraltar, a distance of more than two hundred miles, which he had never traversed before, through a mountainous and intricate country, intersected by streams, and in so short a period that he could not have made one false turn. His not having been stopped on the road was attributed to the circumstance of his having been formerly used to whip criminals upon, which was indicated to the peasants, who have a superstitious horror of such asses, by the holes in his ears, to which the persons flogged were tied.

I have also been assured that a favorite cat belonging to a nobleman, and who had been conveyed to his country-seat more than a hundred miles from London, found her way back to his house in town. Nothing can be more extraordinary than the way in which bees find their way back to their hive. Place it amongst hundreds of others, exactly similar in outward appearance, or at the top of a house in London, or concealed in the thickest wood, and the bee will regain it without the slightest apparent difficulty. Huber says they fly to it with an extreme rapidity, and as straight as a ball from a musket. Nothing can show more forcibly the wonderful instinct which has been given to these insects. If they experienced any difficulty in finding their homes, how much time would be lost, and how inadequate would all their labors and industry be, to furnish a sufficient store of honey to exist upon during the winter! I have always observed that when a fresh hive has been brought to my garden from a distant place,

the bees employ themselves on first leaving it, not in collecting honey, but in making themselves acquainted with all the neighboring objects, and these objects may possibly serve to guide them to their respective homes. Some naturalists are of opinion that this recognition of home by animals is the result of memory. Perhaps in some instances it is so, but memory could not have guided poor Valiante over two hundred miles of country, which he had never passed before; and the same unexplained instinct which brought him back to his stable at Gibraltar, may guide the bee to his hive.

This instinctive sagacity appears in some animals to whom we should have been less disposed to attribute it. Some pigs which had been brought in a sack fifteen miles through an American wood, by the next morning found their way back, from their new to their old home. I have also been assured that Welsh sheep have been known to find their way back, from the neighborhood of London, to their native mountains. It is no uncommon thing for dogs who have been taken a great distance in carriages, to make their way home again, and that in a very short space of time. A gentleman took a pointer dog in his carriage, to some shooting ground in Scotland, more than a hundred miles from his house. Upon receiving some correction from his master, he left him, and made his way back to his kennel.

A friend of mine had a poodle dog possessed of more than ordinary sagacity, but very little under command. To keep him in better order, his master purchased a small whip, with which he corrected him once or twice during a walk. On his return the whip was put on a table in the hall, and the next morning it was missing. It was soon afterwards found concealed in an out-building, and again made use of in correcting the dog. It was again lost, and again found hidden in another place. On watching the dog, who was suspected of being the culprit, he was seen to take the whip from the hall table, and make off with it to another hiding-place.

MANUAL OF MANNERS.

AMUSEMENTS AND RECREATIONS.

This is an important subject to consider, as the amusements adopted by different people either exhibit the peculiarity of their taste, or exercise a striking influence on their habits. "Show me the company a man keeps, and I will tell you his character," is an old proverb; it would be equally just to say, tell me the nature of any one's amusements, and I will declare to you the bent of his mind.

The amusements of women ought to be of a refined and suitable description. As they are restricted from many of the recreations of the stronger sex, they ought to choose their own mainly with a view to the improvement of their tastes, and the right formation of their demeanor. A cultivated understanding will find within itself many sources of entertainment which one less favored cannot so easily comprehend, or so readily adopt. Hence the necessity in genteel society of accomplishments. Music always brings its own enjoyments; and drawing and reading offer boundless sources of innocent, as well as useful and agreeable recreation. In a subsequent chapter on the occupation of time, will be found some observations, that appear to be pertinent at present, on the important subject of choice of books.

In fine weather, out-of-door exercises are particularly conducive to health, and to the cheerfulness of the temper. They are, therefore, preferable to in-door amusements. Young ladies should always bear in mind Dr. Gregory's advice to his daughters on this point. He recommended to them exercises in the open air, such as walking, and riding on horseback, as tending to give vigor to the constitution and bloom to the complexion, which riding too much in a luxurious carriage will deprive them of, or prevent them from acquiring. Our youthful queen's example in this respect ought to be more generally followed than it is, by all who have the opportunity of doing so.

The rule which ought to be laid down regarding amusements is, simply, judiciousness in selection, and not too great a devotion to one particular kind. Every one will be best able to judge for himself as to those recreations which are most appropriate to his inclination and circumstances. Amusements should be rendered subservient to instruction, especially with the young; and more attention than is usually paid to this branch of conduct should be devoted to it, by all having the charge or the training of youth.

Although, however, the subject of amusements in general may be considered too wide a field to be entered upon here, consistently with the design of this work, the writer may be permitted to make a few passing remarks on some of those amusements which are

usually set apart, in private society, for evening entertainment; such as music and conversational parties; and fancy and children's balls, play and gaming.

Perhaps the most agreeable recreation, either at home or abroad, is music; than which, if not carried to excess, as it sometimes is, there can be, for the time, no more, satisfying enjoyment. A cultivation of music is an essential accomplishment of young ladies; and an evening party is enlivened by an occasional performance on the piano, or the harp, by a skilful and unobtrusive player. Any attempt at vain display, however, is in bad taste, and cannot fail to be remarked. To affect inability, or pretend indisposition, when requested to sing or play, with the object of being pressed, is no mark of merit or modesty. A person conscious of his powers is proud of the opportunity to exhibit them, and does not assume airs on being solicited to do so. A readiness to comply is not, therefore to be considered a sign of vanity, or of presumption. A favor is always enhanced by being obligingly conferred. On the other hand, too great a forwardness to play is often a proof of pretension and self-sufficiency—nothing more.

In an evening party, whether music is going forward or conversation—whatever indeed may be the occupation of the rest—it is no unusual thing to see one of the company engaged with a book. This, notwithstanding the latitude allowed in modern society, is highly indecorous and impertinent towards all present. There are many persons who affect the literary character, without having any real pretensions to it, and think a practice of this kind calculated to gain that notice to them which they are, perhaps, conscious would not be granted to their conversational powers. It may arise from forgetfulness in some, from ill-breeding in others; but a truly polite man would not be guilty of such an impropriety. It is true that it is sometimes tolerated in persons of known studious habits; but this is only among intimate friends. Madame D'Arblay relates an interesting anecdote of Dr. Johnson, whose peculiarities of conduct and manner were very remarkable and are well known. At a party at the house of her father, Dr. Burney, Johnson, who, it is recorded, had no ear for music, was announced, during the performance of a duet by two of her sisters on the piano. "After the first few minutes he drew his chair close to the piano-forte, and then bent down his nose quite over the keys, to examine them, and the four hands at work upon them. But his attention was not to be drawn off two minutes longer from the books, to which he now strided his way. He pored over them, shelf by shelf, almost brushing them with his eyelashes, from near examination. At last, fixing upon something that happened to hit his fancy, he took it down, and, standing aloof from the company, which he seemed clean and clear to forget, he began, without further ceremony and very composedly, to read to himself, and as intently as if he had been alone and in his own study." Johnson, however, was a privileged person, and it would be unpardonable in any one less eminent to imitate his rudeness.

Fancy balls and masquerades are dangerous incitements to the youthful imagination, and too seductive and ensnaring in their nature to be encouraged by people of judgment and proper notions of virtue. Parents and guardians of youth ought to do all in their power to dissuade those under their care from attending them.

Indeed, to balls of every description, unless where very strictly managed, objections may reasonably be brought; as they have, undoubtedly, a tendency to foster vanity and create a love for display in the youthful mind. The writer admits the propriety—nay, even the necessity—of frequently bringing young people together, that, from the behaviour of each other, they may acquire that ease and freedom from embarrassment which are so charming in young persons. But, surely, many opportunities for this can be found, without having recourse to scenes where they are exposed to so much danger and excitement as at promiscuous balls and assemblies continued till a late hour. Mere juvenile balls, however, which are over by a seasonable hour in the evening, and at which the parents attend to watch the progress of their children in dancing, contain nothing which is open to any particular objection. To take children to the theatre, or to keep them from their homes later than they have been accustomed to, is foolish and prejudicial. The practice too, now so much in vogue, of young ladies going out to parties and staying late, is by no means a commendable one: it is injurious both to their complexion and their health.

A conversational party is one of the most rational, as well as delightful modes of passing an evening, and, when scandal or personal satire is not introduced, is far preferable to cards. By means of agreeable remarks, if the topics are judiciously chosen, much elegant instruction may be conveyed to the younger by the elder portion of the company. New ideas may be elicited, and the tastes of all present essentially improved. Information is such a desirable thing, that every mode for extending and imparting it ought to be sedulously adopted; and at an evening

party, a conversation in which every one can participate, may be rendered a very useful and interesting means of entertainment.

One of the most innocent of pastimes is the chess-board, which, from its scientific details, is well calculated to engage the understanding, and afford satisfaction to the mind.

Games of chance, where money is risked, should in all cases be avoided. Even though the stake is small there is a danger of its becoming the absorbent object for playing, and as soon as the contest begins to engross the attention exclusively, or assumes in the slightest degree the appearance of gambling, it ought to be abandoned that instant. There is no vice so odious as gaming, especially when a lady indulges in it.

At the card-table how much precious time is wasted!—time that must be accounted for. Gambling creates selfish and avaricious feelings, and is a most ensnaring practice. In many cases it leads to suicide, and in all to the utter ruin of both the temporal and eternal interests of those who engage in it; speedily corrupting the best principles, and overthrowing the most virtuous resolutions. Neither disgrace nor misfortune will cure it. Many who are just in everything else, make no scruple to cheat at play. Even men otherwise of amiable temper and sound discretion will get into a passion at their opponents, when fortune goes against them at the cards.

The poet says—

"Who gets by play, proves loser in the end!"

No vice, no pleasure is so pernicious in its effects, so prejudicial to the principles, so ruinous to the fortune, so destructive to the interests both of the soul and the body, as gaming is. Honor, virtue, wealth, peace of mind, character—all are offered up on its insatiable shrine. It is confined to no particular station in life. The servant in the hall must imitate his superior in the parlor—the tradesman in the tavern ape the lord in his palace. Days and nights are spent at play by people whose education fits them for higher objects, and whose station demands better employments.

Gaming, indeed, for which there is infinitely less excuse than for many other vices, degrades all to the same level, and reduces the conversation to one common and debasing point. How strong must be the infatuation for play, when men of rank and character, as at races, and other places of fashionable resort, consent to consort with persons of no rank and character at all! Is it avarice that impels them to it, or a desire to be relieved of care—or rather to be deprived of reason? If relieving them of their money and wasting their time be relieving them of their care, then their object is fully accomplished. At the cards, all distinction of rank or place is lost, and the high-born and the honorable are on a level with the mean and the degraded.

The many fortunes lost and families ruined by gaming ought to be a warning to the young. It soon demoralizes the mind, and overturns all the barriers of virtue and honor in the breast.

It is lamentable to think that, in spite of religion, morality, and common sense, this vice, so unsuitable to a rational and responsible being, should receive so much countenance among all grades of society, but particularly in genteel circles; from which it ought to be rigorously excluded. If discountenanced in the higher, it would soon lose its charm in the middle ranks; and none but the very lowest class in society would preserve and indulge in it.

"OLD TIME."

By Colin Rae Brown.

Men call me feeble, old and gray—
My strength and vigor pass'd away.
But strong and stalwart still am I,
Nor frail my step, nor dim mine eye.

What are a thousand years to me?—
But as a drop to yonder sea!
I've not yet reached my manhood's prime,
And laugh to hear men say, "Old Time."

Let centuries pass, and ages roll—
The year that my last knell shall toll
So far away in the future lies
That ne'er a tear hath wet mine eyes.

No! I am joyous, gay, and free!
Leading a life of mirth and glee.
But, Man! note well each passing chime—
Short is thy stay in the realms of Time!

Tait's Magazine.

THE WHOLE DUTY OF WOMAN.

WIDOWHOOD.

Is thy love stronger than death, do thy affections survive the decease of thine husband? Doth thy flame burn unextinguished, even as the funeral lamp of the sepulchre.

The obligations thou liest under are sacred to the remains of him thou lovest.

Be not pompous in the burial of the body, but embalm his memory and perfume it with fragrance of his virtues.

Let his frailties sleep with him in the grave, let his offences be remembered no more.

The care of a husband's honor is honor to a wife, and the tenderness to preserve it is most comely to the widow.

Art thou guardian to thy children, wrong not the fatherless.

The orphan and the widow are joined in calamity; therefore let them not rise up against each other.

Art thou young, and seekest a second espousal, experience hath not made thee wise.

Thou art as a galley-slave, who, in the madness of joy for his liberty, runneth himself again into bondage.

Art thou ancient, yet seekest the embraces of a young spouse, he will be the bane of thy latter days; he will bring jealousy to thine heart, and misery to thy gray hairs.

He will think himself a living body tied to a dead carcass, and hold thee loathed in his sight.

Dost thou think to fix the giddy appetite of youth? Thou mayest buy beauty, but it will not become thee; thou mayest paint, but it will not make thee fair.

When thou art dressed for the bridal morn, men shall say, is this decking for the living, thou deceivest thyself; if for the dead, make haste to follow him.

RELIGION.

Bright as the morning star, dressed in the radiance of the sun-beams, cometh the seraph of immortality.

She approacheth in white robes, her eye is fixed on the heavens, her knee is humbled in the dust, she giveth laws to the daughters of women.

She teacheth the way of virtue, her precepts are simplicity and truth.

Her profession is pure and undefiled, her temple is not filled with priests.

The duties she enjoineth are plain and easy; she dealeth not in the systems of speculative and vain philosophy.

She perplexeth not the mind with the hypotheses of scepticism, neither the cavillers nor the sophists are the teachers of her precepts.

Attend to her counsel, and abide by her instructions; so shall peace be the companion of thy reflections, and happiness the partner of thy contemplations.

In the practice of piety is satisfaction on earth, and its reward is on high, in the regions of bliss and immortality.

THE DUKE OF ATHOL AND THE MARKED SALMON.

It is some years since we first brought before the country a series of experiments that Lord Glenlyon (now Duke of Athol) was carrying forward on a large scale, to throw some light on the instincts and habits of the salmon, and thus add another leaf to the natural history of that celebrated fish. We are glad to say that the problem has now been proved to a demonstration that foul or spent salmon, after depositing their spawn in the gravelly beds of our rivers during the close months, seek their way back again to the sea, their rich pasture and feeding ground. After remaining there a certain time, they enter our rivers again, each to his own proper river, as cows grazing on a field to their own stalls at night, or as a bird to its nest; but how changed—the sickly, loathsome-looking kelt or red fish, now the rich, plump, and beautiful salmon. Friday morning last proved the truth of this to a certainty; for, on the gathering boat landing their fish at Orchardneuk, a few miles below Perth, a fine salmon, weighing sixteen pounds six ounces, in prime condition, was brought into the house, with a metal ticket, engraved "Duke of Athol, Dunkeld, No. 128," and fastened with copper wire round the tail. That this marked salmon had gone down to the sea there can be no doubt of, as it brought up with it a sure and certain proof of its being an inhabitant of the deep by the small insect known by the name of sea lice being found on it, never seen but on salmon new from the sea, and which falls off the fish when a few days in fresh water. It was on Balhopburn, one of Lord Wemyss's fishing stations on the Tay, a little above the quay of Inchyra, the marked fish was taken, on Friday morning, the 4th inst.—*Northern Warder.*

WELCOME.

A SONG FOR ANY DAY; BUT ESPECIALLY FOR CHRISTMAS AND THE NEW YEAR.

By the Author of "Proverbial Philosophy."

The following *seasonable* song is extracted from a beautiful little volume, entitled "A Happy Christmas," published for a charitable object, and edited by a Clergyman of the diocese of Norwich:—

Yes! welcome, right welcome—and give us your hand,
I like not to stay in the cold;
If new friends are true friends, I can't understand
Why hearts should hold back till they're old;
For life is so short, and there's so much to do,
And so many pleasures and cares;
And somewhere I've read that, though angels *are* few,
They're frequently met unawares!

The eye of sincerity shines like a star
Through the clouds of suspicion and doubt;
I love its fair lustre, and lure it from far,
And wouldn't for worlds put it out:
Away with such wisdom, as risking the chance
Of killing your love with old fears!
The face that is honest is known at a glance,
And needn't be studied for years.

And when petty prudence would put me to school
About caution and care, and all that,
I trust that, like some folks, I yield to the rule
Of wearing a head in my hat;
But more that remains is better than brains,
And I know not that some folk *are* blest,
Like me, with a share in a custom more rare,
Of wearing a heart in the breast.

Then come with all welcome! I fear not to fling
Reserve to the winds and the wave;
And never can cling to the cold-blooded thing
Society makes of its slave:
Thou dignified dullard, so cloudy and cold,
Get out of the sunshine for me!
But hearty good friend! whether new one or old,
A welcome for ever to thee!

Martin F. Tupper.

OUR BABE.

We have at home a little babe. Her eyes
Are blue and beautiful, and flash out gleams
Of diamond light, like that which brightly beams
On stilly summer nights from starlit skies.
Her cheeks are tinted with the blushing dyes
Which Heaven—so wisely bountiful—bestows
In virgin freshness on the modest rose.
When, worn and sad, I seek the spot where lies
My lovely all—that infant's budding charms,
As she disports within her mother's arms,
Dispel my sadness, and her winning wiles
And crowing shouts provoke unwitting smiles,
Till every care is from my soul beguiled:—
Blest is the man who loves a little child!

Thomas Mackellar.

The Plough, the Loom, and the Anvil.

VOL. I. JUNE, 1849. No. XII.

HEAR BOTH SIDES.

A LETTER recently received from one of our correspondents, closes with the following sentence :—"I am quite a believer in your reiterated opinion respecting factories, but I cannot as yet understand why a high protective tariff is necessary to make them thrive." Desirous to satisfy the mind of our friendly correspondent on this subject, we had appropriated the leading article of this month to a full examination of it, but, after making some progress therein, found that it would occupy more space than could be given in a single number, and as this is the last one of the year, concluded to postpone it to the next volume. Another cause, too, influenced us to this decision. On looking over our file we met with a promise, made some months since, to examine more fully an attack upon this work and its doctrines, that appeared in "The Union," the official organ of the late administration, and was endorsed by its editor as "a masterly view of the question." With this endorsement, made so near to the Treasury, we have a right to view it as the proper complement to the report of the late Secretary, and as containing the views upon which that elaborate document was based. Desirous that the farmers and planters of the Union should have before them for consideration the grounds upon which they are invited to aid in maintaining a system that *compels* them to seek abroad a market they would gladly have at home, and to fly to the West, there to clear and cultivate poor soils, when if they could remain at home they might have rich ones; and desirous, too, that our readers may see that in any thing we may say in regard to this extraordinary paper, we do not exaggerate; we now give it *in extenso*, preserving even the *italics*, that our readers may see which are the passages deemed by its author to be most entitled to consideration. Without this, we should greatly fear that they might suppose we had been disposed to caricature the arguments of our opponents, as the latter most certainly have desired to do by ours.

"THE PLOUGH, THE LOOM, AND THE ANVIL."

I take it for granted that it is well known that, under the title above quoted, John S. Skinner, Esq., late editor of "The Farmers' Library," has commenced the publication of a monthly periodical, *professedly* devoted to the agricultural interest, and appealing to that interest for patronage and support, but *really* acting as the champion of the manufacturing and mining interests, which, although far more wealthy in proportion to the number of persons engaged in them than the agricultural interest, are constantly clamoring for *protection*—in other words, for the privilege of taxing, through the instrumentality of the legislation of Congress, the great mass of the American people for the benefit of the few lordly proprietors of looms, spindles, and iron mines. Judging from the character of the original articles which appear in his new journal, it is evident that Mr. Skinner's whole aim is to resuscitate the exploded protective system; and hence, in order to disarm of all fears and suspicions the planters and farmers, who are to be the victims, he insidiously approaches them under the plausible and insinuating pretext of a proposition to unite the interests of "the plough, the loom, and the anvil," as if they had ever, under ordinary circumstances, in a civilized country, been separated. The object sought, and the indirect mode of attaining it, are consistent with the creed and the policy of the school of politics

in which Mr. Skinner has been reared, and of which he has through a long life been a devoted disciple; although, in candor, I must admit that, in my opinion, he honestly believes in the theories which he advocates.

But, it is due to the agricultural interest that the disguise be stripped from this patronising friend, and particularly so, inasmuch as his theories are adopted and endorsed by "The National Intelligencer," the leading Federal print in the country—by which term I mean Conservative, in the English sense of the word: which is, in point of fact, the Tory party in England. The Conservatives in England have always stood bravely by old abuses, monopolies, privileges, titles, and dignities, but not with more stolid pertinacity than their counterpart, the self-styled Conservative or Whig party of this country, who are but the imitators and echoes of the Conservative Tories of England. I am, however, wandering from my subject. My purpose was to examine the theory of Mr. Skinner in the shape in which it is shadowed forth under the mystical and plausible title of "*The Plough, the Loom, and the Anvil*," and advocated in the pages of the new periodical published by him.

The theory, as I understand the venerable and respectable gentleman, is, that the labor of a nation should be so shaped by its legislation that each of its different divisions should produce just enough of its articles or products as will suffice to supply the wants of the whole nation, and no more. In other words, the plough, representing the agriculturists, should have by its side a sufficient number of those engaged in operating the loom and the anvil to consume all its surplus products, in order that it shall not be compelled to go abroad to search out markets and customers for those products. And, on the other hand, the loom must have enough agriculturists, &c., by its side to consume all the cloth it weaves, in order that it may not be compelled to go to foreign countries to seek markets and consumers. And so of the anvil.

Now this must be the true interpretation of Mr. Skinner's scheme, represented by the three cabalistic words which he has adopted as the title of his new periodical, or they mean nothing. It will not do for him to say that he is looking out only for the agriculturist; for that would be an acknowledgment that his scheme was a deception and a device for mischief and injury to other interests. Therefore, when he gets his plan into practical operation, he must preserve the balance. After taking from agriculture, and putting to the loom and anvil, a sufficient number of persons to consume the surplus agricultural productions of the country, he causes those two instruments to over-produce—that is, make too much cloth and iron for the consumption of the nation, and thus compel them to go to foreign countries for markets and consumers—he must again equalize, by transferring them back to agriculture—involving, of course, the movement of immense amounts of capital, and the loss of vast sums in machinery and apparatus. If he does not make these transfers of men and capital from one interest to another, as the production of one exceeds the consumption of the whole, he throws his scheme out of its equilibrium, and his theory must explode.

Now, the bare statement of this theory shows its utter absurdity, setting aside the violation of every sound principle of political economy which it involves, and the contradiction of the testimony afforded by the experience of all civilized nations. There is not a nation in the world in which some great interest does not predominate, and produce more of its peculiar commodities than can be consumed by its own people; and hence *it must* seek a market abroad for this surplus, or it must suffer it to perish upon its hands; and thus the labor spent in producing it becomes an utter loss. And it is upon this great and interesting fact that commerce among nations is founded. Commerce is but the exchange of the surplus products of the labor of one nation for the surplus products of the labor of other nations. Thus, in theory, the scheme of Mr. Skinner, if it were possible to carry it out in practice, *would annihilate all commerce, and, as a necessary consequence, all civilization;* for nations will not mix with each other for courtesy merely. They must be impelled together by traffic. Such is the order of Providence; and the reason and the effort of feeble man cannot repeal it, nor successfully evade it.

So much for the philosophy of Mr. Skinner's theory. I will now test its utter absurdity and impossibility by facts, which neither he nor any one else can gainsay.

The greatest and most important interest in this country is the agricultural. It possesses a capital of at least $4,000,000,000, and probably produces at least $1,000,000,000 in value of products. Certain it is that it produces a large surplus of wheat, corn, cotton, tobacco, rice, and provisions, for exportation to foreign countries. It produces more wheat and corn than can be consumed at home, or for which a market can be found abroad. Of the grains, it produces from 30,000,000 to 40,000,000 of bushels more of wheat than can be consumed at home; and of corn, from 100,000,000 to 200,000,000. Now, Mr.

Skinner observes this fact. He thinks it very hard that the agriculturists should be compelled to employ merchants and sailors to send this surplus, or so much of it as may be wanted, abroad to find consumers. Nay, he finds that, ordinarily, not quite enough consumers can be found abroad to absorb this surplus. He looks about for a remedy, and he finds the manufacturing interest, which he represents under the figure of the loom, and the mining interest, which he impersonates in the form of the anvil, both employing much capital and many persons. And it occurs to his mind that the true remedy for the farmers and planters, whom he finds so oppressed with the bounties of Providence, is, to have Congress shut out from our markets, by legislation, the cloth and iron of other nations with which our farmers and planters have hitherto traded, thus rendering it impossible for them to purchase any of our grain; and thus, also, by rendering the business of agriculture *so poor*, and the manufacturing and mining business *so good*, as to compel a transfer of men and capital from the former to the two latter, until the products of the former are so diminished in amount that they will just equal the consumption of the whole nation. I will not stop here to consider its effect upon the manufacturing and mining interests of this transfer of men and capital, but will proceed at once to the statistics of those two interests.

By the last census, it appears that in 1840 the capital employed in the manufacture of cotton was, in round numbers, $51,000,000; value of cotton goods, $46,000,000; the number of operatives employed, 72,119. The capital invested in the woollen manufacture in 1840 was $16,000,000; value of products, $21,000,000; persons employed, 21,342. In iron-mining, the capital invested in 1840 was $21,000,000; number of tons of all kinds produced, 484,136; persons employed, 30,497.

Leonard, in his "Mechanics' Principia," estimates the amount of capital now invested in the cotton manufacture at $66,964,275; the number of spindles employed, 2,678,571; the quantity of cotton consumed, 400,000 bales, or 180,000,000 pounds; the number of yards produced, 720,000,000, or 36 yards to each individual of the population. And in "The Dry Goods Reporter," the organ of the manufacturing interest, published in New York, dated Dec. 9, 1848, and now before me, I find the following estimate, by the editor, of the capital, &c., now employed in the cotton interest, viz.: capital invested, $80,357,130; number of spindles, 3,012,500; number of operatives employed, 101,250; bales of cotton consumed, 480,000; yards of cloth produced, 756,000,000, or 37½ to each individual. This estimate may be too large, and for the purpose of my argument I will adopt the estimate of Leonard.

The amount of capital now invested in the woollen manufacture is $30,000,000, as estimated by Samuel Lawrence, Esq., of Lowell, one of the most intelligent manufacturers in the Union. The value of manufactured goods, persons employed, &c., probably bear very near the same ratio to the capital as in 1840.

The iron interest, particularly in Pennsylvania, has made still greater strides. In 1840, the capital employed in iron mining in the whole Union was $20,190,758; quantity produced in tons, 484,136; persons employed, 30,497. In Pennsylvania, the amount of capital invested was $7,781,471; quantity of all kinds of iron produced, 185,639 tons; persons employed, 11,522. In 1847, according to Mr. Childs, the able Editor of "The Philadelphia Commercial List," as quoted in "The Merchants' Magazine," vol. 16, pages 525–527, the capital invested in Pennsylvania was $20,190,758; number of persons employed, not stated; number of tons produced was 368,056, the value of which was $23,923,640. Thus, in 1847, did the iron interest in Pennsylvania nearly equal in amount of capital, &c., that interest in the whole Union in 1840. The capital invested in the whole Union in the manufacture of iron in 1848 is probably about $40,000,000.

Omitting much of detail, which will too greatly encumber my article, I come now to the present value of the manufactures and products of these three interests.

Assuming, according to Leonard's estimate, the capital invested in the cotton manufacture to be $67,000,000, the value produced, bearing the same proportion to the capital as in 1840, would be not far from $57,500,000. The value of cotton goods imported in 1847, after deducting the amount exported, was $11,210,348; thus showing that the production of cotton goods in this country falls about one-fifth short of the consumption; and therefore the manufacture of cotton must be increased in that proportion to equal the consumption.

As before stated, the capital now invested in the woollen manufacture is $30,000,000. Estimating the production in the same ratio to the capital as in 1840, it will amount to $40,000,000. The value of woollen goods imported in 1847, was $10,665,875; thus showing that, in order to equal the consumption, the capital and production of this branch of manufactures will only have to be increased one-fifth.

The quantity of iron now produced annually in the United States is, probably, about 800,000 tons; worth $40,000,000. The quantity imported in 1847 was 85,344 tons, at a cost of $3,581,514. In 1845, the last year of the tariff of 1842, the quantity was 102,721 tons, valued at $3,189,936. It appears, then, that in order to supply the consumption of the country, it will be necessary to increase the production of iron not quite one-eighth of the present quantity produced.

Increasing the number of operatives, or laborers, in all these three interests, in the same ratio of the capital invested, as in 1840, let us see how much more of the products of the plough these interests will demand. As it is not necessary to be precise in order to illustrate the absurdity of Mr. Skinner's scheme, I will assume the present number of operatives in the cotton manufacture at 100,000, or 28,000 more than were employed in 1840; in the woollen interest 50,000, or 18,700 more than was employed in 1840; in the iron interest 50,500, or 20,000 more than was employed in 1840—making, in the aggregate, 66,700 more operatives and laborers than were employed in these three interests in 1840. Yet, as the production at present in all those interests—two of them at least—falls short of the consumption about one-fifth, it will be necessary to add 40,000 more operatives and laborers to the number, and then we shall have a sufficient force, with the corresponding increase of machinery, to manufacture just cloth and iron enough for the consumption of the whole country.

In England, it is estimated that there are three and a half persons dependent on each person engaged in manufactures. But, to be liberal, I will suppose that these 40,000 persons to be added to the manufacturing and mining interests, bring with them four dependent persons, or 160,000; making in all 200,000 persons abstracted from the agricultural interest, who, instead of being producers, become the consumers of the products of that interest. Will they be sufficient to consume the surplus grain of the agriculturists, saying nothing of the cotton, &c.?

Let us see. In England and France, from five to seven bushels of wheat are allowed for the consumption of each person per annum. But, to make my calculation most favorable to Mr. Skinner's theory, I will allow 10 bushels of wheat and 10 of corn, which is twice as much as can be eaten by one person; making, in the whole, 2,000,000 bushels of wheat and the same amount of corn which they will consume of the products of the farmer. Thus, after equalling the supply of manufactures and iron to the demand, the farmers have still some 30,000,000 bushels of wheat and 100,000,000 of corn for which to provide a market. Now, what shall be done?

In order to supply this market, will Mr. Skinner go on transferring men and capital from the farming to the manufacturing and mining interests? If he should do so, he would compel his manufacturers and iron-masters to exceed the demands of the plough interest, and compel *them* to go abroad in search of a market for their fabrics and iron bars.

The whole immense cotton manufacture of England employs only about 377,000 operatives, with 1,900,000 dependents, including themselves; and the value of cotton goods annually exported by England to other countries is about $112,000,000. The woollen and iron interests do not employ half of that number of persons. And yet, *if the whole cotton, woollen, and iron interests of England were transported to this country, they could not consume the surplus grain and provisions produced by the American farmers.*

But, according to his theory, Mr. Skinner is bound to balance the production and consumption of all these interests, and all other interests. He is bound to so increase the manufacturing and iron interests as will enable them to consume all the surplus products of the farmer, and, at the same time, save them from the necessity of going abroad for a market for their surplus fabrics and commodities. This I have shown to be an utter impossibility—a mere chimera of the brain—a most palpable absurdity.

But, according to his theory, nobody is to be compelled to go abroad in order to exchange the surplus products of his labor with the foreigner for the products of the labor of the latter. Now, what will he do with the cotton planter, to say nothing of the rice and tobacco planters? The cotton planter produces 1,000,000,000 pounds of cotton each year, of which the American manufacturer consumes but 180,000,000 pounds, compelling him to seek a market in foreign countries for the other 720,000,000 pounds. Ought not Mr. Skinner's plan to remedy this? Let us see how much he must increase the capital, and the number of operatives of the loom, in order to do it. Without going into details, my calculations require a capital of $372,600,000; value produced, at least $350,000,000; about 14,500,000 spindles; 526,000 operatives, with about 2,600,000 dependents, including themselves, who would consume only 26,000,000 bushels of wheat, still leaving a surplus in the hands of the farmer, supposing the surplus to be great as now. It would

produce 4,000,000,000 yards, and clothe 100,000,000 of people, allowing 40 yards to each person. What, then, would become of the poor manufacturers? Why, they would have to seek a market for their surplus productions in every land and clime, and among people of every race, color, and name.

In these calculations, I have supposed the agricultural interest to remain stationary. That, however, would not be the fact. It would continue to increase; and with the immense facilities in this country, it will for many generations yet to come far outstrip all possible increase of the manufacturing interests. The process of checking the productions of the plough, which Mr. Skinner would have Congress adopt, is idle and preposterous. The transfer of every million of capital from agriculture to manufactures, would take with it but about eight thousand persons able to be producers. And, as but about $20,000,000 capital are wanted to equal the supply of manufactured fabrics to the demand, it would be but a drop from the bucket. It would hardly exert a sensible effect upon the interests of agriculture. Mr. Skinner forgets that the great business of manufacture *is done by machinery.* It is the steam-engine, the power-loom, and the spinning-jenny, that perform nearly all the work in the business of manufacture. A few men and women comparatively are required to look on and watch them. And in this fact will that worthy and respectable gentleman find an insuperable obstacle to his plausible but shallow scheme.

But I will not pursue the subject further, although I have an impregnable array of facts to bear upon it. The truth is, Mr. Skinner's scheme, when analyzed and stripped of its typical meaning and reduced to mere matter of fact, is the most absurd and grotesque that was ever proposed by any man in a sane state of mind. It involves not only a violation of all sound maxims of political economy, but it boldly contravenes the laws and the intentions of Providence, who has decreed that one nation shall produce a surplus of products peculiar to its climate, soil, and habits, to sell to other nations;—in short, *that nation shall trade with nation and be civilized.* Labor, which was ordained by God, is the parent of commerce; and commerce, next to the Christian religion, is the great agent of civilization.

Since Mr. Skinner has made his publication the mere vehicle of arguments in favor of a protective tariff, and so far political, he cannot expect that it will be countenanced and sustained by the great body of agriculturists who differ from him in opinion. He will more appropriately look, as he doubtless does, to the manufacturers and iron-masters for support.

COMMON SENSE.

The writer of this article has evidently been disposed to make himself merry at our expense. He thinks the doctrine that the loom and the anvil should take their places by the side of the plough and the harrow, carries "absurdity" on its face, and he proves its "impossibility" by facts that neither we "nor any one else can gainsay." There is, however, an old proverb that says "those who win may laugh," and to which we would beg to call his attention. We will examine his "facts," and having done so, will be disposed to permit himself to determine which is the winning side.

The great object we would attain, in his view, is that of rendering the business of agriculture so POOR, and the manufacturing and mining business so GOOD, as to compel a transfer of men and capital from the former to the latter, and such must, he thinks, be the uniform and constant result of protection to the farmer and planter in their efforts to seduce the consumers of food and converters of cotton and wool to come and take their places by their side. If this be so, it must produce impoverishment of the nation, while it enriches only "a few lordly proprietors." If it be so, it must produce a diminished power to consume cloth and iron, for it is obvious that no increase in the consumption of these few "lordly proprietors" can make amends for a diminution in that of the people at large. How far this was the result of the tariff of 1842, we may now gather from his own facts, which we shall not pretend to "gainsay."

The value of cotton goods produced in 1840, as given by him, is stated at $46,000,000. That of 1847 at $57,500,000. This, however, is but one way of stating facts, and the very one that shuts out of view the advantage derived from the domestic production of these goods, viz.: the reduction

of cost, and increased facility of purchase by the consumer. The quantity of cotton consumed in 1840, was under 300,000 bales. In 1847, it rose to 607,000 bales, being more than double the quantity, while the population had grown only 25 per cent. Of this increase, nearly the whole had taken place subsequently to the passage of the tariff of 1842, which found half the cotton mills in the country in a state of ruin, because of the diminished power to consume cloth, consequent upon the free trade system of 1840–1841. Three-fourths of the people of the Union are agriculturists. Now, if the tariff of 1842 had tended to render them "so poor," how is it that they were enabled to consume so much cloth? If the free trade system of 1840 and 1841 had rendered them "so rich," how was it that they could consume so very little of either domestic or foreign cloth as they did in 1842?

The value of woollen manufactures produced in 1840 is given at $21,000,000. That of 1847 at $40,000,000. Here is an admission that the power of consumption had doubled, and it is short of the truth. It is well known that the whole increase in production took place subsequent to 1842, during which period the population had not increased twenty per cent. Now, if the protective system rendered the people "so poor," how is it that they were enabled to consume so much, and why was it that they consumed so little under the free trade system in 1842?

The iron produced in 1840 is stated at 484,000 tons. In 1842 it had fallen far below 400,000 tons, for half the furnaces of the Union were closed. In 1847 it had risen, as is here stated, to 800,000 tons. The power of consumption had more than doubled in five years, under a system that, according to this semi-official statement of the views of the late occupant of the Treasury, tended to render the great mass of the people "so poor" that they would be compelled to seek employment in manufacturing or mining, to obtain even the necessaries of life. We pray our friend "Common Sense" to enlighten us on this point, for it is one of great interest. We should be glad would he inform us why it was that the power of consumption under the free trade system fell so low that nearly all the mills and furnaces of the Union were closed, and that the farmers cut the throats of half their sheep; and why it was that under the ruinous protective system, described by the Secretary as "a war upon labor and capital," the power of consumption grew so rapidly that the people were enabled to purchase twice as much cloth and iron, per head, in 1847, as they could do in 1842? Here are his own "facts," that we do not pretend to "gainsay." All that we desire is that he shall account for them in accordance with his theory.

To bring the home production of cottons, woollens, and iron, up to the present consumption, would, in accordance with the "facts" here given, require that we increased the first two by one-fifth, and the last by one-eighth, requiring 40,000 laborers, and allowing each to have four dependents, we should thus obtain 200,000 persons, whose demand for "the products of the farmer" would be 2,000,000 bushels of wheat, and as much of corn, and this, the writer thinks, is putting every thing in "the most favorable light" for our theory. That done, the farmers will "have still some 30,000,000 of bushels of wheat, and 100,000,000 of bushels of corn for which to provide a market." "What now shall be done?" says "Common Sense." We will tell him. Forget his theory, and try to obtain a little practical knowledge.

A similar calculator, writing in the summer of 1842, would have said, the number of operatives employed in the cotton manufacture is 72,000; in that of woollens, 30,000; and in that of iron, 30,000, making a total of 132,000. We import now one-fourth of our cloth and iron. If we make it all at home, it will require 33,000 additional operatives, and allowing each of them to

have four dependents, the result will be that there will be made a market for "the products of the farmer" to the extent of 165,000 mouths, requiring 3,300,000 bushels, and that in the endeavor to obtain this miserable substitute he will sacrifice his connection with "the great grain markets of the world."

Let us now see what are the "facts." The consumption of cotton and woollen cloth, and iron, in 1847, was twice as much per head as in 1842, and the amount cannot have been short of 250,000,000 if not 300,000,000 of dollars. Taking the former amount, we have an additional consumption of 125,000,000. Let us now see what it was that was consumed. The farmer fed the men who mined the coal and ore, those who converted the ore into iron, and those again who converted the iron into bars, and axes, and spades, and hoes, and ploughs. He fed the men who built the mills and furnaces, and the houses for the workmen, and those who made the machinery. He fed the men and women, and children, who converted the cotton and the wool into cloth. He furnished the cotton and the wool to make the cloth. He furnished the stone and the timber with which the mills were built. The land and its owner furnished EVERY THING towards the production of these $125,000,000, and thus was made a market on the land for the products of the land, enabling the farmer to return to the great machine the refuse of its products, and to increase its production, with constantly increasing power to consume the necessaries, conveniences, and luxuries of life, while accumulating with increased rapidity the machinery necessary for a future further increase of production. Here are the "facts" presented to our view on a retrospect of the past. Can "Common Sense" "gainsay" them? If not, can he make them square with his theory?

Following out the theory that each person engaged in mining or manufactures, or dependent upon persons so engaged, is a customer to the farmer to the extent of only 20 bushels, we are told, and that in a manner the most emphatic, that "if the whole cotton, and woollen, and iron interests of England were transported to this country, they could not consume the surplus grain and provisions produced by the American farmers." This is certainly a strange assertion, coming as it does from a man that insists upon our looking to England for a market for our great and constantly increasing surplus! We will not imitate him in calling it "a chimera of the brain —a most palpable absurdity," because we believe that such words are used only in the absence of the reasoning power, but will leave its author to decide upon its claims for consideration after it shall have been examined.

The export of Great Britain may be taken at about 50,000,000 of pounds sterling, consisting almost entirely of cotton, woollens, and iron. The home consumption is far greater than the export, but to avoid the possibility of having our assertions challenged, we will put the whole product of cottons, woollens, and iron, at 100,000,000 of pounds sterling, or $480,000,000. Deducting the cotton and the wool that are imported, we may put it at $400,000,000, but we should be safe in placing it far higher, and all this consists of the products of the earth, and mainly of food, yet the transfer of all these vast interests, as we are told, would not be sufficient to find consumers for our vast surplus! If this be true, how is it that we do now dispose of it? Our export to all the world is not one-twentieth of what is consumed in England by these three great interests, and yet a small extra demand, like that of 1847, empties our granaries!

The farmers of England pay a rent of $100,000,000, and they and those whom they employ must expend far more in the purchase of sugar, tea, and other important articles of food, of clothing, furniture, and machinery of production, and for all this they must sell the products of the earth—food

and the materials of clothing—to be consumed by those who are not engaged in the work of cultivation. In addition, England imports thirty or forty millions of dollars' worth of food from Ireland—and much from Scotland, Canada, the United States, Poland, Russia, and even India. All this is to be consumed by those who are not engaged in the work of cultivation, the men who *convert* the products of the earth, and those who are engaged in the business of *exchanging* them. The converters are at least four times as numerous as the exchangers, and must consume in that proportion this vast amount of the products of the earth. These converters are the men who make cotton and woollen cloth, and iron—those who constitute the three great interests whose powers of consumption "Common Sense" would have us so much despise.

Admitting it, however, to be a "fact" not to be "gainsaid," that if our farmers could have the supplying the whole of these millions of men, and women, and children, employed in producing the cloth and iron of England, we should still have a surplus, is it not absurd to be perpetually straining for a chance of feeding a very minute portion of them, and that in competition with the serfs of Russia and the wretched people of Sicily, who must sell at any price, having made no market on the land for its products, and who now obtain in the market of Liverpool but one dollar per bushel of 60 pounds, a large portion of which is swallowed up in the cost of transportation from the farm to the port of shipment, from that port to Liverpool, and in commissions to the hosts of men in the various towns and cities, who live upon the spoils of the unfortunate producer? If our surplus is really so great, is it not obvious that we have too many producers and too few consumers? Would not "common sense" teach us that the system which enables men to remain at home to be customers to the farmer, instead of flying to the West, there to become his rivals, is the one which would most advance the agricultural interest? Really, it is time that men who undertake to teach the world in regard to these great questions, should commence with some little—even if it be a very little—practical knowledge.

It is insisted, however, that "nation must trade with nation," to become "civilized." We might reply by pointing to Ireland. Her poor potato-growers trade off their whole product, except the wretched thing called *the lumper*—which is preferred because not easily digested—but we do not see that they become more civilized. They do not even keep the pig, but the more they trade the poorer and more miserable they become. Where is the civilization of India?—of Portugal?—of the West Indies? Has commerce—that which is facetiously called free trade—given them civilization? Does Canada advance in civilization? New Brunswick has perfect freedom of trade, yet every vessel that comes thence is crowded with passengers who flee from it as if from pestilence, *to seek protection*, even that which is afforded by the tariff of 1846.* Nova Scotia has perfect freedom of trade,

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* *Canadian Emigration to the States.*—The Western journals inform us that numbers of Canadians who have been warmly in favor of the annexation of Canada to the Union, are taking passage on board of steamboats, with all their property and families, for Wisconsin and other States. The St. John (N. B.) News speaks to the same effect, of emigration from New Brunswick, and it is apprehended by the Provincial papers, that unless something be done, the provinces will become comparatively deserted in less than twelve months.—*North American.*

Distress.—Accounts of distress and destitution reach us from all parts of the country. We have heard the names of several parties mentioned, who, to save their children from starvation, were compelled to kill their domestic animals, and many families have been subsisting for some time on the fish they catch in the rivers. The principal cause of this distress has been the repeated failures in the wheat and potato crops; and as there has

yet men starve to death surrounded by fertile land, and coal and ore,—that should make them rich. Can "Common Sense" explain all these things in accordance with his theory?

Of all the countries of Continental Europe, there is none so prosperous as Belgium. Around her, everywhere, are wars and bloodshed, revolution, poverty, wretchedness, and death. She alone is so quiet that, month after month, her name is unmentioned in the newspapers. Her population increases rapidly, and yet she sends us none of it. Why is it so? Is it not because she has protected the farmer in his efforts to draw the consumer to his side, and enabled him to convert sandy wastes into cultivated farms of the highest fertility? Is it not that she has thereby enabled man to trade freely with his neighbor man? It is so, and in thus doing she favors the advance of civilization far more than do those who insist that "nation shall trade with nation," advocating a policy that compels men to fly from their fellow men, abandoning the vicinity of rich lands, uncleared and undrained, to seek the West, there to commence the work of cultivation on poor ones, as is the case to so great an extent with the people of Virginia and South Carolina.

It is not, however, true, that protection diminishes the power to *maintain* commerce. The trade of unprotected Ireland, and Canada, and New Brunswick, and the West Indies, and India, is diminishing, because the system has tended to the exhaustion of the land and the people. That of the Union did so in 1840, 1841, and 1842, for the same reason. With protection, foreign commerce grew, and with it it will continue to grow, because men who are enabled to combine their exertions produce largely, and the power of consumption grows with that of production.

We have, however, given to this "masterly view of the question" more consideration than it merited, and will now close. It came before the world preceded by a flourish of official trumpets, and therefore alone it is that we have given it any. In conclusion, we would suggest to its author that if he would study what it is that "common sense" prompts men most to desire, he will find that it is the power of associating with their fellow men. If, then, he will study his own system, he will find that it tends to compel men to separate from each other, and thus to do precisely that which "common sense" would teach them to avoid. To the editor of "The Union" we would suggest that as we have given place to his attack upon us, he should imitate our example, and enable his readers, too, to "hear both sides."

Drum-head Cabbage.—Mr. Fuller, M. P. informed the Council that he had for the last two years grown the drum-head cabbage from seed obtained by him from Messrs. Thomas Gibbs & Co., the Seedsmen to the Society. His bailiff had last year a very fine crop of forty tons per acre of this plant, which he thinks a very valuable one, and economical in its cultivation. He gives these cabbages to the cows, calves, and ewes, as well as to the lambs of last year, and finds all do well on them. The land on which they were sown was very poor land, covered with heath and furze, but which, by well draining and subsoiling, had produced very excellent turnips, carrots, and the drum-head cabbages now referred to; while on a part of it last year was grown the finest crop of peas in that part of Sussex, subsequently damaged, however, before carrying, by the wetness of the autumn.—*English Paper.*

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been but little employment during the winter, the inhabitants in the rural districts have been thrown for support on the produce of their farms, which they had considered but of little consequence whether they were tilled or not.—*Miramichi (Canada) Gleaner.*

These poor people have no manufactures, and therefore they are unable to consume on the land the products of the land, which becomes at last exhausted, and that is followed by the exhaustion and death of its owner.

THE COMMISSIONER OF PATENTS.

Washington, April 12, 1849

MESSRS. J. S. SKINNER & SON—GENTLEMEN:—In your prefatory remarks to a table headed "Agricultural Statistics," published in "The Plough, the Loom, and the Anvil" for April, instant, I find the following:—

"True it is, that some of our readers who may happen to be so favored by their Representatives in Congress as to receive the Report of the Commissioner of Patents, may get many tables like this, which serve to make up those Reports; but if they chance should, they will probably receive along with them, AS HERETOFORE, *an exhortation to submit themselves to the low wages and the low living* that may enable them to compete in the grain markets of the world with the produce of the slave and the pauper labor of Europe."

The character given, in the paragraph above quoted, to the Reports of the Patent Office since I have been Commissioner, is an utter misrepresentation. Not a report of mine contains a single "exhortation," expressed or implied, to the farmers of this country to submit themselves to "the low wages and the low living," to enable them to compete with "the slave and the pauper labor," of Europe. And how you could have fallen into so gross an error with regard to the Reports of the Patent Office I cannot imagine, unless you have a disposition to judge of the character of those Reports without first availing yourselves of a knowledge of their contents.

I should not indulge in this strain of remark, if I had not before observed a disposition on your part to misrepresent in your journal the true character of the Patent Office Reports.

Whatever may be my individual views with regard to the subject of free trade, or protection, I have, in my Official Reports, carefully and scrupulously avoided any expression or argument in favor of one or the other. I have given facts only in relation to the great industrial interests of the country, from which all can draw conclusions; and from which conclusions have been drawn in favor of both theories, by their respective advocates.

This assertion, I am confident, the most rigid and scrutinizing examination of my reports of which you are capable, will not enable you to gainsay. I therefore call upon you, as an act of justice, to publish this letter in "The Plough, the Loom, and the Anvil," in order that its readers may see that your statements with regard to the character of the Patent Office Reports, are wholly groundless and erroneous.

I am, respectfully, your obedient servant, EDMUND BURKE.

To the Hon. Edmund Burke, Commissioner of Patents, Washington.

SIR:—Your communication of April 12, was received on the return of the Senior Editor to this place, to arrange the matter for the June number of "The Plough, the Loom, and the Anvil." The whole of the *May* number, as you will perceive by the enclosed last page of it, was then already in type, compelling us to postpone the publication of your letter until June; and leaving nothing to be done to meet your wishes for the present, except to put forth on the cover of the May number, the statement, of which we herewith send a copy. In the haste of sending them to the printer, the introduction to the tables was not properly worded, as we shall admit, but we utterly disclaim the "disposition" you have allowed yourself to impute to us, to misrepresent your Reports, in which we have found, from time to time, many statistical facts of much importance to every political inquirer. Yet we are far from agreeing with you "in the conclusion that the American grain growers can deliver grain or flour at as low a price in England as the

grain growers of any other country, not excepting Russia on the Black Sea; and that they have it in their power to command the great grain market of Great Britain, and of nearly all the corn-importing countries of the world." This you believe the grain growers of the United States can do, and therefore it may be implied you would exhort or advise them to attempt it; while we believe they cannot, without, in our judgment, (as we should have stated,) submitting themselves to the low wages and low living of the serfs with whom you think they may successfully contend—nor do we think they could even then. Our opinion is, that it were better not thus to lead the American grain grower to depend on the great grain market of Great Britain, but to prompt him rather to the cultivation of the more reliable home-market, by bringing to the side of the American agriculturist the consumers of that immense amount of agricultural produce now imported into the United States from England, and through her from Russia on the Black Sea, in the form of British manufactures. Your opinions, to the contrary, are as honestly entertained as ours, and may be more correct; but, for ourselves, we would ask with General Jackson, in his letter to Dr. Coleman: "Where has the American farmer a market for his surplus product? Except for cotton, he has neither a foreign nor a home market. Does not this clearly prove, where there is neither a market at home nor abroad, that there is too much labor employed in agriculture, and that the channels for labor should be multiplied? Common sense points out at once the remedy—Draw from agriculture this superabundant labor, employ it in mechanism and manufactures, thereby creating a home market for your breadstuffs, and distributing labor to the most profitable account, and benefits to the country will result. Take from agriculture in the United States, six hundred thousand men, women, and children, and you will at once give a home market for more breadstuffs than all Europe now furnishes. In short, sir, we have been too long subject to the *policy of the British merchants*. It is time that we should become a little more *Americanized;* and instead of feeding the paupers and laborers of England, feed our own, or else, in a short time, by continuing our present policy, we shall all be rendered paupers ourselves."

After all, sir, it is a question for the American people to decide; and in our humble sphere we are endeavoring to persuade them to regard it not as a *party*, but as a broad *national* question; and this free discussion and the force of truth seem to have already in a great degree accomplished, as is seen in the fact that even the tariff of 1846 is asserted by its friends to be a designedly protective one, leaving it now to be decided as a question of amount and not of principle—and on this surely men may judge for themselves, without the aid of mere partisans.

Not doubting that we are all equally aiming at what we suppose to be best for our country, and assuring you of our readiness to correct any misapprehension or misrepresentation of your views, we remain,

Respectfully yours, J. S. Skinner & Son.

Portable Railway.—Dr. Spurgin favored the Council with the inspection of a model for a rotary railway, on the principle of the simple roller, for use in farms, docks, warehouses, and other places where heavy weights were to be conveyed short distances without the aid of horse-power; as manure from yards, corn from stack-yards, timber from woods, turnips or mangold-wurtzel from flat heavy land. He considered that this mode of conveying would prove fully efficient in its action; combining great simplicity with ready adaptability for the purposes required, at a cost not exceeding £10.—*English Paper.*

HIDE TRADE OF THE WEST.

"A LOT of one thousand green hides was received at St. Louis on the 4th instant, from Alton, to be shipped direct for the Eastern cities. The Republican says:—'A large business is now being done in the articles of dry flint and green salted hides, and St. Louis bids fair to become the greatest market for this article of any city in the Union. Already she exports more than any city in the West.'"

The people of the West raise oxen on lands that are surrounded by timber, and where bark should be cheap. Instead of tanning the hides themselves, they send it East, to places where bark is dear, and receive pay in shoes, and saddles, and harness, produced by aid of bark that has travelled hundreds of miles to seek the tan-yard. Could they once adopt, definitively, the policy that tends to bring the loom and the anvil to their sides, the tannery and the shoe factory would speedily follow, and they would have cheap shoes and saddles, as well as cheap cloth and iron. If evidence of this be desired, it may be found in the following paragraph which we take from one of our exchange papers:—

"A new enterprise, similar to the Variety Works at Columbus, Ga., is about to be established in our city. Our fellow-citizen, Mr. John Glendenning, in conjunction with Mr. Lockhart, of Lincoln county, has taken steps to put up a building near the site of the Old Planters' Hotel, where every variety of wood-ware, such as barrels, casks, kegs, pails, tubs, and buckets, is to be manufactured on a large scale. The steam-engine to be used is already here, and the building—a large three story brick building—contracted for. In a few months this manufactory will be under way, and probably in full operation.

"In connection with the wooden ware factory will be machinery for cutting and polishing marble—a branch of business in which Mr. Glendenning is already profitably engaged. We hope in time to see Georgia marble freely used in this Georgia factory, for various objects of use and ornament."—*Augusta Sentinel.*

Of all the States of the South, Georgia is the one that progresses most rapidly, because of all she has most endeavored to bring the spindle and the loom—the spinner and the weaver—to the side of the cotton and the food. With each step in this progress there arises an increased demand for shoes and saddles, for wooden ware, and for all other of the various commodities requiring hides and bark, and timber and food, for their production. The tanner and the shoemaker come, and they make a market for the products of the spinner and the weaver. They, in turn, help to make a market for the products of the bucket-maker, and all combine to give to the planter a market for his cotton and his food, enabling him to increase his consumption of shoes and saddles, buckets, cloth, and iron. Concentration makes the food come from the rich soils, and prevents the necessity for flying to the West, there to produce food or cotton from the poor ones, on which the work of cultivation must of necessity always begin, for want of capital to clear the rich ones.

Extraordinary Cotton Picking.—The N. O. Delta says, by a letter received from a friend at Tuscaloosa, Ala., we learn that on a plantation in Long Prairie, near the former place, the extraordinary amount of 3277 lbs. was picked in one day, (15th of October last.) by five field hands. However extraordinary the feat may appear, it is nevertheless true, as it comes to us so well authenticated that we have no reason to doubt its correctness. The following are the names of the slaves, with the amount of cotton picked by each:—T. R. McClintock's boy Sam, 712 lbs.; boy Bill, 667 lbs.; John Cockrel's boy Frank, 661 lbs.; F. Herndon's girl Violet, 665 lbs.; and W. H. Barmester's boy Peter, 572 lbs.; making in all 3277 lbs.

JOHN SINGLETON.

The April No. of "The Plough, the Loom, and the Anvil" contains an extract from a letter from the venerable man whose name is prefixed, with some very significant preliminary remarks of the Editor, which no one better knows how to employ, when he wishes to elicit information. The life of a man exclusively devoted to agricultural pursuits, presents but little to interest the general reader; but, nevertheless, one who has done so much for the advancement of that great interest, which occupies the time and labor of the great majority of the people of this country, merits respectful consideration, and to have his name rescued from the shade of oblivion.

This gentleman was born in Whitehaven, England, on the 28th of December, 1750, and received his elementary education at St. Bees. In April, 1766, he went to London, to his uncle, Thomas Dickinson, with whom he remained till May, 1767, when he took his departure for New York, and arrived in July of the same year. He then entered the counting-house of Henry White, with whom he remained till the last of June, 1770, when, upon the invitation of his maternal uncle, James Dickinson, he came to Maryland, and arrived in Talbot County on the 1st of July, 1770. It appears that in 1772 he made a voyage to Madeira, for the benefit of his health, and on his return entered into partnership with Andrew Main, and settled at Dover. This partnership was of a mixed character—mercantile and agricultural—but of short duration: for in 1773 he returned to his uncle, and lived with him. The following year he was married, (1774,) and managed his uncle's affairs, who was an old and childless man. In 1776 he settled at East Otwell, one of the farms of the aforesaid uncle, where he remained exclusively devoted to agricultural pursuits till the day of his death, which occurred on the 15th of March, 1819. It is a fortunate circumstance for the Eastern Shore of Maryland, that the destination of this gentleman was changed from that of a merchant to a farmer. The burning of Mr. Singleton's residence, some years ago, posterior, however, to his death, occasioned the loss of many records. Upon the death of Mr. Dickinson, the nephew became his sole heir, and, perhaps, the fine herd of cattle which the latter had, may be justly attributed to an importation of some half dozen cows, which was made very shortly before the death of the uncle.

Perhaps no man was ever more enthusiastically devoted to agricultural pursuits than the subject of this memoir. No matter what he undertook, his energy and perseverance were indomitable. He was for a large portion of his life a keen sportsman, the best shot at ducks in the country, but was never fond of the sports of the field. Mr. Singleton's landed estate was neither large nor particularly valuable—certainly inferior to other lands in his vicinity. It consisted of two farms, not adjoining, containing some nine hundred acres. It is conceded that he was the first great improver of land in Maryland: how fortunate, therefore, that his destination was changed!

The writer of this imperfect sketch well knows that he was the first man who ever covered a field with manure in this section of country: not a patch—not a lot—but one hundred acres of land. This was done for years, before others waked up, and saw the necessity and advantage of the operation. The country had been impoverished by the cultivation of tobacco; the little manure made had been exclusively applied to that crop. But little light was shed on agriculture for years after his labors commenced, and not much at the close; but of that little he availed himself. When his first experiments were made with marl, and for some years thereafter, he was literally laughed at by many—supposing that nothing could improve land that had not the odor of the farm-yard or stable. The value of calcareous

manures was neither known nor appreciated, and like the introduction of gypsum into Pennsylvania—it was by little and little. It may be safely affirmed, that but for the discovery and application of marl, this section of country would have been depopulated—many thought of moving out to the rich lands of the West—of abandoning a country abounding in calcareous manures, and possessing natural canals, where the waters themselves furnished large means for subsistence, and many of the luxuries of life. The means of renovation were present on a large portion of the lands, and this great pioneer of agriculture had demonstrated successfully the mode of application, and the unfailing result. There is now not one cultivator in these parts, even the most ignorant, who does not know the value of calcareous manures—and that it is literally a *sine qua non*.

The baysider of Talbot, who has no marl, catches the oysters off the bars, and converts the shells into lime, by burning them in kilns; and they who live removed from salt water, and possess not this resource, purchase stone-lime, which is delivered from vessels up the creeks and tributaries of the Bay—and then in many cases hauled for miles to the place of deposit.

Mr. Singleton was an experimental farmer. Science had done but little to enlighten his path; and his untiring industry led him to embark in many trials, unthought-of and untouched by others, for the advancement of agriculture. He was asked by a neighbor, above thirty years ago, if he did not intend to get some Lawler wheat for seed, because it was regarded as proof against the "fly." He replied in the negative—"You young men may try it: I want faith." He then proceeded to state that many years before, when the ravages of the fly were at their maximum height, he had procured twelve different varieties of wheat, and among the number, one had a solid stem: they were all seeded in adjacent rows, and under like circumstances, and *were all affected!* He gave it as his opinion, that no variety of wheat was exempt from the ravages of the "Hessian;" and it may be well questioned whether any of the present day ever made more experiments as to the different kinds, time of seeding, mode of preparation, and every thing calculated to avert this dread evil, which so often blasts the hopes of the husbandman.

Man is made, by the situation in which he is placed; and he who makes a discovery, and successfully carries it into practice, not only benefiting himself, but the community in which he resides, richly deserves to have his name handed down to posterity as a benefactor. If ever any individual, in the calm pursuits of private life, deserved a monument to be erected to his memory, John Singleton was the man. Much has been said latterly, of the importance of keeping farm accounts, and a statement of every operation performed on the farm. It is well known to the undersigned, that this gentleman kept a regular diary all his life, in which was recorded every thing that pertained to the farm—the number of loads hauled of every description—the times of seeding, quantity per acre, amount of product—the various experiments made, with all the details—and even the winds were noted, and all the changes of weather. Few men possess the patience, and energy, and industry, necessary to carry out such a system. Many of these diaries were saved from the conflagration, and give ample proof of the merits of the man. Perhaps the early initiation into the counting-house, and the few years spent therein, may have paved the way for such practice.

Chief Justice Tilghman, of Pennsylvania, cultivated his patrimonial lands in Maryland, till the day of his death. They were situated in Queen Anne's County, near the head of Chester River. Such were his official duties, that the venerable judge could only pay an annual visit. Having directed the clearing up of an extensive piece of meadow, a fine supply of marl was

discovered—hence his letter to Mr. Singleton, with whom he was acquainted, as to the mode of application, well knowing his ability to supply the desired information.

The reply to the various interrogatories was written under the most disadvantageous circumstances. It so happened that the undersigned went to his house a day or two after the aforesaid letter was despatched. He was so feeble from age and disease, and his hand so tremulous, that he could not write a line: he dictated the answer to the judge's interrogatories, and a young daughter committed it to paper. Most persons, under such circumstances, would have declined the task; and surely he had an ample excuse: but such was the character of the man, his disposition to be useful, and the remnant of that energy and perseverance which so eminently distinguished him, prompted the effort, doubtless among the last, of a life as pure as that of any man who ever lived.

It would be vain to attempt an account of his agricultural proceedings: the writer of this has seen, at an early age, his immense compost-heaps, for years before any such things were observed on any other farm; also his applications of marl: all men now know their value, and profit by his example. As to his mode of cultivation, it may be remarked, that after making fallows in every form, and after all the modes that ever have been suggested or practised, he came to the conclusion, some years before his death, and practised accordingly, that all the land intended for cultivation in any form, should be manured and ploughed in the spring—that what was designed for wheat, should be previously planted and cultivated in corn—alleging that no one crop of wheat, however prepared, was equal to a crop of corn and wheat on the same field—that the cultivation of corn was a good preparation for wheat—that summer fallows were injurious to land, filling it with filth, because most noxious weeds have then gone to seed, and are thereby multiplied in a ten-fold degree. His practice was to take the corn, stalk and all, off the field, and then seed the wheat, and *plough it in.* He was the first man who ever attempted and carried out this system; but it frequently caused the wheat seeding to be too late, and hence a diminution of the crop. But it gave him a great resource for manure, and whatever else might suffer, this was always uppermost with him. He also abandoned the reap-hook at a very early period, substituting the cradle for cutting wheat of such size as was only attempted by hooks. This perhaps led him to another expedient—the horse-rake, of which he was the inventor, for gathering the scattered wheat in the stubble; and he alone used it for years. It has since become the custom of all farmers in this section of the country, to employ this saving implement.

It may be remarked that this system was adapted to what may be called emphatically a grain-growing country, and where grazing does not constitute a part—except simply for the use of the farm. His mode of preparation was to flush the land for corn, and he was especially particular about the ploughing: the drag-harrow was then passed over, the land marked out lightly four feet each way, and three or four stalks left standing in the hill. The field was worked with harrows repeatedly, and just before harvest cross-ploughed; after harvest, one or two harrowings, according to circumstances. It may be added that he sowed clover on his wheat-fields, and used plaster, which had moderate action on his land. He also grew hemp for a time, and tried many things never attempted by others.

It would be useless to pursue a further account of his farming. Nothing has been stated which was not well known to or seen by the writer. It has now been thirty years since the death of this gentleman, and agriculture, like most other things, has made great advances in that interval; but much

yet remains to be done. We live in an age of progressive improvement, and perhaps, too, at the most eventful period of the world. Few men have descended to the grave more respected or more honored than the subject of this memoir, by all his friends and neighbors. He had not an enemy. His was a life of probity, and honor, and true piety. The cheerfulness of his temper, and his fondness for company, caused his habitation to be always full. If he had a fault, it was too much generosity.

The appeal made by the Editor of "The Plough, the Loom, and the Anvil," to rescue the name of such a man from oblivion, has prompted "A Nephew," to whom such significant allusion was made, to make the attempt: conscious, nevertheless, of his inability to discharge such a duty satisfactorily; but at the same time firmly believing that such has been his position, he has a better knowledge of the life, character, and farming operations of the deceased distinguished farmer, than any other man living. Another consideration also induces the attempt: that farmers generally will be glad to know something of one who has done so much for the advancement of agriculture, at an early period, as JOHN SINGLETON. Finally, it is proper to state, that the relation which subsisted between the subject of this article and the writer was that of marriage only—not blood.

A NEPHEW.

It might look like affectation, were we to attempt to say with how much pleasure the preceding memoir is registered in "The Plough, the Loom, and the Anvil;" yet who among the many that have honored our poor effusions by their perusal, for the last thirty years, might not be summoned to testify how earnestly we have endeavored to rouse, among the cultivators of the soil, that sense of self-respect and true discrimination, that would lead them to venerate and emulate such men as JOHN SINGLETON—men of unpretending virtue, and distinguished usefulness in private life,—far above those who may have gained higher eminence and greater eclat, in the tortuous paths of the politician, the more attractive pursuits of sordid avarice, or the more popular career of the military adventurer? Who does not know, that while such men may, like a choice old tree of the orchard, perish, and leave not a stump to mark where it stood, its seeds have yet been widely scattered, and its precious fruit be thus yet for ages enjoyed by a careless and forgetful posterity! Thus it is, that while all of us now know the value of calcareous, and the indispensable necessity for other manures, the importance of fine tilth, the economy of the scythe and the horse-rake, the expediency of removing the entire crop of corn preparatory to sowing grain, the advantages of farm registers, the superiority of drill husbandry, the utility of deep ploughing, the excellence of the centre-draught-plough, the perfection of improved animals, imported at great cost, &c.: yet who stops to dwell upon and do homage to the names of Tull, Ruffin, Singleton, Moore, Pennock, McCormic, Davis, Prouty, Powell, Clay, Sanders, Reybold, Van Rensellaer, Stephenson, Corning, Prentice, Vail, and a host of others, who, as pioneers, have gone ahead in the doubtful paths of experiment, *establishing* for our guidance by so much labor of mind and body, and so many costly trials, the labor-saving implements we are using—the noble animals we are breeding—and the precepts and processes we are following with so much confidence and profit? Thanks, then, say we, in the name of all farmers true to their profession, to the "*Nephew*" who has in this instance so promptly and so well answered to our call in their name, for a memoir of one of the noblest works of God—an honest man;—a memoir the more commendable and suitable for its very simplicity and exemption from all exaggeration and hyperbole of fact and of language, and so in admirable keeping with the unostentatious and useful life and character of its subject.—*Editors P. L. & A.*

The Belgian Government, to encourage the cultivation of the silk-worm, had, by a decree, offered to all who applied to the *Minister of the Interior* slips of mulberry trees and silk-worm eggs, and as a further encouragement, has offered a premium of one florin per kil. for cocoons of silk produced in the country, and, by an arrangement with the government, M. Mevuis, at Ucles, had undertaken to purchase, at the current price of the French markets, all the cocoons produced in Belgium.

THE CORN TRADE OF EUROPE.

From the Editors of "The Plough, the Loom, and the Anvil," to the Editor of "The Easton Gazette," Maryland.

SIR:—I send you for insertion in your paper—as yours is so exclusively a grain-growing region—an article, of which the printer has just sent us a proof, intended for a forthcoming number of "The Plough, the Loom, and the Anvil," on "*The Corn Trade of Europe.*" It will at once show how *agriculture*, which some would teach the farmer has nothing to do with legislation, is most intimately connected with it, and liable to be affected by the policy of our public men, and therefore a subject proper to be studied in that relation—not as a narrow question of petty party warfare, but as one that concerns the whole nation; until the question shall be permanently settled, how far we are to cultivate and depend upon a home-market, under our own control, or upon foreign markets over which we have no control, and in which we must meet as competitors the millions of serfs belonging to the nobles of Russia—laborers liable to be sold like sheep, with the land, and who live on what is called *pumpernicle*, a sort of hard, dry, black rye bread, that might harden the flesh and improve the wind of fox-hounds in the hunting season, but is not fit for free Christian men.

We are accused of perverting our journal—"The Plough, the Loom, and the Anvil,"—to *party purposes*. Nothing can be more untrue. I have established various periodicals, which have enjoyed eminent success and prosperity; but never yet have allowed *one line* to appear in them with any view to *party ends*.

The question at present, as to protection of American industry, is no longer a question of principle—*that* has been settled. The authors of the tariff of 1846, repealing that of 1842, avowed it to be an *efficient* measure of protection. The real question, then, is not one of principle, but merely of the proper *amount* of protection. Let any respectable farmer on the Eastern Shore of Maryland pull off for a moment his party spectacles, and read the accompanying article dispassionately, and say for himself whether it is safe to depend on the grain-market of England?—or is it not better, instead of importing millions of bushels of grain from Europe in the form of British manufactures, that we should force or entice the manufacturers to come with their skill and capital—their looms and their anvils—to eat our corn and wheat, and mutton and pork, and beef and potatoes, in our own country, alongside of our own ploughs? Does any one deny that General Jackson was "an up to the hub" democrat? Yet what said *he* on this very subject? Let gentlemen read what he said, and judge *for themselves*, instead of pinning their faith ignominiously on the sleeves of party hacks, of any faction, who use the people as so many stepping-stones to power and office. General Jackson, in his letter to Dr. Coleman, of North Carolina, on this very subject of drawing the loom and the anvil close to the plough in our own country, said: "In short, Sir, we have been *too long subject to the policy of the British merchants*—it is time that we should become *a little more Americanized*, and instead of feeding the paupers and laborers of England, feed our own." Now it is for endeavoring, not merely to *assert* but to *illustrate* by all sorts of facts and arguments, the very doctrine contained and more fully explained in General Jackson's letter, that *we* are charitably denounced as being sold to the American manufacturers, or it may be "to the Dutch." Well, suppose we were so sold, body and soul, how does that *answer our arguments*—our demonstrations? To impute sinister or corrupt motives, is not the way to refute an argument. While we despise the imputation of unworthy motives, we pity the man who, without the sense or the power to discover or expose our error, has not the manly independence to renounce his own. Our aim is, not to establish any foregone conclusion, but to arrive at the truth; and therefore we rather court than shun all gentlemanlike controversy with those who think us wrong; but how can any one controvert our principles successfully, without proving that General Jackson was wrong in his great fundamental policy? The fact is, that, in the present state of the country, this is *the* great question—whether we shall place the consumer by the side of the agriculturist, by making it the interest of both that he should go there, or whether we will keep him at a distance, wasting in the superfluous and unprofitable work of transportation and exchange, the time and labor that should be given to *productive* industry, and the improvement of our lands and ourselves. Rely on it, the PEOPLE, thinking for themselves, are fast coming to agree with General Jackson and General Taylor, that we should give "*encouragement and protection*" to American industry.

[From the London Mercantile Gazette, March 23.]

COMMERCIAL affairs remain in much the same position as last week—in no branch of trade has any marked improvement occurred; indeed, each day's experience tends to prove the baneful effects of free trade on the internal industry of the country. The value of all agricultural produce continues steadily to recede, and despondency and alarm on the part of the farmers increase. Moderately good qualities of English red wheat are not worth more than 40*s.* per quarter, a price which, with so small a yield as that of the last crop, is greatly below the cost of production. There is, however, no alternative but to sell; for, depressed as quotations now are, there is nothing to encourage farmers to hold. The spring shipments from the Baltic have still to come forward, and the continued decline in our markets has not hitherto stopped consignments from France, Holland, and Belgium. Our own impression is, that, whilst importations are permitted free of duty, 40*s.* per quarter for fine red wheat will always draw abundant supplies, except in cases of general scarcity, over a large portion of Europe. The best qualities of red Baltic, French, &c., are at present worth some 4*s.* to 5*s.* per quarter more than the figure named; hence we do not calculate on any immediate falling off in the arrivals from abroad. The weather has continued favorable for spring sowing, and all descriptions of out-door work are in a state of great forwardness. The reports from the rural districts, in regard to the appearance of the wheat plant, are likewise of a satisfactory nature, and, as far as the prospects for the next harvest are concerned, every thing promises well. At some of the agricultural markets, rather increased supplies have been brought forward this week, and so soon as the sowing of Lent corn shall have been brought to a close, we may calculate on larger deliveries from the growers than we have had of late. The arrivals of wheat coastwise into London have meanwhile been very small, and but little has been brought forward at Mark-lane by land-carriage samples from the neighboring counties. The show on Monday on the Essex and Suffolk stands, was trifling in the extreme, and from the more remote parts of the kingdom hardly any appeared; factors were consequently unwilling to accept less money, and though the demand was extremely slow, previous prices were about maintained. On Wednesday the stands were completely bare, and the attendance of buyers being at the same time very thin, the operations were altogether unimportant, and quotations remained nominally unaltered. This morning affairs continued in much the same position, and prices underwent no change. The arrivals of wheat from abroad have been on a very liberal scale, 31,440 quarters having come to hand during the week. Importers have shown a good deal of anxiety to realize, without incurring landing expenses; and whilst the value of English wheat has remained nearly stationary, that of foreign has undergone a further reduction of 1*s.* per quarter. Most of the business done on Monday was at that abatement, and since then the turn has, on the whole, been in favor of the purchaser. To-day, common Odessa was obtainable at 38*s.* to 39*s.*, and good at 40*s.* to 42*s.* per quarter. The town millers put down the nominal top price of flour 2*s.* per sack, on Monday, which had more or less influence on the value of other sorts. The decline submitted to has, however, failed to impart more activity to the demand, and the sale has been slow throughout the week. Barley of home growth has come sparingly to hand, but having had good arrivals of foreign, the quantity brought forward has proved fully sufficient to satisfy the inquiry. The maltsters have for some time past conducted their operations with extreme caution, and the business has been principally in distilling and grinding sorts. Low qualities of foreign have been sold at 20*s.* to 22*s.*, and the finer descriptions at 22*s*

to 25*s.* per quarter. Malt has hung heavily on hand, and its previous value has barely been supported. The arrivals of oats coastwise have been small, and from Ireland we are without supplies. A good many small cargoes of foreign having, however, come to hand, the dealers have been enabled to buy on quite as easy terms as before. The best heavy qualities, whether of home or foreign growth, have commanded former terms; but light and out-of-conditioned sorts have in some cases been forced off at a reduction of 6*d.* per quarter. This was more generally the case to-day than in the early part of the week. Beans and peas have not varied in value, but the demand for these articles and Indian corn has been languid in the extreme."

We give the above article in full, because we deem it highly important that the farmers should understand accurately the condition of "the great grain markets of the world," for which they are to contend with the serfs of Russia and the fellahs of Egypt. We need a market for our surplus food, and with a view to obtain it, abroad, we close mills and furnaces at home, filled with men who are consuming food, and thus force them to seek the West, there to become producers of food!

By the above it will be seen that the price of wheat fluctuated between 38*s.* and 42*s.* per quarter of 560 pounds, equal to 9⅓ bushels of 60 pounds each. This would give, in the market of London, *with freight and charges of all kinds paid*, about one dollar per bushel.* We ask the farmers now to look around and see to what extent the home consumption has been increased by the action of the tariff of 1842, and then to determine for themselves what would be the value of their labor and their land if all the persons who have, since the passage of that act, been employed in building and working mills and furnaces, had been compelled to turn their attention to agriculture, depending upon "the great grain markets of the world" for an outlet for their products? The resuscitating of the country from the state of distress that existed in 1841 and '42 was due to that act, and the sooner the whole people shall become convinced that such was the case, and determine to make protection a national and not a party measure, the more rapid will be the growth of the nation in numbers, and its advancement in civilization.

Oats.—The Chairman asked Mr. Houghton a question about the production of oats.

Mr. Houghton showed that an oat crop could take up a great quantity of acid from the soil. Without a knowledge of this point, very great blunders had been committed. He had himself made marvellous mistakes in not marking the composition of the soil, and the requirements of particular ground. He had farmed more bad land than any agriculturist in England, but he showed that it had lately been made very productive by analytical experiments. Mr. Houghton continued his dissertation by commenting on deep ploughing. He maintained that it was a mistake to plough land deep for a wheat crop, showing that the root must have firm ground, in order that the stem may be well supported.—*English Paper.*

To Purify Rancid Butter.—Melt it with a slow fire, in a well-glazed earthen vessel, to which put soft water, working them well together; and when it is cold, take away the curd and the whey at the bottom: do it a second and a third time in rose water, always working them very well together. The butter, thus clarified, will be of the sweetest delicious taste.

It was a whimsical threat of a raw-boned lusty fellow to a very little man with whom he had a dispute—"That if he did not hold his jaw, he would put him between two pieces of bread and butter, and eat him up like an anchovy."

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* For freight and charges, go back to page 684.

LIME, AND OTHER MANURES,
AND THEIR APPLICATION.

We have more than once intimated the reasons which prevail with us not to publish at length the numerous *agricultural addresses* which every year brings forth in various parts of the country, from all of which, if we had room, something might be found of an instructive and practical character. But as most of them have a local bearing, and as this journal has a general—not local—circulation, or, if any thing, is like its founder—more honored at a distance than at home; it would not be tolerated that we should undertake to publish all, and it would be invidious to discriminate. Hereafter, however, we shall give extracts from most of them, of such parts as appear to be most novel and of most general application—beginning now, under that rule of discrimination, with the *prize essays* elicited in Maryland, by the offer of liberal premiums by the worthy proprietor of "*The American Farmer.*"

Taking them in the order of merit, as assigned to them by the committee appointed for that purpose, we begin with that of Edward Stabler, of Montgomery County, Maryland, "on the *renovation of worn-out lands,*" and surely no one can travel from Boston to Mobile, without perceiving that whatever is pertinent to that question, embraces a wide extent of country.

The essayist very wisely commences by recommending *thorough draining*, and says emphatically, "the writer has not known a case where this operation was performed with ordinary skill and judgment, that did not fully repay the expense; and in some cases the product was increased from five to ten fold."

But the difficulty here, as in many other cases, consists in want of capital to ditch and drain thoroughly; and rather than do it imperfectly, it had better not be undertaken. When our country gets thickly settled, under the effect of laws that tend to bring the loom and the anvil close to the plough, and thus provide consumers near to the producer, then will our rich swamps be cleared, our marshes drained, and the waste lands (more than half of Montgomery County) be improved, because then there will be demand, near at hand, for the *sort of products that will pay the cost of draining.* Turn as we may, look where we may, and blink or try to blink the subject as we may, there is, after all, no certain means or guaranty for general improvement of any sort, until the laws tend to bring into proximity the producer and the consumer in all the branches of productive industry, for which the materials exist in the country.

This subject of thorough draining is most thoroughly discussed in "Stephens's Book of the Farm," illustrated by more than fifty engravings, all of which was republished in the "Farmers' Library," and some of these days we will republish from the stereotype plates, in "The Plough, the Loom, and the Anvil," all that is there given.

Mr. Stabler next passes to the subject of *deep ploughing*, the philosophy and value of which is well explained; but as it would not be easy to throw any new light on this subject, and as it is probable that he who has not reflected upon and studied its importance, does not reflect upon or study any thing, and would not listen even to Thomas Moore himself, though he should rise from the dead, to teach him, we pass on to the following extract, of which it may be said that the importance of all that is new cannot be over-rated—and all that is not new is so important that it cannot be too often repeated.

We will now proceed to the third important step in the process of "renovating worn-out lands." The proper kind, and application of, manures: viz. stable manure, and vegetable matter produced by the farm; lime, marl, bones, ashes, guano, plaster, and turning in green crops.

It may be considered almost an axiom in farming operations, that no one should go in debt for any kind of manures, unless in favored situations where the price is very low, and the transportation cheap, (except perhaps for lime,) without first having fully availed himself of all his own resources; and his manure-heap, too, should be his first care. No farmer need ever be at a loss for *profitable* employment for himself and hands, in adding to his stock of this all-important requisite to successful operations; and in preventing the loss and waste of what is already accumulated. When not necessarily otherwise engaged, the time is well employed in many situations by hauling the rich earth, and decomposed vegetable matter, which has

accumulated in the marshes, leaves, weeds, &c.,* and incorporating them with the contents of his barn-yard; independent of their own fertilizing properties, they are valuable as absorbents, to receive and retain the more volatile ingredients that otherwise might be lost in the process of fermentation and decomposition; a few bushels of plaster may be used with much advantage for the same object.

It was the maxim of a wise man, who began the world with nothing, and became independent—and that too, without the charge of dishonesty or extortion ever having been alleged against him—that "a penny saved is twopence gained." It is emphatically true, with regard to the saving and judicious application of manure.

As an evidence of what care and attention in regard to making and saving manure will accomplish, it is within the knowledge of the writer that two loads of manure (with two yoke of oxen) have been hauled out this season, for every acre of arable land on the farm; and with a small exception, produced on the farm itself, without extraneous aid.

As germane to our present purpose and object, I will here remark, that many farmers whose lands most require "renovating," keep too many horses; in nineteen cases out of twenty, and for nearly all farm purposes, one or two good yoke of oxen are decidedly preferable. They cost no more at first, and will perform twice the labor; save in expense of harness, and still more in keeping; and after working five to six years under good management, are usually worth more than the first cost, for the shambles.

Marl.—I can say but little from experience, in the use of calcareous manures; but am fully satisfied both by information derived from others, and from personal observation, that wherever it abounds, it might be made A MINE OF WEALTH to the proprietor, and the adjacent districts which admit of water transportation.

The only apparent reason why they are not more so, is, either ignorance of its great fertilizing properties, or a lack of the necessary enterprise and industry TO BECOME RICH, when every facility for the purpose, is, as it were, laid at their very doors. The quantity of marl required to the acre, to produce much beneficial result, does not admit of extended land transportation: but there are thousands, if not tens of thousands of acres, bordering on, and near tide-water, both in this and neighboring States, now thrown out as waste lands, because they will no longer yield even a stinted growth of vegetation; most, if not all of which, might readily be reclaimed by the judicious use of marl; and at one-fourth the cost per acre, that lands in the interior—originally no better, if so good—are made to yield 10 to 12 barrels of corn, or 30 to 40 bushels of wheat to the acre. I have been informed by some of the large landed proprietors—not owning nor residing within less than eight to ten miles of the marl beds—that a boat load of a thousand to twelve hundred bushels of marl, rich in carbonate of lime, could be delivered at many of their landings, at an expense not exceeding $8 to $10. Yet not one bushel was ever used!

But as was justly remarked by one of these very intelligent and hospitable gentlemen, "it's no use to preach to a *deaf* congregation," and a further remark or two will only be added; not altogether without the hope that

* This seems to us to need some qualification, and presents to every farmer a question which deserves careful study. That is, how far he can make sure of remuneration for the cost of labor thus appropriated, and can he command the labor until the day of remuneration comes—which here again depends on the *markets?* Mr. Phinney, of Massachusetts, could afford to move a ton of stone from every six feet square of his orchard, because there were hundreds of thousands of hungry mouths, not employed in agriculture, within reach to demand his fruit—like young robins waiting for worms.—*Editors P. L. & J.*

something will eventually "stir them up," and induce a trial at least, of this valuable manure. It matters less how, when, or what quantity of marl or lime is applied: only MAKE THE APPLICATION, and that pretty liberally. Its application, like lime, is best made one, two, or three years, and on the surface, before breaking up the land, and thus give it the benefit of the winter's frosts and snows to dissolve and incorporate it with the soil.

Lime.—This, next to the proper draining (when necessary, for even lime will not enable us to dispense with it) and deep tillage, I consider the most certain and permanent agent in "renovating worn-out lands," of any other substance with which I am acquainted: whether mineral, animal, or vegetable; and when it can be obtained at a reasonable cost, even with some miles hauling in addition, it is generally to be preferred, if only one kind of "bought manure" is to be used. It may, however, be used freely in conjunction with all other manures, and with decided advantage, if done with judgment.

After many years' experience in the use of lime, I would advise in all cases where it can be accomplished, to spread it on the surface from one to three or four years before the land is broken up. The effect of a single winter's frosts and rains, will more effectually dissolve and bring it into action, and benefit the succeeding crop, as also the land itself, than is attained in a longer period, by ploughing it in as soon as applied. In this way also, a much larger quantity may be safely applied to the same land at a single dressing. As there is no loss to lime from atmospheric influence, it should be kept near the surface; and the *proper* quantity to use to the best advantage, can only be determined by the price, and the state the land may be in at the time. With a good sod of grass roots to receive it, 100 or even 150 bushels to the acre, *will do no harm;* but on stiff clays, with little soil or mould on the surface, 50 bushels would be a very liberal application as a first dressing, if put on immediately after ploughing. It would be better to apply a less quantity at first, and renew it as soon as an increased growth of vegetation could be obtained.

When lime is applied in very large quantities, and immediately incorporated with a poor soil, having little or no vegetable matter in it, the *effect* is to combine with the silicious particles—abounding more or less in all clay soils—and form hard, compact masses, that are not separated by years of after tillage. This mode, therefore, to say the least, is like "burying the talent;" for so much capital lies dormant, and neither benefits the farmer or his land. Twenty-five or thirty bushels as a first application, particularly if aided by even a light dressing of vegetable manure, will make a much quicker return for the outlay.

As to the *modus operandi* of lime, much has been written; and various, if not conflicting theories put forth; nor do all agree as to the most judicious mode of application.

I consider it altogether unnecessary here, to attempt any explanation of the chemical changes produced in the soil by its use, or to give my own opinion on the subject, though formed after careful observation and from years' experience. To the inexperienced, however, it is of much more importance to be informed *how* to use it to the best advantage. And, as previously remarked, it is of still less consequence *how* or *when* applied, so THAT IT IS DONE.

Lime will act very beneficially, as I know from experience, on stiff tenacious clays, and so near a state of sterility, as scarcely to reproduce the seed sown on them. But if used under such circumstances, and without the aid of any kind of manure, considerable time must elapse before much amelioration of the soil need be expected.

Theory without practice does not often carry much weight with it; and on the mind of the farmer, generally speaking, it acts with less force perhaps than with most other classes in the community; for unless an array of facts, or good evidence, is adduced to inspire confidence, he is slow to change; the more so, when he knows that even a partial failure in a single crop, from experimenting, will be sensibly felt in his slender income, and perhaps for a year to come. This feeling, to a certain extent at least, is all right and proper; for experiments, to test any new theory, are best undertaken on a limited scale: *time* may be lost thereby, but *money may be saved in the end.*

I will now briefly give some account of the *practical* operation of my theory. My first application of lime to any extent, was 200 bushels, mostly air slaked, hauled six miles, and applied to four acres; just broken up for a corn crop, and harrowed in. This portion of the field particularly, was so thoroughly exhausted by previous bad management, that the yield in corn was only some five or six bushels to the acre; nor was the crop sensibly increased by the lime. As the main object in cultivation was to set the field in grass, the corn was followed by a crop of small grain, and a liberal supply of clover and timothy seed, and plaster: the latter producing no visible effect whatever, and nearly all the grass seed perished, leaving the surface as bare as before. But before the field again came in course for cultivation, the good effect of the lime was so evident by the growth of white clover—a *new* variety in that vicinity—that I was encouraged to lime the whole field, containing about twelve acres, and also including this four acres; put on as before, just after breaking up for corn. The crop on this portion was increased fully five to six fold, over that adjoining, and but recently limed; thus liberally paying all expenses, and has continued ever since to produce profitable crops. Plaster now acts on it with marked effect. The first application was made some eighteen to nineteen years since; and to test the *durability* of lime, these four acres have been kept for experiment, and without the addition of other manure; except a portion, intended for still further experiment. About two acres were sown in broadcast corn, with 200 lbs. Peruvian guano—then followed wheat on the four acres, and with 200 lbs. guano to the acre, leaving two lands without guano.

The corn was materially benefited by the guano; but the wheat was *not* benefited by the *previous* application of it, though it was nearly or quite doubled, over the two lands left without any guano: the wheat was harvested two years since; and no one could now point out by the growth of the clover, uniformly good on the whole, and equally limed, which portion had and which had no guano—the conclusion is, that the "renovating" effects of lime, are thus far, TEN times as durable as guano; how much longer remains to be seen.

Some nine or ten years since, I determined to reclaim an adjoining field, at whatever cost. I was told long previous, by one of my neighbors who sold his farm, and removed to the West, in order to settle on better land, that the attempt would be futile; or, if it ever was made productive, it would cost a great deal more than the land was worth. The prospect *was* forbidding; for the larger portion was as much reduced as could be, by shallow tillage, no manure, no grass seed sown, and constant washing, even to gullies, and producing little else than running briars. It was broken up in the fall and winter, to a much greater depth than it was ever ploughed before; sixty bushels of quick-lime to the acre, were applied in the spring, the ground well harrowed and planted in corn; such portions as required it, having been well under-drained—some two to three acres—and which were about the amount that produced any thing of a crop, or that more than paid

the expense of ploughing. A crop of oats and grass seed followed; as it was not considered worth the trouble and expense to put in a crop of wheat, on ⅔ of the field. After six or seven years, the same field again coming in course, exactly the same plan was pursued, as to ploughing and lime; but rather increasing the depth than otherwise.

The crop of corn, though injured by the bud-worm, was good—enabling me to do what I had rarely or never done before, SELL from ¼ to ½ of the crop. Oats followed, on about ⅔ of the field, with some five or six bushels of bones to the acre, and wheat on the balance, with guano: both heavy crops, and lodging over the greater part of the field. Then followed a wheat crop on the whole; manured as much as possible from the barn-yard, and on the balance, a light dressing of guano of some 80 to 100 pounds to the acre.

The average yield of the field was over thirty-three bushels to the acre.

These results are attained with certainty; for every field and lot are accurately surveyed, and the contents noted on the plat of the farm; and the product of this field was kept separate, threshed, and measured by itself. The greater portion suffered from the drought early last year; and the harvesting was badly done, owing to the fallen and tangled state of the grain from a storm, about the time of ripening; but I have no doubt several contiguous acres might have been selected on the lowest ground (the portion under-drained) on which the yield was over forty bushels to the acre.* This season, the same field yielded the heaviest crop of grass I ever harvested; and even on what was originally the poorest part, there is now a luxuriant crop of second growth clover, and intended for seed, that is lodging over the whole extent. We will estimate the profit and loss by figures:

To 60 bushels of lime, cost at the kiln, 16 c.	$9.60
7 years' interest, (though it paid in pasture in less time,)	4.03
60 bushels of lime, cost at the kiln, 12½c.	7.50
3 years' interest	1.35
6 bushels ground bones, at 50 c.	3.00
100 pounds guano (African)	2.00
	$27.48

CONTRA.

By 33 bushels of wheat, average price sold at $1.31	$43.23	
Estimate increase of corn crop, at least 6 barrels, at $2, (and entirely owing to the lime,)	12.00	
Estimate increase of oat crop, 20 bushels, at 40 c.	8.00	
Estimate increase of hay, 1 ton	10.00	
Estimate VALUE of clover seed, (for there would have been none without the lime,) 1½ bush. at $4	6.00	79.23
		$51.75

Making, in round numbers, $50 per acre in favor of "renovating;" nor is the estimate a forced one. The actual increase of the crops is greater than the amounts assumed; and if a fair average was made of the wheat, in the joint crop of oats and wheat, the aggregate result would be increased some $5 to $6 per acre.

There should, perhaps, in the view of some, be a charge for draining, and for hauling and spreading the lime; also for the manure, for the crop of wheat; and for the expense of harvesting the INCREASED crops.

The two former are amply paid for in the increased pasture; and the manure was no more than the actual yield of the land itself, after the use of

* It was gleaned with the horse-rake, and by the hogs; yet sufficient seed was left on the land, to produce this year, a VOLUNTEER crop of wheat with the grass, estimated by many who saw it, as well worth harvesting.

lime, &c., which are charged in the account, and at more than the cost: and it is believed the increased product in straw and fodder fully repays the expense of harvesting: to say nothing of the present state of the land, as compared to what it was originally. It is now RADICALLY and PERMANENTLY improved.

When lime has been freely used, plaster will generally, if not always, act promptly and efficiently; and thus, at very small expense, materially aid in perpetuating the improvement. Previous to its application in this case, plaster was liberally used, but with no visible effect whatever: now, its action is as marked on the SAME land, as I have ever seen anywhere.

Wherever lime can be obtained at a reasonable price—say from twelve to twenty cents per bushel in a caustic state, (or at half price, if air slaked,) with even five to ten miles hauling, it may be used to advantage on most, if not all stiff clay soils.

In some sections, these prices are paid, and it is hauled fifteen to twenty miles; and by a class of men unsurpassed for industry and thrift.* The writer has known no instance where its use was persevered in, under whatever disadvantage it might be, in which success, to a greater or less extent, did not crown the effort; and many who borrowed money to procure it, in the first instance, have, mainly by its use, become independent; and *money lenders* themselves.

Bones—composed principally of phosphate of lime, and gelatinous animal matter, when crushed or ground, form one of the richest manures. It acts well either alone, or with other manures; and is particularly valuable to aid the growth of clover; for this reason, I class it decidedly before guano, at an equal expenditure of money, for "renovating worn-out lands." Although not so prompt in acting, it is far more durable, and more likely to produce a good crop of clover, to turn under. Clover being almost the only "green crop" that I have ever found much advantage from turning in.

I prefer its use, following the lime, and on the oat crop; at the rate of from six to ten bushels—or as much more as the renovator may please, for an increased quantity will do *no injury*. On the wheat, succeeding the oats, my practice is, to apply a light dressing of guano—say 80 to 100 lbs. to the acre, to mature and perfect the grain; and only on such portions of the field as the manure from the barn-yard will not extend to. By the time the clover requires the aid of the bone, it will have become sufficiently disintegrated and incorporated with the soil, to give the clover a vigorous start; and its effect on the grass crops is generally more durable than the vegetable manures.

The supply of *ground* bones is a limited one; but when to be had at a reasonable price (usually selling at forty to fifty cents the bushel) it may be used to advantage on all crops and on all soils; but with decidedly *less* advantage, after passing through the *alembic* of the glue manufacturer; (as I have proved—at least to my satisfaction;) thus depriving it of much of its fertilizing property. It is usually harrowed in with the seed, as it loses less by exposure to the atmosphere than most kinds of putrescent manures.

Guano.—This is one of the most active of all manures; and if the price would justify the application in sufficient quantities, it might aid very materially in "renovating worn-out lands." But considering the evanescent nature of its most active principle, ammonia, and the present high market price, viz.: the Peruvian at $60 to $70—and the more inferior kinds at $45 to $55—for the ton of 2000 pounds, it is much doubted whether the ultimate advantage, calculated on by many, will be realized. If the Peruvian

* In England they sometimes fetch it fifteen miles *on horseback.*—*Editors P. L. & A.*

could be obtained at about HALF this price—and it is believed such would be the case with a fair competition in the Peruvian market—the case might be different.

The writer has made liberal use of guano; and generally to profit, as to the immediate return; but in no case has much benefit been derived beyond the first crop; and rarely was any material effect perceived after the second year.

This opinion, so different from that entertained by some others, is not lightly formed, nor without several years' careful observation; and also testing the matter by numerous experiments, and on a scale sufficiently extended to prove the truth or fallacy of the doctrine held by some, that it is only a stimulant. Reference to one experiment may suffice, as they all tend to the same result, and nearly to the same degree.

In a field of some ten acres, one acre was selected near the middle, and extending through the field, so as to embrace any difference of soil, should there be any. On this acre 200 pounds of Peruvian guano, at a cost of about $5.00, were sown with the wheat. Adjoining the guano on one side, was manure from the barn-yard, at the rate of 25 cart-loads to the acre; and on the opposite side (separated by an open drain the whole distance) ground bones were applied on the balance of the field, at a cost of $6.00 to the acre: the field equally limed two years preceding. There was no material difference in the time or manner of seeding; except that the manure was lightly cross-ploughed in, and the guano and bones harrowed in with the wheat.

The yield on the guanoed acre was thirty-five bushels; the adjoining acre with bone, as near as could be estimated by dozens, and compared with the guano, was about twenty-seven bushels; and the manured about twenty-four bushels. The season was unusually dry; and the manured portion suffered more from this cause than either of the others; the land being considerably more elevated, and a south exposure.

The field has since been mowed three times; the FIRST crop of grass was evidently in favor of the boned part; the second and third were fully two to one over the guano, and also yielding much heavier crops of clover seed. On a part of the land, eighteen bushels to the acre of the finest of the bone were used; on this the wheat was as heavy as on the guanoed, and the grass generally lodges before harvest, as it also does on much of the adjoining land with twelve bushels of bone.

The action and durability of guano probably vary on different soils; and although it may generally be used to advantage in aid of a single crop, I have as yet no satisfactory evidence that its fertilizing properties are very durable: unless applied in such quantities as may in the end "cost more than it comes to."

Guano should *not* be used with caustic lime or ashes; nor very soon succeeding their application. It may with decided advantage be mixed with plaster, to fix and retain the ammonia; and for nearly, if not all crops, it is best to sow it broadcast, and *plough* in immediately.

Leached Ashes.—There are few, or none, who are ignorant of the value of this article as manure. But as the supply is rarely if ever equal to the demand, much need not be said on the subject. At eight to ten cents per bushel, if the cost of transportation is not too heavy, they may always be profitably used; in durability they are next to lime, and the action immediate. Few comparatively, except within the vicinity of cities or villages, or those with water or railroad facilities, can procure, or afford to use them.

Poudrette.—Much profit has not resulted in the use of this (the merchantable) article, so far as I have observed its effects on my own, or the crops of others. Such as I have purchased, has as yet produced but slightly

beneficial results on the crops to which it was applied. Its fertilizing property was diffused through such a mass of inert matter, that I concluded with half, if not one-third of the expense, more benefit might be derived from the purchase of some other kind of manure.

In the neighborhood of cities, where a supply can be obtained without so much adulteration, its use may be made very profitable.

Turning in Green Crops.—This plan of "renovating worn-out lands," has long been advocated by many. I have also given it a fair trial, and with the exception of CLOVER as *the* green crop, little advantage has resulted from its adoption: *very poor* land, without some extraneous aid, will not produce a green crop worth the turning in. It is questionable whether the same amount of time and labor (supposing the occupant without the means to purchase manure of any kind) could not be better employed on such land, in adding to his stock of manure, by composts; prepared from decaying vegetable matter, alluvial soil, &c., abounding more or less on all farms. If the land possess fertility to produce sufficient clover for pasture, the use of plaster either without or certainly *with* the aid of lime, will, with good management, make it yield a luxuriant crop. But it should be borne in mind, that to improve in this way, little mowing, and less pasturing, must be permitted. The land is not only benefited by what is *turned in*, but is also materially aided in the process of renovation, by what is *left out*, and on the surface; to shield and protect the soil from a parching sun, prevent throwing out the clover roots by the winter frosts, and washing away of the soil, by heavy dashing rains.

THE TRUE POLICY OF THE SOUTH AND SOUTH-WEST.

WE commend to the attention of our planting friends the annexed article, which we take from "The Louisville Journal," and in which they will find advice by aid of which they will be sure to bring to the side of their ploughs first the spindle, to be followed speedily and certainly by the loom and the anvil. Greatly does it rejoice us to see in our exchange papers growing evidence of the popularity of the doctrine which teaches that "population makes the food come from the rich soils," and that if we would cultivate such soils, we must adopt, as a national, and not a party or sectional measure, the policy which will enable us to consume upon, or near the land, the products of the land, returning to the great source of all production the refuse of her products, and giving to her improvement the labor that has been heretofore wasted in the work of transportation and exchange, and the manure that has been wasted upon the road and in distant markets. Great is truth, and it will prevail. The time is not now far distant when, throughout the whole length and breadth of the Union it will be admitted that *protection is a farmer's and planter's measure.*

The Manufacture of Cotton Yarn in the South and West for Export.—GENTLEMEN:—"In my opinion you can spin *yarn* (cotton) and export it by the *ship-load* far better and cheaper than England can."

The foregoing is an extract of a letter from Mr. David S. Brown, of Philadelphia, who, as most of your mercantile readers know, has been for years a most extensive dealer in cotton goods, and is now largely engaged in their manufacture. No better authority on the subject can be quoted, and the foregoing opinion is entitled to the gravest consideration of our growers of cotton and food, and to the closest examination of our men of energy and capital who are turning their attention to manufacturing employments. The suggestion strikes my mind with great force, and will induce me to gather and publish the facts bearing on the subject. As it may lead to the development of a new and important source of wealth to us, it is right that Mr. Brown should have due credit for his sagacity.

The yarn trade of Great Britain with foreign countries was opened about 1814; from that year to 1823 inclusive, the value of her exported yarn compared with that of other exported cotton goods increased slowly from say one-seventh to one-fifth; the ratio of increase since has been greater. In Burn's "Manchester Commercial Glance," are tables of the export of cotton yarns from 1831 to 1846 inclusive. I copy here the figures of every fifth year, which will show the average increase of the trade.

Cotton yarn exported from Great Britain in pounds:

1831	58,846,308
1836	85,195,702
1841	115,665,478
1846	157,130,025

Of the exports of 1846, 25,421,742 lbs. were to the British colonial possessions, including all of India, leaving a demand of 131,708,283 lbs. in countries from which we should not be excluded by differential duties.

Calling the bale 400 lbs. and adding 10 per cent. waste in the change of the material into the yarn, we have markets as free to us as to Great Britain for 362,197 bales of our great staple, and in a shape that requires but little skill, comparatively, in the transformation.

In the infancy of our cotton trade, the cotton was imperfectly cleansed on the plantation, and exported in bags. The use of the cotton-gin and the cotton-press, by lessening the weight and bulk, has lessened the cost and increased the consumption of the staple. The next most obvious process is to lighten and compress the cotton still further by changing it into yarn. This done, we could take the next step with safety and reach the maximum of compression. Our bulky cotton and our bulky and perishable food would then be exported in their most convenient and imperishable forms—manufactured cotton goods.

Perhaps we have the actual ability to take this step now, and only lack the confidence. It is, however, very easy to take that which precedes the last.

To spin yarn of the ordinary grades we require not over two-thirds of the machinery and power, one-half of the capital, and one-third of the skill which are necessary to convert the yarn into cloth. The waste in the first conversion is about 10 per cent., and in the latter from 1 to 2 per cent.

The markets supplied with cotton-yarn by Great Britain are, on the average, as near to us as to her.

In supplying these markets, common to us both, we have (supposing that the conversion is effected on our central coal fields) these advantages:

1. A saving in power of at least one-half.
2. A saving in transportation of three or four thousand miles, to say nothing of the expensive land carriage in England.
3. An exemption from English taxation in all its multiplied and oppressive forms.
4. A more unrestricted commerce with the world. We are less liable to war, and our international policy is so liberal that our ships and products are received by all nations on the most favored terms.

That Great Britain has more capital and more skill than we have, is readily admitted; but it will be noticed that, when we have the material so near us, far less capital is required, and that, even if we have not the skill to weave, we have, or could readily have, the skill to spin. Our labor is more expensive than that of Great Britain, but the cheapness of our food is nearly or quite an equivalent.

I have not the leisure now nor the full information to go into this subject in detail, and the chief object now in view is to draw the attention of our cotton yarn manufacturers to the facts. They are now supplying our home market. Is there any reason why they cannot profitably enlarge their operations and throw their surplus into the markets nearest to us. The Louisville merchant finds no difficulty in exporting flour directly to and importing coffee directly from Rio Janeiro. He can send cotton yarn with equal facility.

I have not the means here of ascertaining what numbers of yarn are exported from Britain. In the Report of the Secretary of the Treasury, 1835–6, it is stated that they are chiefly of the coarser kinds. It is presumed that the coarse numbers are imported by Russia, South America, India, and China, and the high numbers by Germany, Belgium, &c.

We should, of course, be excluded from England by duties, and perhaps as long as the cotton is shipped by sea to the Eastern manufacturing States we could not find a market there. But, if the internal facilities of transportation are enlarged and cheapened so that the produce of the Northern cotton district can be sent East in this direction, we may be

able to incorporate some of our food, labor, and coal into it and send it on to be perfected by those who have more capital and skill.

It may be a matter worthy of investigation whether a portion of the slave labor of Kentucky and Tennessee could not be profitably employed in the business indicated, at healthy positions which are convenient of access and abounding in coal. When we are connected with Tennessee and Northern Alabama and Mississippi by a railroad passing through the western coal-field of our State, it may prove more economical and profitable to pass the cotton through all the simple and early processes of its manufacture on this route to the East and to Europe than to send it by the Southern route in its raw and bulky form.

In the hope that these crude suggestions here made will elicit all the facts bearing on the subject, and with the intention of pursuing the inquiry further,

I am yours, S.

AGRICULTURAL CAPABILITIES AND PRODUCTS OF THE SEVERAL STATES.

It would appear, by a letter from Mr. Keener, intended to follow immediately after these remarks, that the *State Board of Agriculture of Ohio* has, by circulars in the form of interrogatories, instituted systematic inquiries into the course of husbandry, and the products of the several counties of the "Buck-eye" State. Such inquiries are likely to be conducted with much more care and minute reference to the agricultural practice and habits, as well as resources of any particular State, than the general census under the authority of the national government; but they ought not, as they cannot effectually supersede the necessity of yet more comprehensive and authentic returns which should be taken by *State authority*, half-way intermediate, in point of time, between the United States' censuses.

In a short time, as soon as the high degree of intelligence, and the enlarged public spirit which evidently animates the Maryland State Agricultural Society, can get fairly to work, we shall doubtless witness similar fruits of its usefulness by the prosecution of well-directed investigations into all the resources and practices of Old Maryland, than which no State in this Union can boast of superior advantages on the score of soil, climate, natural facilities and resources; together with a knowledge and disposition to improve them.

The time was, when tobacco was $10 a hundred, and wheat $2 a bushel, that too many of her worthy sons became extravagant and reckless, laying out thousands in costly residences, rich furniture, and fine equipages; and yet worse, too many of them betaking themselves to gaming and frolicking; but let us hope that such folly has passed away with the delusive prosperity that gave it birth. Let us hope that adversity and reflection have done their office, and that the ridiculous love of ostentatious display, and the ruinous and disgusting excitement of the gaming-table, have given way to the calm and inexhaustible pleasures of reading, and the eager pursuit of knowledge, with a view to a more honorable and intellectual prosecution of their own pursuits on their own farms. We would not have them to be a whit the less hospitable, but that they should learn the difference between uncalculating extravagance and that well-regulated hospitality which has reference at once to the means of the host and the comfort of his guests, with whom, if men of sense, the enjoyment is always the greater when the style of entertainment is free from all signs of vanity and extravagance.

What the farmers of Maryland NOW want is CAPITAL, to enter upon a career of improvement, which, generally speaking, they would be at no loss how to conduct; and surely if there be any condition or employment enjoy-

able in itself, and salutary as an example to the country, it is that of the man who is engaged, with heart intent, on the ditching, draining, cleaning up, repairing, restoring, and embellishment of an old, exhausted, and dilapidated estate!

What ought to be more flattering to that true pride which is not only justifiable but commendable and auspicious in every cultivator of the soil, than to have the traveller as he passes, either rein up his horse to admire, or point from the window of the car as it flies along on its iron track, exclaiming: "Ah! look at that!—that looks something like a farm! There are signs of thought, and of honorable ambition. There you behold industry guided by knowledge. There it is that visible improvement and increased productiveness vindicate the cause of agriculture, and assert its claim to be ranked among intellectual professions." Such are the reflections that every thinking man makes—such the observations that every man hears, as he passes the *laurel*-crowned oasis, half way in the great desert which some years since spread over the country between Baltimore and Washington, but which is now giving way slowly but surely to the force of *mind applied to the art of cultivation.*

But we are wandering from our purpose, which was to introduce the following, on

THE WHEAT CROP AND ITS CULTURE.

BY S. KEENER.

Melville Grove, Champaign County, Ohio, November 29, 1848.

There are in this country, very few, if any, farmers who manure their lands regularly; and *perhaps it would be difficult to find a single individual, who makes it a business to attend to his barn-yard with a view to the accumulation and preservation of manure.* In consequence of this general neglect, our wheat crop is grown under great disadvantages, and the average yield much less than it ought to be. It is very common among our farmers to take several crops of wheat in succession off the same land. I know of several instances, where four crops have followed in succession, and one, where the sixth crop was taken off this summer. This practice of stubbling, I am happy to say, is growing out of favor, it being found greatly to promote the growth of chess, cockle, and other noxious weeds, consequently greatly lessening the crop. The practice of seeding among the standing corn, is *becoming more and more common*, and as far as my observation extends, with *as much advantage as on a clover sod broken up immediately before seeding*—the grain is usually ploughed in with double shovels. Another labor-saving mode of seeding is to cut the corn, and shock it in the usual way, except that the shock rows are placed further apart—then sow and harrow in; this mode has not been in use long enough to enable me to speak favorably of it.

Having thus hastily given you a glance at our careless habits, I will proceed to give you an account of the average yield per acre, which, perhaps, I can give with a tolerable approach to accuracy, as I not only keep an account with my wheat crops every year, but I also keep a tolerably fair running account with the crops of my neighbors, which I come at by personal observation, information derived from the owners of threshing-machines, and from my neighbors themselves.

From these sources, I am enabled to state the average yield of this county, for the past four or five years, at 13 bushels per acre. The average of this year—1847–'48—will be a shade higher; I put it at 14 bushels per acre.

To corroborate my statement of average, I give you a transcript from my ledger, of my wheat crops for the past four years, as follows:

	Years.	Acres.	Yield. Bushels.	Average per acre. Bushels.
	1843–44	126	1757	14
	1844–45	86	1333	16
	1845–46	100	1625	$16\frac{1}{4}$
Fly very destructive.	1846–47	110	1185	$10\frac{1}{2}$
	1847–48	Not yet ascertained.		
				4)$56\frac{3}{4}$
Average for 4 years				$14\frac{3}{16}$

Thus you see that the average of four years gives me 14 bushels and 6 quarts per acre.

I might here remark, that one-half of my seeding, for the past four years, has been on clover sod, the other half on wheat stubble and corn ground, ploughed in with double shovels, among the standing corn.

Of the crops of 1844–45, and 1845–46, one-half at least was on stirred fallow, part of which being slightly manured, yielded from 22 to 25 bushels per acre. My experience and observation go to show a gain of two to three bushels per acre in favor of stirred fallow, over sod ground ploughed immediately before seeding: and further, where the ground has been liberally manured, with stable or barn-yard manure, well rotted, the grain on the stirred fallow, thus treated, will be from seven to nine bushels per acre more than the stirred fallow, without the manure.

In this connection I will mention one fact worthy of notice, viz.: that our best wheat lands are those that have been longest under cultivation, and nearly run down. These lands, when restored by liberal treatment, with clover manure, and a few years' rest, uniformly yield from five to eight bushels more to the acre than lands similarly treated, that have been recently brought under the plough. On the latter, the growth of straw is very rank, the heads imperfectly filled, and the grain shrivelled; on the former, the straw is comparatively short, heads full, the berry plump, well filled, and heavy.

In regard to the cost of raising wheat, it varies but little one year with another. In very dry seasons, we cannot plough as much in a given time as when the ground is in good order; and the wear and tear of ploughs and horse-flesh is greater. Some seasons we have to handle one-third more straw, for the same quantity of grain, which of course adds something to the expense of the crop. It is frequently varied a little, either way, by the cost of seed wheat, but from a careful account kept with my wheat crop, for several years, I make the cost per acre $5·60, as follows:

	Per acre.
Ploughing	90
Seed wheat and sowing (1¼ bushel to the acre)	$1·05
Laying out and harrowing, or ploughing in	27
Cutting and putting in shock, and board of hands	1·00
Hauling in or housing and stacking	60
Threshing, ricking straws, and cleaning up, board, &c.	1·28
Hauling to market, not over 5 miles	50
Cost per acre	$5·60

The cost per bushel can be readily ascertained, by dividing the cost per acre, by the yield per acre, thus, suppose the yield per acre to be eight bushels:

Yield per acre.	Cost per acre.	Cost per bushel. Cents.
Divide 8 bushels into	$5·60	70
" 10 "	5·60	56
" 12 "	5·60	46⅔
" 14 "	5·60	40
" 16 "	5·60	35
" 18 "	5·60	31
" 20 "	5·60	28
" 22 "	5·60	25½
" 24 "	5·60	23⅓
" 26 "	5·60	21½
" 28 "	5·60	20
" 30 "	5·60	18⅔
" 32 "	5·60	17½
" 34 "	5·60	16½
" 36 "	5·60	15⅝
" 38 "	5·60	14¾
" 40 "	5·60	14
" 50 "	5·60	11½

So that the thrifty husbandman, who raises 50 bushels per acre, does it at a cost varying but little from 11¼ cents per bushel; the additional cost would be in handling more straw, threshing out, and hauling to market more grain; and I might add, what would be necessary to such a result, preparing and hauling out manure; for I have never known an instance in this county, where more than 18 bushels to the acre have been

raised without it. Manure, therefore, ought to be charged to the crop, when used, unless the straw be considered of equivalent value. The straw I put against the interest on the cost of land, though perhaps it would cover both items if properly cared for.

I have made several approximate estimates of the aggregate amount of wheat raised in this country. I do not pretend that any of them are precisely accurate; I however believe them to be as near the amount as can well be ascertained, without a more precise knowledge of the number of acres under wheat culture.

The Auditors' Reports show the number of acres in this county to be 260,000; assuming every fourteenth acre to be in wheat, will give 19,000 acres, which at an average yield of 14 bushels per acre, will give us 256,000 bushels.

In Urbana township—the township in which I live—there are 600 voters; of these, 70 are farmers, which gives to agriculture about every eighth voter; the county seat being in this township, makes the proportion of farmers to the voters less than in most of the other townships in the county. Taking, then, Urbana township as a basis, and averaging her 70 farmers at 350 bushels each, it gives 24,500 bushels; deduct her 600 voters from the county vote, say 3,700, and we have left 3,100 voters, which amount, divided by 5, will give 620 farmers, for the remaining eleven townships; average them at 350 bushels each, and we have 217,000 bushels, to which add the yield of Urbana township, 24,500, and we have the aggregate of 241,500 bushels.

By assuming every fifth voter in the county to be a wheat grower, we have 740 farmers; average them at 350 bushels, and the amount is 259,000 bushels.

In the republication of such articles, our sense of duty would always prompt us to turn them to useful account, if we had time, by accompanying them with such reflections as arise on a view of them, and as may seem adapted to give them practical application to other parts of the country.

Here, for instance, is seen, for the comfort of farmers in the old States, which so many are abandoning to go to the new ones, several notable particulars:

1. That worn-out lands when restored, yield larger crops and of better quality than richer new lands. "Our best wheat lands," says Mr. Keener, "are those that have been longest under cultivation and nearly run down." According to the system he describes, as being that commonly pursued, it will not be long before the lands of Ohio will have been generally thus prepared, by exhaustion, for producing better crops! "It is *very common* among our farmers to take *several crops* of wheat off the same land." So much for Ohio management. "Always taking out of the meal tub," says Poor Richard, "and never putting in, will soon come to the bottom."

But there are other points of view in which this communication of Mr. Keener will not fail to attract the reader's notice.

It cannot fail to suggest to him the question how vain is the hope of the Ohio grain grower, who is led to depend on the *foreign* at the sacrifice of the *home* market!

The same number of "The Cultivator" informs us that in Mr. Keener's market—Cincinnati—"wheat is DULL at 70 cents per bushel."

"*Cincinnati, April* 14.—Flour has been depressed but is now improving. Sales yesterday at $3·40 per bbl. Wheat is dull at 70 cents per bushel. Corn and Oats 25 @ 28 cts.; Barley and Rye, 55 @ 60 cts.; Potatoes 58 @ 62 cts. per bushel. Mess Pork, $9 per bbl. Lard No. 1, 6¼ cts. per lb. Cheese, for shipment, 6¼ @ 6½ cts.; Butter, for packers, 12½ cts.; retails at 16 @ 20 cts., and for best fresh rolls 25 cts. (very scarce.) Eggs are plenty; 5½ @ 6 cts. per doz.; retail at 7 cts."

Looking, then, to the English market, where wheat was about $1 per bushel, (see our article on the corn trade of Europe, in this number,) and after all expenses of sending from Cincinnati to London are deducted, how much would be left, to be received over—*the left shoulder?*

Mr. Keener sets down the average product of the county at 14 bushels per acre, (the same as of New York,) and the average aggregate of the farms at 350 bushels. Then take his estimate of 40 cents a bushel for cost

of producing and sending to market, and there will remain 30 cents a bushel, which will leave as an average for the farmers of that county, from their great staple crop, an income of $105!! while that of a good field hand is $144.

It will be seen that, according to his estimate, where the yield is not over 10 bushels, (the labor being hired, as we presume, at about the cost of hired labor in Delaware, and in Hartford and Cecil County, in Maryland,) he averages the cost at 56 cents per bushel, which leaves the farmer just—*nothing for his pains!* But we must leave the reader to pursue his own reflections and calculations, venturing only to add that he who reads without making them, reads superficially and to very little account. Here is a statement of some other items of OHIO FARMING:

A TALL CROP OF CORN!

"CORN CROP.—I hereby certify that I planted one acre of ground in yellow corn, last spring, on my farm, eight miles from Cincinnati, on the Lebanon turnpike; description of the ground and culture, as follows:

"The down barley and stubble coated the ground abundantly. Ploughed all under last fall; planted the corn in April; the furrows three and a half feet apart, north and south; the stalks in the furrows from eight to ten inches apart. Gathered the corn the first of November; placed it in a loft twelve feet from the ground. It remained there until the 14th inst., then measured in a barrel, and one barrel shelled, in the presence of a number of witnesses; there being ninety-one barrels; the shelled corn of one barrel weighing ninety-eight pounds—making one hundred and fifty-nine bushels and fourteen pounds, that grew on, and was taken off, said acre, and at an expense of twelve dollars the acre.

"Nov. 15, 1848. JOHN CLARK."

We get the above from a late number of "The Ohio Cultivator," in which the price of corn at Cincinnati is put down at 25 cents. Suppose, then, the average yield of the State to be 40 bushels to the acre, which is quite as much, probably, as the truth will allow, and we have $10 to the acre.

Mr. Clark puts down the *expense* at $12 the acre. Now, after making every allowance for the greater expense of harvesting the heavier crop, and then tell us, good reader, since the value of the article at the place of production is equalled by the expense of production, first—

What is the temptation to him of the Old States to sell off and move to Ohio? And, secondly—

What dependence can the CORN-grower of Ohio place upon the foreign market—suppose him to make 50 bushels to the acre?

"REMARKABLE COW AND LARGE CROPS.

"The following extracts are from the Report of the Hamilton County Agricultural Society, for the past year:

"PREMIUM FOR BEST COW FOR BUTTER.

"*To the Hamilton County Agricultural Society*:—A statement of butter made from one cow in 28 consecutive days, and is offered to the Society for its premium on the cow that would make the most butter in ten consecutive days—the property of E. R. Glenn—commencing May 29, A. D. 1848:

"1st week of trial, 12 lbs. 8 oz.
2d " " 15 lbs. 10 oz.
3d " " 16 lbs. 2 oz. } = 32¾ lbs.
4th " " 16 lbs. 10 oz. }

"N. B.—The 3d and 4th weeks are offered to the Society for its premium, being 32 pounds and 12 ounces of butter in 14 consecutive days, making 2 pounds and 5 ounces per day—or in 10 consecutive days, 23 pounds.

"State of Ohio, Hamilton County, ss.

"Personally appeared before me, the undersigned, Mrs. Jane Glenn, who made solemn oath that the above statement of butter, made by herself from one cow, is true, as she verily believes, from personal knowledge. JANE GLENN.

"Sworn to and subscribed before me, this day of September, 1848.

"JOHN CLARK, Justice of the Peace.

"*Manner of Feeding.*—Pastured on clover and timothy pasture, slopped with about one gallon of ground corn and barley meal night and morning, and from five to ten ears of corn per day when she would eat them. EDMUND R. GLENN."

A cow of Mr. Glenn's (probably the one above mentioned) gave in 10 consecutive days, 80 gallons and 1 quart of milk, and Mr. Glenn said, "said cow is now giving 6 gallons per day, and it is over 4 months since calving, averaging 7 gallons a day, will make in 4 months 840 gallons, and we have made 2 pounds of butter per day from said cow." But look at the feed—pasture, clover, and timothy—slopped with a gallon of corn-meal and barley-meal per day.

Undoubtedly a very "remarkable cow;" but what a subject for a lady to SWEAR about!

"PREMIUM CROP OF HAY IN OHIO.—A premium to Edmund R. Glenn, for one acre of timothy hay, yielding 3 tons and 250 pounds, as shown by affidavits and the weigh-master's certificates.

"STATEMENT.—Limestone clay soil—subsoil yellow clay—has been mown for six years previous; was top-dressed with manure last fall, about ten two-horse wagon-loads to the acre.

"Expense of mowing		$1·25
Curing and putting in barn		1·25
Marketing and weighing		7·50
Ten loads manure		2·00
Rent of land		4·00
		——$16·00
	Cr.	
By 3⅛ tons hay sold for		$42·50
		$26·50"

Is it not, therefore, obviously the interest of the Ohio farmer to follow the advice of General Jackson, and encourage domestic manufactures, that labor may be diversified, and the rival be turned into a customer, bringing his loom and his anvil, his trowel and his saw and hammer, near to the plough—instead of importing into our country millions of bushels of grain and provisions, in the form of foreign—chiefly English—manufactures, the cost of which is chiefly made up of the provisions consumed by the operatives?

Cotton-Seed Extracter.—This new invention of Mr. Stephen R. Parkhurst, is said to be the most perfect machine of the kind, and will prove of the greatest advantage to all branches of the cotton manufacture. The machine is of the simplest construction, and it seems a wonder that the idea had not been long since suggested. It is composed mainly of two cylinders, closely set together, a feeder and the ordinary fan. The cotton containing the seeds is thrown on the feeder, from which it is taken by the cylinders, which extracts the seeds whole, the cotton being passed by the fan into a receiver. The quantity of cotton cleaned by this machine will far exceed that of the ordinary saw-gin now in use, and a third less power is required to keep it in operation. By this method the texture and length of the fibre is completely preserved, the value of the cotton will be greatly enhanced, and the intrinsic worth is increased from a cent to a cent and a half per pound. It is calculated that a thousand pounds of cotton can be extracted in the same space of time that is required to extract twenty-four pounds by the common saw-gin. The machine may be worked for ten years without requiring repair. It will, when generally known, supersede every thing of the kind.—*New York Farmer and Mechanic.*

ON BREAKING OXEN.

BY ELISHA WHITTLESEY, ESQ.

Washington, April 30, 1849.

JOHN S. SKINNER, ESQ.—DEAR SIR:—I have read the conclusion of your article on "The advantage to be derived from a more extended use of Oxen," in the December number of "The Plough, the Loom, and the Anvil." In regard to learning steers to work, permit me to relate the mode adopted by my father, (who was one of the best agriculturists in the north-western part of Connecticut, and in which I served somewhat of an apprenticeship.) As far as was practicable, he not only endeavored to match his steers, in color, size, and strength; but in temper, some cattle, like men, are more irritable, nervous, or obstinate, than others, and will never work well together, even if they are about the same strength. An agriculturist should raise his own stock, and, knowing the disposition of his cows, as every man and boy will, who is among them and milks them, he is able to match his steers to be alike in temper, as well as in the other qualities mentioned.

The best age to break animals to the yoke is when they are calves. Small yokes with bows, staples, and rings, well finished, should be prepared, and the calves yoked, and drove about every day for several weeks, commencing when they are three or four months old. After they are used to the yoke, and are taught to "haw" and "gee," a small chain may be attached to very light burdens for them to move, such as a small stick of wood, or a hand-sled. The practice may be advantageously prosecuted at one and two years old; but they do not forget their knowledge when calves, and are easily subdued at three years old.

When steers, two or three years old, are first taken in hand, it requires three or four resolute men to connect them by the yoke, which should be small and light, but as well finished as if it was of a size sufficient for old oxen, and to be used on them. Care should be taken not to frighten the steers. The barn-yard fence should not permit any bullock to break it down, or leap over it. The steers to be yoked should be driven into it; they should be secured in a corner, by the men closing upon them, and the man selected to catch the steers should advance by the side of the one which is to work on the off-side, and, seizing the left horn with his right hand, he should hastily place his left hand under the steer's jaw, and move it forward until two or three fingers enter the right, and the thumb the left nostril, the other men at the same time pressing so close as to prevent escape. A struggle generally follows, which would overpower and frighten a man not skilled in the business of breaking steers. When the animal stands still, the yoke without bows is to be carried by a man on his left arm, and by his side, who having a bow in his right hand, he passes it under the neck, and enters the bow into the yoke, and pins it. If there is not a sufficient number to prevent the steer from escaping while the other is being caught, a chain should secure the yoke to a post, drawn close up. The steer to work on the near side is to be caught in the same manner, and yoked with his fellow. A strong, steady yoke of oxen is to be connected behind the steers with a chain, and another yoke of oxen under good command is to be connected forward, and the chain being loosed from the post, the three yoke are driven around the yard, or elsewhere, and after a little exercise of this kind, a wagon or cart may be attached to the yoke of the old oxen, and the team put upon the road.

The steers should be treated with great kindness, even if they are obsti-

nate and sullen. Tying tails together should not be tolerated, nor is there any use in confining their bodies together by passing a rope round them, as recommended in the article referred to.

If one of them falls down, and will not get up by moderate efforts, place over him a sufficient number of men to keep him down, and having removed the yoke from his neck, and being prepared with a small strong rope, tie it lightly round his hind leg nearest the ground, then bring back the fore-leg on the same side, and tie that on the other, and the other two are to be secured in the same way, and the steer left to his own meditations. After a while he will attempt to rise, and will put forth his whole strength to extricate his legs, which will not avail him if the tying is thorough, and skilfully done. The rope is to be removed after all efforts cease, and the animal thus subdued will never fall down in the yoke afterwards, to gratify a sullen temper.

If calves are regularly curried in the winter, and handled, they are easily managed afterwards. The general position of the teamster is on the left, or near side, opposite the yoke of the hind oxen. Occasionally he may advance opposite to the middle of the second yoke of oxen, if the team consists of three yoke. If he cannot manage three yoke in a team, he should lay down his whip, and permit one more skilful than himself to take it.

I entirely depart from Mr. Gilman, (page 357,) in his direction to use "a goad to drive with." A teamster, to drive three yoke of oxen, should have a whipstock of blue beach, hickory, or hazle, from eight to ten feet long, from half to three-fourths of an inch in diameter at the butt end, with so true a taper to the small end as to spring evenly, near two-thirds of the length. For two or one yoke of oxen the stock may be less, and shorter. The lash should be made six feet long, with four strands, braided hard, of woodchuck skin, tanned in soap, about the size of a shank of a common-sized small gimblet, one strand to be passed round the others in every two or three inches, so as to secure the strands from separating as the whip is worn by use. The lash should be tied firm to the stock, from four to five feet from the small end of the stock, by a string cut from the skin of which the whip-lash is made, which should be passed through a loop at the end of the whip, and when so secured, the lash wound round the stock about two feet, and again secured by a string, and so to the end, leaving about twenty inches of the lash pendent. The whipstock may be sharpened at the end, to move suddenly the near hind ox, Gee, if necessary. Being prepared, the teamster bears the whip on his right arm, and sustained by his right hand, with an angle back of about forty-five degrees. The teamster should have every ox under his eye constantly, whether his team is attached to a wagon, cart, plough, log, or other draught. A well-disciplined team requires very little use of the whip. An earnest word, with a corresponding look from the teamster, will cause every ox to spring forward. Not more than three inches of the end of the lash should touch an ox, and the stock should never be permitted to reach him, when a blow is aimed with the lash.

The article to which reference has been made is a very valuable one, and may be read with advantage by every practical farmer in the country.

Butter.—Dr. Merryman, of Springfield, Ill., has invented a process by which butter may be packed and kept for any necessary length of time, in any climate, in a state perfectly sweet, without salt, or any other chemical agent. Butter prepared in this way has been kept for two years, apparently as fresh and sweet as when taken from the churn. Means have been taken to secure a patent for the machine.—*Springfield Daily Journal.*

WIRE FENCES.

THERE are many districts in which wood has already become too valuable to be used for farm enclosures; others again, as in the larger prairies, in which it is not even to be had—and it is now very evident, that in the older States at least, the old system of fencing will have to be abandoned entirely, and that at no distant day. As estates become divided and subdivided, the cost of enclosure becomes enormous—in France, from this cause, the system has been abandoned altogether—not so in England, for there the laws of entail prevent this division. Eventually, our laws of inheritance being the same, we will be compelled, like the French, to do away with fencing entirely. In the mean time, it becomes us to cast about for some substitute for the expensive and weed-sheltering wooden worm-fence. The stone fit for fencing does not exist in abundance; we must look to the hedge and to the wire fence, and wooden or cast-iron posts. The frequent and rapid subdivision of estates with us will probably preclude the hedge from coming into very general use. Then, again, it is questionable, whether since the application of galvanism to iron wire, and the rapidity with which the wire fence is put up and removed, it would be compatible with good economy to plant hedges at all. Hedges, too, are liable among others to two serious objections—they draw the land, and breaches once made in them are of difficult repair. Though we incline to favor the locust or cedar post and iron wire—we will give directions for establishing each, with estimates of cost—and leave to our readers to decide for themselves.

Hedges.—After repeated trials, from colonial times to the present day, it seems to have been fairly decided, that the Osage Orange* (*Maclura aurantiaca*) is the best hedge plant that we possess. Without referring to other plants, foreign and native, that have been cultivated for the purpose, we will give the following short description, taken from David Landreth's capital work on modern gardening: "The Osage Orange is admirably adapted for hedges: it is of rapid growth, perfectly hardy as far north as Pennsylvania, is not subject to disease, is armed with sharp spines, which pierce or puncture, and, *abounding in acrid juice*, is not browsed by cattle."

Directions for making a hedge.—Prepare the ground you wish the hedge to stand upon precisely as you would a flower border, in regard to manure, tilth, &c. Let this border be four feet wide at top, make it twelve inches high by throwing up the dirt from slight trenches cut on each side—along the centre of this border plant your seed in two parallel rows—twelve inches apart and six inches in the drill—young plants may be used, but the seed are best (the seed is sometimes soaked in hot water until about to sprout.) Plant after all danger of frost is past—have a small nursery of a rod or two square to draw plants from to replace any that may fail in the rows—*the plants must be carefully weeded and cultivated for the first two years*—and until they reach the height at which it is intended the hedge shall stand, they must be guarded from stock.

Trimming and after-management. (Abercrombie.)—"If designed to train the hedge regularly by clipping it with garden-shears, it should be annually

* The Maclura is probably not adapted to our climate north of the Delaware. It has been fairly tried at the magnificent country residence of Mr. Cushing, near Boston, and as we understood from him, was "found wanting" in hardiness to resist the long and severe cold of that latitude. It is not likely to have failed for want of a fair chance, at the hands of one whose munificence leads him to spare no expense where any thing is to be done useful in agriculture, or improving to the horticultural taste and embellishment of the country.

performed in summer, observing, however, to top it but sparingly while it is young, until arrived at its intended height: only just trim off the tops of the straggling shoots to preserve a little regularity, and to promote lateral wood to thicken it as it advances, and cut it in also moderately on the sides; but when arrived at nearly its proper height of four, five, or six feet, or more, then trim close on the sides and top, annually, to preserve it thick, and within its proper bounds; in cutting the sides, always cut it nearly to the old wood of the former year's cut, otherwise your hedge will get too broad; and keep always the top narrower than the bottom."

Wire Fencing.—On this subject, the annexed letters from "The Genessee Farmer" cover nearly the whole ground. We will add that now that iron is getting so abundant, the subject of wire fencing is one well worth a little study, for we are firmly persuaded that as the cheapest, neatest, and most durable, it will certainly within a few years, in most districts, supersede all others.

EXPERIMENT IN WIRE FENCE MAKING.

BY D. KINGMAN.

Messrs. Editors:—Believing that my brother farmers feel an interest in whatever experiments others may try, whether useful or otherwise in themselves considered—especially if facts are stated, so that they can practice, throw away, or improve upon them, as their judgments may direct—I have been induced to send you my experience in making wire fence.

During the last fall I constructed 104 rods of wire fence in the following manner: I placed red cedar posts one rod apart, the posts being sawed about 3½ inches square at the bottom, and 3½ by 2 inches at the top, and set firmly in the ground to the depth of 2½ feet. I then bored holes through the posts with a ¼ inch bit—the upper one 4½ feet from the ground, and then 9, 8½, 7½, and 6 inches below, using five wires. Five inches below the lower wire I placed a board 14 inches wide, (with a short post in the centre to which I nailed the board,) which comes near enough to the ground. I then drew the wires through the posts and strained them by means of a lever, one end of which I stuck into the ground. I then looped the end of the wire around the lever near the ground, and while one is drawing upon the top of the lever, I plug the hole tight with pins of red cedar, previously prepared. I usually strained the wires 15 or 20 rods at a time, then spliced the wires by looping and twisting the ends, and proceeded in like manner again. After the wires are in and the boards on, I take pieces of wire of the right length and make one end fast to the upper wire, and then wind it round the wires below till I come to the board, through which I bore a hole and fasten the lower end of the wire; three of these wires between each two posts, thus fastening it all together.

The upper and lower wires are No. 10, and the others No. 11. I bought my wire of Messrs. Pratt and Co., of Buffalo, at $7·50 per hundred. The five wires weighed 355 pounds. The wire that I used to weave in up and down was No. 16, and cost 10 cents per pound: it took 25 pounds. My posts I bought in the log (pretty large ones) at $12 per cord; one cord made 105 posts, the number used. It took 2000 feet of hemlock boards, which I reckon at $7 a thousand. The sawing of the posts was $2·25. The cost foots up as follows:

355 pounds of wire, at 7½ cents	$25·02
25 pounds of wire, at 10 cents	2·50
One cord red cedar posts	12·00
2000 feet boards, at $7	14·00
Sawing posts	2·25
Making the cost of materials	$55·77

Which being divided by 104, the number of rods of fence made, gives 53½ cents as the cost per rod—aside from nails, of which I kept no account.

Some of your numerous readers may be anxious to know whether such fence will answer the purpose in all cases. I can only say that mine is a road fence, and that when it was built, there was a good crop of pumpkins lying in the field along side, where they grew, and that notwithstanding many cattle and hogs made the attempt at them, they did not succeed; and my short experience goes far to convince me that no cattle, hogs, or fowls will get over or through it.

Ridgeway, N. Y., January, 1849.

WIRE FENCE—MODE OF MAKING, EXPENSE, &c.

BY MYRON ADAMS.

MESSRS. EDITORS:—Having lately completed twenty-four rods of wire fence, and knowing that many farmers intend building such fence if it is found to answer a good purpose, I am induced to give a detailed account of it, that others may profit by my experience.

In the first place I would premise that this fence extends from my house (which is situated on a considerable elevation) to the highway, and is therefore more expensive than ordinary fences upon the farm. At each end of the fence I set a large cedar post three feet in the ground, and brace it firmly in the direction of the fence. The brace is about eight feet long, and extends from the top of the post to a large stone placed firmly in the ground. Two other cedar posts are placed at unequal distances between the outside posts, on account of the irregular descent of the ground. All the other posts are of band iron, $1\frac{1}{2}$ inches wide, $\frac{1}{4}$ inch thick, and placed one rod apart. Intermediate posts are placed between these, extending only to the fifth wire, and made of half-inch band iron. All of these posts are punched with holes for the wires to pass through. The long posts pass through large flat stones, and are clinched on the under side. These stones are firmly bedded in the ground. The posts should be fastened in these stones by pouring around them melted lead or brimstone.

The wires used are Nos. 10 and 12, and I am confident these are the best sizes where a strong fence is required. In building, I commence by running the upper wire through first, which is four feet from the ground. The second wire is ten inches below the upper, both of which are of No. 10 wire. The third wire is eight inches below the second, and of No. 12 wire. The fourth wire is six inches below the third, and of No. 10 wire, and so alternating the two sizes of wire to the bottom. The distances of the remaining lower wires apart are 5, 5, 4, 4, 4, inches. The wires, after passing through the lower post, are fastened firmly, which I did by passing them through a strap of iron, and coiling the ends.

I don't know that I can describe the manner of straining the wires intelligibly, but I will try. At the upper end of the fence, after the wires have passed through the post, they also pass through a plank of the same width and height. Each wire is then passed through a roller $1\frac{1}{2}$ inches in diameter and 6 inches long, having one end tenoned for a crank. A board of the length and width of the plank is placed upon these rollers. After each wire is strained by turning the rollers, a pin is passed through the board and roller into the plank, which fastens them firmly. The wires will contract some in cold weather, and should not be drawn too tight, at first.

As to the expense, I cannot be as definite as I could wish, as some of the wire purchased was too small. I have used about 110 lbs. of wire, costing $9·50; 20 iron posts at 6 cts. each, $1·25; 20 short posts, at 3 cts. each, 60 cts.; 4 cedar posts, $1, making $4; painting, $1: making an amount of $16·35.

Since the fence was completed I have had it broken through once by an ox racing with a horseman. I have found that the wires break only where the ends are looped together. I have since joined them by flattening the ends, laying them together and winding them for four inches with a small wire. This is the manner of joining them at the Niagara Suspension Bridge. The wires of this bridge are boiled in linseed oil, which forms an impervious coating, and probably toughens the wire.

As to the strength of the fence, I think it sufficient to withstand any ordinary pressure. Wires of the same size at the Suspension Bridge are each strained to a tension of 1500 lbs. The great objection to this fence, in the minds of many people, is its being invisible. This is why I like it, as it does not mar the beauty of the landscape.

In conclusion, I would say that I like this fence, because the winds make no impression upon it—no snow-banks form beside it—it occupies no space—costs less than the painting of a good board fence, and, although invisible, looks beautifully when the ground is covered with snow; and as to its durability, if wire bridges will endure, surely wire fences will last an age.

East Bloomfield, N. Y., Dec. 1848.

WIRE FENCE.—HOW TO MAKE, CHEAPNESS, &c.

BY T. C. PETERS.

The experiment of Mr. ADAMS with wire fence, as detailed in the last number, is worthy of notice. The fence was more costly than it need to have been, and upon the whole would not be the thing for a long line.

I cannot do better than to ask you to copy an article on the subject, in the January number of "The American Agriculturist,"—premising, however, that I do not think it best to heat the wire, as I notice by an article in a late number of "The Prairie Farmer" that when the wire has been heated, it is apt to get bent, and gets out of shape. Perhaps Mr. ADAMS's suggestion as to the alternate use of a larger and smaller strand is worthy of adoption. It would enhance the price but slightly. A further improvement might be made by training the Prairie Rose, or any other climbing rose, among the wires.

"I am glad to see the attention of farmers turned to this subject, as I believe at no distant day wire fence must become the leading kind generally over the Union. It is true that there is a difficulty in fencing against hogs, but even that can be overcome without much trouble, as is hereafter suggested.

"I have never as yet had any made, but intend to make a sample next spring. I have given the subject, however, a good deal of thought, and made inquiries and figures thereupon. From some small experiments I have made, there can be no doubt but my figures are mainly correct. I shall use No. 11 wire, cedar posts, as they are the most durable, and shall set them six rods apart, making the fence five strands high. The post being set, I should begin by boring an inch hole through each, at eighteen inches from the ground; then another hole eight inches from that, the next ten inches, then twelve inches, then fourteen inches; making the fence five feet two inches high. After the wires have been drawn through and strained tight, drive plugs into the holes at each side to hold them in their places. Between each post, and one rod apart, drive down a stake, saw into it opposite each wire, perhaps an inch, lay in the wire, and drive in a shingle nail to keep it in its place. It would be less trouble to drive a small spike into the post and wind the wire round it by one turn, rather than to bore the holes; though the expense would even be more.

"The wire ought to be prepared in the same manner that it is for bridges, boiled in linseed oil for a quarter of an hour, and then dried, and the same process repeated three times. This anneals and at the same time coats the wire, and saves painting it. If, however, there be but a small quantity to put up, it would be better to heat the wire, and afterwards paint it. Coal tar would also be an excellent substance for that purpose. Now for the expense:

A strand of No. 11 wire, 80 rods long, weighs 25 lbs.	
80 rods of fence would weigh 125 lbs., at 7 cents	$10·75
14 red cedar posts, 25 cents each	3·50
85 stakes, 1 cent each	0·85
Preparing wire and painting	1·00
Setting posts and stakes	0·50
Putting up fence, including spikes, or boring posts	1·00
Contingencies	1·00
Outside cost for 80 rods of wire fence	$17·60

This would be 22 cents per rod; but the actual cost to the farmer would not be 20 cents.

"On most farms, where there is plenty of timber for posts, it would not cost but about 16 cents per rod. But allowing for all contingencies, and that it costs 25 cents per rod, it is then by far the cheapest fence that can be built.

"In order to fence against hogs, I would drive down short posts and put on boards about two feet, and put the wires above, but nearer together. I think that no hog that ought to go at large would ever get through. For all other kinds of stock, it would be impenetrable. A neighbor of mine, who is compelled to fence against a whole village of street cows, put but two strands across a stream, where his fence was washed away, and it has proved a perfect protection. I have seen the cows walk up to it, but have never yet known one to attempt to get through, although the temptation between a fresh pasture and dry streets was very great, I have no doubt. T. C. P.

"*Darien, N. Y., November*, 1848."

WIRE FENCE.—A correspondent of "The Louisville Journal," writing from Ghent, Carroll Co, Ky., says:

"There has just been completed on the farm of Mr. WILLIAM HAWKINS, of this vicinity, some hundred and fifty or two hundred panels of this fence, which, for durability, neatness, and cheapness, far surpasses any thing that I have seen in the FENCE way.

"This fence answers the purpose of the strongest post and rail fence that can possibly be built, with not more than half the expense of the former. Mr. H.'s fence is constructed in the following manner: His posts (black locust) are first placed in the ground, say

eight feet apart, the first one being much larger and set deeper in the ground than the succeeding ones, because of the great resistance it has to make in stretching the wire. After the posts are properly arranged, grooves are sawed into the side of each post for the wires to lie in. The wires are placed one above the other from six to seven inches apart. The fulcrum and lever is then placed at the extremity of the wires to draw and tighten them. When they are sufficiently tight, they are secured firmly into the post by small staples made of wire. This fence sufficiently resists the encroachments of all kinds of stock, and costs only twenty-five cents to the panel.

"P. S.—The fence is capped with plank, which gives it additional strength and firmness."

THE NECESSARY CONSEQUENCES OF THE SEPARATION OF THE PLOUGH AND THE LOOM.

"*Eviction and Depopulation in Ireland.*—The process of eviction of tenants appears to be proceeding with great energy in some portions of Ireland. The *Limerick and Clare Examiner* reports that in one union in Kilrush, 13,000 persons have suffered eviction; 5,000 have been unhoused in the county of Limerick, and law processes are out for the demolition of 1000 houses more. Fifty houses have recently been emptied of occupiers, on the lands of Kildymo, and the demolition proceeds at a rate so sweeping, and so rapid, that on some properties 40 farm houses, of every description, have been dashed down in a day."

Like causes produce like effects. The man of Ireland is a slave to the landlord, who expels him, and destroys the house in which he has dwelt, that he may not return. The man of America is a slave to circumstances. He would prefer to remain at home, a consumer of food, combining his exertions with those of the producer of food, for the improvement of their common condition. Unable to do this, he is forced to fly to the West, and his neighbor who remains behind is compelled to waste on the road, and in distant markets, all the manure yielded by his land, and then he in his turn flies still further West, there to repeat the operation of exhaustion. Therefore it is that the papers of the South are filled with notices like the following:

"*Emigration to the West.*—The *Greenesboro (Ala.) Beacon*, of the 24th March last, speaking of the emigration westwardly, says: 'An unusually large number of movers have passed through this village within the past two or three weeks. On one day of last week, upwards of thirty wagons and other vehicles, belonging to emigrants, mostly from Georgia and South Carolina, passed through on their way, most of them bound to Texas and Arkansas.'"

The South abounds in rich lands, that need but a denser population to bring them into activity, with constantly increasing return to labor, and yet men are everywhere flying from their neighbor men, each seeking to roll his own log, though fully aware that two men, combining their exertions, can lift a log that a thousand, each acting separately, could neither roll nor lift.

"*Lumber and Freights in Maine.*—Several vessels have arrived at our wharves for cargoes, and, although our wharves are overburdened with lumber, the owners are afraid to ship it, knowing that, as the markets abroad now are, they must sustain a loss on all they might send off. Consequently, vessels must lie idle till the prospects brighten."—*Calais (Me.) Advertiser, April* 4.

Thus is it everywhere. The men, and the women, and the children, who should be at work in the factories of the East, consuming food, and requiring houses to be constructed out of the lumber of Maine, have been driven to seek the West, there to produce food, and to live in houses constructed with the logs of Iowa and Wisconsin, and the man of Maine suffers because the timber of the West is thus unnaturally forced into use. He

looks abroad in search of the market of which he has been deprived at home, and finds none. Let him unite with his neighbors in the determination to make a market on the land for the products of the land, and his prospects will speedily brighten.

Could the farmers and planters of the Union be persuaded to look around them at the fine trees by which they are everywhere surrounded, and estimate what would be their value, were looms and anvils brought into their neighborhood, to be wrought by men who would need houses, and mills, constructed of that timber, and who would aid in the construction of churches, and school-houses, and bridges, and rail-roads, and all other of the various improvements for which timber is required—could they be persuaded to estimate the value of the rich lands upon which grow those trees, and compare it with that of the inferior ones they now cultivate—and could they be persuaded to calculate the amount of taxes they pay on those lands, now so worthless, but which would then become so valuable—could they only be induced to do these things, we say, they would rise up as one man, and demand, (as a great national, and not a party measure,) the adoption of that course of policy which would most speedily bring the loom and the anvil to take their natural places by the side of the plough and the harrow.

PLANK ROADS.

As the system of plank roads is daily growing in public favor, and as we have vast districts of country, particularly in the South and West, in which any other system of improved roads is as yet totally out of the question—we give the following extract on this subject from a report made by George Geddes, Esq., Civil Engineer, Fairmount, Onondaga County, N. Y. On large plantations, where water or steam power is used, and where timber is abundant, these roads would probably pay well, even where laid down for private plantation purposes. They would effectually do away with the "hub-deep" condition of the roads on the rich alluvial lands in winter, and effect a saving of at least ninety per cent. in the labour of transportation from the gin or sugar house to the landing:

Plank roads have very recently been introduced into this country. According to the patent office report of January, 1843, they had their origin in Russia, and were introduced into Canada by Lord Sydenham, he being induced to try the experiment in consequence of the great cost, in the first instance, of McAdamizing a road, and the expense of keeping it in repair.

The first road made of plank was near Toronto. The three miles nearest the city having been McAdamized, the plank road commenced at that distance from the city, and was extended some miles into the country. The plank road lasted eight years, requiring during that time merely nominal repairs. The McAdam road, in the same time, required an annual expenditure of $400 a mile in repairs; amounting, in the eight years, to $3,200 a mile, a sum much more than sufficient to replank a road. When the plank road required a new covering, one-half of the stone road was dug up, and flung on top of the other half, and a track of plank eight feet wide was laid down in the place occupied by the stone. It happened that I visited Toronto at the time the plank road was rebuilding, and the eight feet track was being put into the stone road. The plank first used were sixteen feet long and three inches thick. They had worn out in the middle for a space of about seven feet wide—the ends of the plank being entire. The middle of the road had settled by the weight of the teams and loads that had passed over it. The sills were sound enough to justify their use for another covering. I saw the eight feet track in use, and then expressed the opinion that, as the narrow road was so much more evenly pressed down by the loads than was the wide road, it would be firmer, and that if more than one eight

feet track was demanded by the travel, it would be vastly better to lay two eight feet tracks, than one sixteen feet, not only because they would settle more evenly, but that the facilities for passing would be greatly increased. A road sixteen feet wide, experience proved, would be used in the middle. A wide load, going slowly along it, rendered it very difficult for a vehicle that was moving faster, upon overtaking the wide load to pass it. In making my report to the commissioners for the distribution of the stock of the Salina and Central Square Plank Road, at whose request I had visited Toronto, for the purpose of obtaining information upon this subject, I proposed two eight feet tracks for their road, and made my estimate of the cost accordingly. A year later I again visited Toronto, and to my surprise long planks were entirely abandoned. The road, as it was extended into the country, being made of a single eight feet track, having a smooth earth road to turn out upon, alongside the plank.

The result of these examinations was, that we determined upon making a single track upon one side of the centre of the road, and wherever we had ordinary earth to grade twelve feet wide upon the other side of the centre. Over some light sand we laid two tracks, and in one instance, for a short distance, we laid a sixteen feet road, owing to peculiar circumstances; so that we have a single plank track on one side of the road, and an earth road to turn out upon; and we have two tracks, four feet apart, of plank; and we have a wide plank road. The two separate tracks of plank are the most perfect road, and furnish the greatest facilities for teams to pass. The eight feet track is next in convenience, for it being on the side of the centre of the road that gives it to the loaded team that is going into town, (and the loading is chiefly going to town,) the unloaded team generally does all the turning out, while the loaded team travels on one side of the centre, and not in the middle of the road; while on the sixteen feet plank, the traveller inclines to keep the centre, and the slow movements of the loaded team, in turning out, very generally drives a light team off the ends of the plank upon sidling ground. When a team upon the single track is overtaken, it is much easier to pass it than it is when it is moving along the middle of the wide track; for the slow-going team is on one side of the centre, in the case of the narrow road, and there is a twelve feet earth road on the other side of the centre, for the fast-going team to pass by upon. The only way to make the wide track as convenient for passing as the narrow, is to grade an earth road, outside of the ends of the plank, and that would add to the cost, and make the road-bed so wide that it would be difficult to drain it well.

It has been proposed to fasten a scantling upon the middle of a sixteen feet track, leaving occasional vacancies for teams to cross from one side to the other, as a means of causing the travel to pass upon the ends of the track. This remedy for the evils of a wide single track, is expensive and objectionable from the inconvenience in crossing freely at any point.

Every view of the question results in this: that roads that are not greatly travelled require but a single eight feet track, save over very soft ground; and that roads that require more than one such track, should have two narrow tracks, in preference to one wide track. It is safe to say, that whenever two tracks are demanded, for the accommodation of travel, (unless the necessity grows out of the fact that the earth is very unsuited to road making,) that that demand will surely justify the investment of the money the second track will cost; for it must be a very great amount of travel that will not be accommodated by a single eight feet track, with a carefully cared for earth road to turn out upon alongside of it.

Experiments have been made to test the proper mode of laying the plank: "On the Chambly road the planks are twelve feet long, but laid diagonally, so as to make the road but eight feet wide. The weight of half the vehicle and load coming suddenly upon one end of the plank, and the other end not being kept down at the same time, the traffic constantly tends to disrupt the road, and the planks are loose, and spring from end to end." * * * "At Quebec, part of the road has been planked, the plank being laid lengthwise. It was considered that the planks would stand better the friction, and, when necessary, could be more easily taken up, and the road repaired. One strong objection to this mode of laying the plank is found to be, that the horses cannot keep their feet when much weighted, and are much exposed to falling, in consequence. Under all these circumstances, most have approved the manner in which the planks are laid on the Toronto road."—*Patent Office Report*, 1843, p. 129.

In constructing plank roads, it is necessary to have the earth upon which the plank are to be laid broken up and made fine, that they may touch the earth at every point. This is important, for if any space be left for air under the plank, or alongside the sills, dry rot follows. The sills should not be large: four inches square is sufficient. They should be perfectly bedded into the earth, and there should be broken earth under them, care being taken that they should not rest firmly upon rocks or other hard substances, that will not allow them to settle.

All earth formations of this nature will settle some, and the sills must be permitted to go down as the rest of the structure settles, or a space for air would be left between the plank and the earth, and the sills would thus support the plank; whereas the plank should rest upon the earth at every point. Nothing is gained by wide or deep sills, and the whole support of the road is the earth that is covered by the plank, and the amount is in no wise increased by wide sills. The chief use of sills is to grade by, and to keep the road in form until the earth has become settled.

There is, in the vicinity of Toronto, a short plank road that has no sills at all under it, and the grade is very nearly as exact as in those roads where sills are used.

The plank having been laid, the next thing is to grade a road some ten or twelve feet wide on one side, and two or three on the other, by taking earth from the ditches on each side, and bringing it by a ditch scraper just up to and even with the upper side of the plank, so that if a wheel runs off the track, it passes upon a smooth surface of earth. The ends of the plank should not be laid even, but a part should project from two to four inches by the general line, to prevent a rut being cut just along the ends of a plank. If the ends of the plank are even, and a small rut is made, the wheel of a loaded wagon will scrape along the ends for some distance before it will rise up to the top of the plank, unless the wagon moves in a direction nearly across the road; but if the wheel cannot move two feet forward without coming square against the edge of a projecting plank, the difficulty of getting on the road is avoided. It is not necessary to pin or spike the plank to the sills.

Perfect drainage must be secured, and to that end, the ditches must be deep and wide, and good sluices wherever the water crosses the road. This is the important point—DRAIN PERFECTLY.

The thickness of the plank must be decided by the amount of travel. If it is sufficient to insure the *wearing* out, and not the *rotting* out, of the timber, four inches is the thickness; if that thickness is not justified by the travel, then three inches should be used, but not less. The kind of timber is, too, a point that must be controlled by circumstances. Pine is used at

Toronto; hemlock on the Salina road; in some of the Western States it is likely that oak might be procured at a reasonable price. The number of feet (board measure) of lumber required for two sills four inches square, for one mile, is 14,080; plank, three inches thick, for a single track eight feet wide, will measure 126,720 feet. The grading and laying a track will vary in cost, according to circumstances. When an old roadway is used, and hills are not to be cut down, or valleys filled up, it will not vary much from fifty cents a rod for one track.

In those sections of the country where lumber is cheap, plank roads must go into very general use; and, in some localities, it is the only road that can be made to endure the changes of the climate with any reasonable outlay of money. Less power is required to draw loading over them, and they are superior in every respect to McAdam roads—while they last.

PLANTING TREES.

The most remarkable, if not the most culpable, neglect—that which indicates an unamiable and uncultivated, as well as improvident nature, is the omission, on the part of gentlemen in the country, to *plant trees* about their homesteads, for shade and ornament, if not for fruit and profit. Let any one who would be convinced how easy it would be to provide, in a few years, even in the most exposed and barren situations, all the beauty and luxury of a natural forest, only walk as far as the Lunatic Asylum, between Spruce and Pine streets, Philadelphia, and see how thriving is every one of the handsome trees so thoughtfully planted out there last autumn, at the instance of Mr. Cresson, in anticipation of the failure, some years hence, of the old sycamores. The work is only to be once well done, and the trees well protected, and then they may be left to endure for ever, as monuments of the good taste of the planter, transmitting his memory with gratitude to posterity.

We remember now, at the moment of scribbling this hasty but earnest exhortation to all our young friends to plant trees—maples, horse chestnuts, locusts, linden trees, (any thing but *Lombardy* poplars,)—that there is in the garden, near the house at Duoraghen Manor, Maryland, the classic residence of the late venerable Charles Carroll, of Carrollton, a weeping willow, stately and graceful, like she who planted it when a child, that will always be associated with the name of Mrs. Caton. How much more are such memorials to be coveted than monuments stained with blood and cemented with the tears of the widow and the orphan?

The Number of Dogs in the United States.—If it be within the power of those who are to give directions about the next census, we hope they will take measures to ascertain the *number of dogs*, male and female, in every county in our Union; and, if it could be done, it would be useful also to have a return of the number of sheep killed by dogs. At two cents per day, it is probable that the cost of dogs is equal to the value of our exports of grain and provisions to England this year; and it is not improbable that our sheep husbandry would add as much more to the wealth of the country, if it were not for the fear of having the sheep destroyed by dogs.

We are no enemies of dogs, of genuine blood, kept and used for their legitimate and appropriate purposes—all such will ever find in us staunch friends and defenders. But we have a great aversion to idle, useless whelps —*nati consumere fruges*—born only to consume the fruits of the land—whether they *go on four legs or two!*

PROFITS OF SHEEP HUSBANDRY.

We earnestly invite the attention of Maryland and Virginia farmers to the following. It will be seen that these sheep were kept on hay, being "foddered" twice a day during the winter, at least four or five months, and sheaf-oats once a day. Now we suppose this to have been done at a cost of at least seventy-five cents per sheep more than would be needed to keep sheep in *equally good condition* in Maryland, and South of that State. But in these States dogs steal in and kill, and thieves "break in and steal," and farmers are so much taken up with party politics, and party politicians care of course so little for a class who care so little for themselves, that no tax is laid on dogs, nor any penalty on the owners of such as destroy the farmers' sheep, nor any other measure taken to prevent so great an evil, or to indemnify those whose property is destroyed; and thus millions are lost, not only by killing them, but by *preventing the extension* of sheep husbandry, for which nature has provided in these States such abundant and peculiar resources.

MERINO SHEEP *vs.* NATIVES.

Messrs. Editors:—In "The Cultivator," of March 10th, is a communication from J. H. Rowley, on the matter of sheep. In that paper, Mr. R. attempted to prove the superiority of the native stock over the fine classes of sheep introduced from other countries, as a source of profit. Allow me to meet his statement, by showing what has been the result, as to a flock of merinos.

On Prospect Hill farm, Jamestown, R. I., Mr. D. W. Clarke has been the tenant for twenty-two years. At the time he took the farm, there was on it a flock of pure merino sheep. By some changes, the purity of the blood has been some little deteriorated, so that probably now it is about seven-eighths. Last year, in October, there were 146 ewes and 4 bucks. The ewes at that time were worth from $1·50 to $1·75 each. They were kept on hay during the winter, being foddered twice a day, and once a day were fed with oats in the sheaf. They were housed only in wet weather. At the lambing season, (about the middle of April,) there was added a portion of roots to the feed. Of these 146 ewes, 30 had twins, one had three lambs, and the other 115, one each. Of these, two perished. In May, the 31 ewes, with their 63 lambs, were sold for $4·50 each. The remaining 113 lambs were sold for $2 each. From the 119 sheep which were left, there were sheared 540½ lbs. of wool, a full average of 4½ lbs., which was sold at 30 cents per pound. The flock in the autumn was worth full as much as in the preceding autumn, that is to say, 115 ewes, at $2 each, making $230, and four bucks, at $8 each, making $32—aggregate, $262.

The ewes have begun again to lamb, and of eleven, five have borne twins. From these facts, it is not a sequence, that native sheep are most profitable.

RECAPITULATION.

146 Ewes, average worth in October, 1847, $1·62½,		$236·00
4 Bucks,	$7·00	28·00
		264·00
Sold 31 Ewes and Lambs @ $4·50		$139·50
113 Lambs @ 2·00		226·00
540½ lbs. of Wool, @ 30 cts.		162·15
		527·65

Present worth of flock, $262·00, making a clear price for fodder and care, of $525·65.

A. H. Dumont.

Newport, R. I., April 13, 1849.—*Boston Cultivator.*

The Hon. J. E. Pearce has been selected to deliver the next annual address to the Maryland State Agricultural Society.

ON STORING POTATOES.

LETTER OF INQUIRY FROM A VERY YOUNG PLANTER.

The following is, or was, a mere private letter of inquiry, from the son of a valued friend, an eminent physician in Maryland. The writer has it at his option to pursue any one of what are called the *learned professions*, but very wisely, as we think, preferred the more quiet and independent life of a cultivated cultivator of the soil, though thereby, under the hopeful operation of our public sentiment and public institutions, he commits an act of self-excision from what are called public *honors—even those to be conferred by the cultivators of the soil themselves!* At present, any education, any treatment is good enough for those who are to *follow the plough!*—while the public predilection and the spirit of the laws tend to the elevation of professional men to all political distinctions; and to reserve for the military exclusively, education at the public expense, to be followed by life-commissions, certain promotion, and pensions and preferments almost hereditary.

Thus will it ever be, until farmers and planters have the sense to appreciate their rights, and the spirit to maintain their just supremacy in the control of the legislation of the country, and especially in the appropriation of public money for educational and all other public purposes.

Though this letter, of little importance in itself, was not written to meet any eye but our own, the reader will see with what motive and for what object we have taken the liberty to use it on this occasion. In view of these, we hope the writer will excuse us.

Doden, May 7, 1849.

My Dear Sir:—I take this opportunity to thank you for the useful little book on the "Elements of Agriculture," which you were so good as to send me. I hope to derive great benefit from its perusal, as I feel that farming is my vocation.

I would be greatly obliged to you for a plan to erect a potato-house. I have several in view, but would be very glad to know your views on the subject before commencing my operations. I hope, my dear sir, you will not consider this a liberty, but will favor me with an answer.

Yours, respectfully, Donalson Steuart.

Office of "The Plough, the Loom, and the Anvil,"
81 *Dock Street, Philadelphia.*

Let me trust, my young friend, that instead of considering it a liberty, you will never hesitate to call on me when you may suppose that I can impart any information which can secure, for your agricultural labors and inquiries, results more profitable or satisfactory than they might otherwise prove. You shall not be disappointed, except for the want, on my own part, of two things for which I have discovered, when, alas, it is now too late, that I have been suffering all my life; to wit—*want of time, and of knowledge!*

It rejoices me to find you engaged in the study, as well as the practice, of cultivating the soil—the most important of all the arts and manufactures; because, whatever it may be in particular cases for individuals, agriculture is always the most profitable industry for the State. It employs more people, and in a more healthy and moral way, than all other pursuits, and, except what is used for seed, all its products are profit.

As to the best contrivance for *preserving potatoes*, you can best judge by considering the desideratum or end to be obtained—a proper medium temperature between too much cold and too much heat. The former would rot and ruin them, while the latter would stimulate their growth unseasonably. Keeping these conditions in view, a cellar under your barn or other out-building, into which the potatoes might be *shot* from the tail of the

cart, would be best, and most labor-saving. As they are of heavy and inconvenient carriage, if intended to be fed to your stock, the store should be as convenient as can be for that purpose. In their descent to the cellar, you might have a riddle so constructed and fixed at an inclined plane, as to separate the smallest from the larger ones. Potatoes may, however, as you know, be kept in conical heaps or in ricks, in the field, well covered with dry straw and a sufficient thickness of earth to exclude the frost, and on opening one of these kilns, for present use, the contents may be placed in barrels in the cellar. Mr. Colt, of Patterson, preserves his in a perfect state in barrels, filling the interstices with charcoal-dust from the factories. But your father has doubtless preserved his "Farmers' Library," in which case I recommend you to turn to Volume 2, where you will find the whole subject of potato husbandry presented fully and in every conceivable aspect.

The general principle, that every plant should have room to grow without depriving its neighbor of sun and air, is especially applicable to the potato, whose tubers can only be brought to perfection by a full quantity of those natural agencies; and numerous experiments have proved that the soil for potatoes should not contain rich and exciting manures, but any thing which acts mechanically by keeping it light and open, cannot be too highly recommended.

I regret that I have not leisure to go more fully into the subject; but as Mr. Crawford is still in the management of the Doden estate, you may safely defer to his judgment in a matter so practical. By-the-by, I learned with regret, from my friend General Steuart, that while mutual good-will and confidence between your father and Mr. C. would have prolonged their present business relations; the interest of the latter, in reference to his own property, may lead to a separation.

Much careful reflection, and a desire at once to do justice, and peradventure some good, lead me to re-avow the impression, that such men as Tilghman Crawford, by their industry, firmness, humanity, and practical skill in the management of agricultural capital, are eminently entitled to private and public esteem, far more than many successful political slang-whangers and demagogues, or the inventors of torpedoes and congreve rockets. Mr. C. can tell you that your potatoes should be lifted in dry weather, and without avoidable exposure to the sun, and put away where they may be kept at once dry and cool.

Mr. W. H. D. C. Wright is going, this year, more largely into the cultivation of potatoes, at his beautiful estate—Blakeford—in Queen Anne's County, encouraged by his success last year, in clearing, if I remember, more than $100 to the acre, on a considerable space of ground; but his barn-cellar being on the water's edge, he enjoys, over you, in location, great facilities for transportation to market. I believe all his crops have been fully doubled since that estate came into his hands, as they have been much more than doubled at Doden. I mention it to show, encouragingly, to young farmers, like yourself, what may be done by a free and sagacious use of labor and capital in *agriculture*, no less than in other pursuits.

Is it not, however, one among a thousand proofs of our careless and improvident husbandry, that the average yield of potatoes in our country falls so much under that of England, even more than our yield of wheat and other *corns*, as they call them? There, my impression is, that the average produce is not under 300 bushels to the acre, while in New York, for example, which is sometimes cracked up as a model State in agriculture, the average, in 1845, was not more than 80 bushels!—or is it that the land in England is for the most part—or the best portions of it—really and essentially more

fertile than ours? The question is the more worthy of consideration with me, for having heard Mr. Webster observe that to him the English soil seemed to have a rich, greasy, mulattoish cast, different from ours. I would not quote him as authority, for any thing that the public may generally know of him as a farmer, were it not that my own observations have led me to believe that he has a natural turn, and a penchant for agricultural life, as he is known to have for some rural pastimes. If he had been reared to farming, with the means of an Earl Spencer or Lord Yarmouth,* he would have been quite as eminent in agriculture as he is as an expounder of political constitutions—for he would have brought to its illustration the magnificent liberality of a Coke, and the philosophy of a Bacon. Do not suppose there is any disposition to compliment him on account of his high station, or the large space he fills in the public eye, for you have seen that my first tribute was paid, and with equal pleasure, to the *overseer at Doden—palmam qui meruit ferat.*

After all, the true inquiry and comparison for you, as a practical planter, to institute is,—how much clear profit, deducting cost of labor, &c., the same field will yield in wheat, corn, tobacco, potatoes, and other crops: keeping an eye to what is too often overlooked, viz.: what each crop will return to the land, in its offal, and in what state it leaves the land for subsequent crops in an *improving rotation?* But, my young friend, is there *any limit* to the field of intellectual research for the young farmer who enters on the profession, as I trust you have done, with firm intent to make it a source of useful and entertaining investigation, as well as of profit?

Well, I apprehend that by this time you begin to think my allegation of *want of time* is "all gammon!" The truth, however, is, that it so delights me to see well-bred, well-educated young gentlemen, who have "the world before them, where to choose," voluntarily betaking themselves to agriculture, to be followed, not as a mere drudgery, but as a profession that affords scope for mental exercise and excellence; that I am liable to be carried away by that enthusiasm which all my life, and in the midst of various public occupations, has led me to do what I could to encourage and honor such a disposition.

Heretofore, and in more prosperous circumstances, it has been done none the less zealously than now, that for bread, and as the only means or hope of procuring it, I am laboring to the same end in "The Plough, the Loom, and the Anvil."

If you can find any friend to unite with you in patronising my journal, commencing either with the first or with the second volume, next month, (July,) I trust there is no harm in saying, frankly, that you will much oblige one who for more than thirty years has been incessantly striving to elevate and benefit the various industries of the country, and especially that which you have chosen to follow as your "vocation!"

Respectfully, and with best wishes, your friend, J. S. Skinner.

* Grimsby.—The visit of Prince Albert to this town, to lay the foundation stone of the new docks, which will one day make Great Grimsby one of the first ports of England, is of memorable event in the history of Lincolnshire. The Prince left town on Tuesday for Brocklesby, the seat of the Earl of Yarborough. Nothing could surpass the affectionate and loyal reception which the prince met with at every stage of his journey, and when, in the afternoon, he reached Brockelsby, he found, drawn up in front of the hall, the whole of Lord Yarborough's tenantry, *to the number of* 500 *or* 600, *all mounted, and presenting, as may be imagined, a very striking and interesting appearance. Many of them wore tight cords and top-boots, and, firmly seated on their hunters, revealed at a glance the favorite pastime of the North Lincolnshire farmers.* Whether young men or old, the prince saw in their open and manly countenances, the true yeoman spirit blended with the contentment which a succession of kind and liberal landlords never fails to inspire in their tenantry. A more interesting sight, without the slightest tincture of theatrical effect, could hardly be witnessed.

[From the Wool Grower for May.]

THE WOOL TRADE.

We next give a statement of the price of wool in Philadelphia, on the 1st of July, and for the three preceding years. Sales were not, however, made at those prices, except at a very small extent, as the market was decidedly dull.

The following comparative statement of the prices of wool on the first of July, during the last four years, may not be uninteresting at this time:—

	1848.	1847.	1846.	1845.
Prime or Saxony,	36 @ 40	38 @ 42½	31 @ 33	39 @ 41
Full blood,	31 @ 33	35 @ 36	30 @ 31	35 @ 38
3–4 "	28 @ 30	33 @ 34	28 @ 29	33 @ 35
1–2 "	26 @ 28	30 @ 32	26 @ 28	32 @ 33
1–4 " and common,	25 @ 26	29 @ 30	25 @ 26	28 @ 31
No. 1, pulled,	25 @ 27	28 @ 29	23 @ 25	28 @ 31
" 2, "	21 @ 23	22 @ 23	18 @ 19	22 @ 25
Merino, "	28 @ 30	31 @ 33	28 @ 29	32 @ 35

And we close by giving the prices current in New York and Boston, March 30, 1849.

Saxony fleece,	40 @ 47½
Merino,	37½ @ 40
" 3–4 to full blood,	33 @ 37½
Common,	30 @ 33
" pulled, No. 1,	25 @ 27
" " super,	28 @ 30
Lambs,	— @ —
" country pulled,	35 @ —
" super,	— @ 33
" No. 2,	— @ 17

The markets, however, are bare of wool. Some manufacturers have fair stocks, but generally not enough to more than last them into the next clip.

Wool did not materially advance until last February, when it went rapidly up to its present price. But we do not believe these prices can be sustained, especially upon the coarser qualities, because the money market continues stringent; nor is there much prospect that it will be so abundant as many have anticipated.

Many, last year, were anxious for us to give some price that we thought might be realized for wool, at the Buffalo Depot. We did so, and subsequent events proved our estimate true; but sales were not made rapidly, and we have been blamed because we could not get those prices. All we can do, is to give facts, and our opinions based upon those facts.

We expect to realize within the following range, and can see nothing in the way to prevent us.

No. 1,	34*c* to 38*c*	Super,	45*c* to 56*c*
" 2,	32 " 35	Extra,	40 " 45
" 3,	28 " 32	Prime,	35 " 39
" 4,	27 " 29	Long combing,	27 " 30
" 5,	23 " 25	Short "	25 " 32

Mr. Vail's Sale of Short-horns.—Those who wish to lay a sure foundation for a herd of pure short-horns, ought to bear in mind that Mr. Vail's sale comes off at Troy, on the 13th day of June. His herd is more or less of the celebrated Bates's stock, often referred to in advertisements of short-horns in England, as the "crack" stock of the United Kingdom. The cow "Peach," of the short-horn blood, exhibited at Smithfield, in 1843, weighed, when slaughtered, 1770 pounds.

DUCKS.

"Young ducklings had better not be cooped, but should be confined to a dry, warm yard, for some days at least, lest the mothers should drag them out too early on the wet sward, before the dews have been absorbed by the sun's rays. Wet, damp, and cold, are always fatal to young poultry chicks of all sorts, producing either scouring or the cramp, when, becoming very weakly, if they do not die at once, they are liable to be trodden under foot by the mother, particularly if cooped. In warm, dry weather, they may take to the water at any time without detriment. In the artificial state, ducklings require, like turkey chicks, to be assisted by a few crams of barley meal, or pollard, two or three times a day. In Ireland, they mix boiled nettles with their food, upon which both thrive admirably. Soaked bread, or too much wet food, is injurious. 'Remains of boiled potato' should be dry and free from salted gravy, and the like, from the table. Duck eggs set under a hen is more convenient, and the young ones are not so liable to be trodden down, but it is painful to witness the anxiety and trepidation of the poor foster-mother when the little ones take to the water."

There is one mistake in the above: "In warm, dry weather, they may take to the water at any time without detriment." It seems almost a paradox in *Duckology*, but young ducks should be kept from the water until the *down* which covers them when hatched has been superseded by a coat of *feathers*. Then they may go swimming *ad libitum*. Keep them from the water when young, follow the directions above, and give them animal food, fresh, chopped up, and you may raise as many ducks as you please.

The Maryland Agricultural Society held its quarterly meeting in its own, central, spacious, and convenient Hall, in Baltimore, on the 2d ult. The President of the Society, Mr. Calvert, supported and encouraged by the President of the Montgomery County Society, A. B. Davis, and the President of the New Castle County Agricultural Society, in the fulness of their zeal, were all in attendance, with many other gentlemen whose presence indicated that the right spirit is abroad, and the best influences at work.

We have not room to note the proceedings, except to say, that a committee was appointed to make arrangements for the next exhibition, in October; and resolutions were adopted to memorialize Congress for an appropriation of public lands, for the establishment of institutions in each State for agricultural education; also, for getting, through the Vice-Presidents, resident in each county, a return, in the form of an estimate, of the number of dogs in each county; as an incipient step towards the enactment of some legislation, to prevent or diminish the destruction of sheep by dogs. One gentleman present said it was believed that two thousand had been thus destroyed in his county within the past year.

Deserved Testimonial.—The Massachussets Horticultural Society at its last meeting presented to the Hon. M. P. Wilder, the late President of the Society, a massive silver Pitcher, superbly chased and wrought, and bearing the following inscription:—

HON. MARSHALL P. WILDER,

President of the Massachusetts Horticultural Society, from A. D. 1841 to 1849.
This Piece of Plate is presented by the Society, as a testimonial of respect and appreciation of his valuable services during the above period.—January, 1849.

Mr. Wilder has eminently deserved this gift, for his services in behalf of the Society have been numerous and enduringly valuable.

The "Tables of Exports," at pages 644–5, which must have cost much labor and inquiry to make them up, should have been credited to that valuable, excellent journal, "The Philadelphia Commercial List."

THE FARMING INTEREST.

"It is supposed," says 'The Maine Farmer,' "that three fourths of the population of the country are employed in agriculture; the other quarter being divided among all other employments and professions. Besides, the mechanic, the manufacturer, the merchant, and the professional man, are all mainly dependent upon the farmers for patronage and support. When the farmers, as a class, are prosperous, all the others participate in their prosperity. From this it follows, that whatever benefits the agricultural class, directly benefits three-fourths of the people, and indirectly benefits the other fourth.

"Surely, then, the farmers have a right to demand of government the means to sustain their agricultural societies, and to collect and disseminate important information relative to their calling. Let the light of science and education be brought to the aid of agriculture. Let our resources be developed, and the skill and industry of the husbandman be directed into their proper channel, and results would soon be obtained, in which not only the farmer could rejoice, but the whole community with him.

"These are the right sentiments, and every paper having the true interests of this noble branch of industry at heart, should make them known, should strive to enforce them, by calling upon our government, that, in fostering and promoting other great interests, this, the greatest of them all, should not be overlooked, but come in for its full share."—*Germantown Telegraph.*

In the enumeration here given of the various classes into which the community is divided, the writer has overlooked one, that is, of all others, the most opposed to the prosperity of the agricultural interest—that of *politicians.* To support them, and their children, and their friends, it is necessary that we should have fleets, and armies, and military academies, and naval academies, and foreign ministers, and *chargés d'affaires*, and secretaries, and bearers of despatches, and legions of other officials; and to find employment for them, or to give excuse for the payment of them out of the treasury, we must have occasional wars with Indians, or Mexicans, and thus we make occasion for large expenditure, needing large revenue. Thus, when the farmer or planter desires protection against the perpetual revulsions of England, he is met by the objection that it would diminish the revenue. It is deemed better to consume foreign food, in the form of cloth, and iron, than home-grown food, in similar forms, because it will increase the revenue. If the farmer, then, complains that he has lost his market, by the closing of the furnaces, he is answered, that the revenue has increased, and the temporary prosperity of the treasury is deemed an abundant compensation for the permanent exhaustion of the land and its owner.

The farmers "*have* a right to demand of the government the means of maintaining their agricultural societies," and the sooner they insist upon the exercise of that right, the better it will be for them. They "have a right" to insist that the consumer shall be brought to take his place by the side of the producer, that they may be enabled to live in closer connection with each other, cultivating rich soils instead of poor ones, economizing the labor of transportation, returning to the land the refuse of its products, and restoring the poor lands, already exhausted, and thus increasing their means of obtaining better food, and improved implements, and newspapers, and magazines, and books, that now they cannot buy, because our system, perpetually vacillating, has tended to exhaust the land, to compel men to fly from each other, and thus to deprive them of the stimulus to exertion which is found always to exist where there is a market for apples, and pears, and peaches, and plums, and cabbages, and potatoes, and turnips, and carrots, and mutton, and veal, and beef—but which never exists where men are compelled to cultivate wheat, or cotton, because they can find a market for nothing else. The policy is wise which tends to draw men together—combination increases power, and promotes civilization. The policy which tends to leave men to depend on distant markets, is a foolish one, as it scatters them, and prevents combination and improvement.

THE HERON AND THE BITTERN.

There is a fine heronry at Sir Henry Fletcher's park, Walton-on-Thames. The nests are built on the top of some of the finest fir-trees in the kingdom, and appear somewhat larger than those of the rook. These birds must go an amazing distance to provide food for their young, as I have been assured that the bones of sea-fish have been found under the nests. They appear to be slow and heavy fliers.

A young bird from this heronry, having fallen out of the nest, was taken away in the evening by a gentleman, who carried it to his house at some miles' distance, and turned it into a walled garden that night. The next morning, one of the old birds was seen to feed it, and continued to do so till the young one made its escape. This bird must have gone over a very considerable space of ground in search of its young.

A large assembly of herons takes place at certain times of the year in Richmond Park, where I have counted from fifty to sixty at a time. Sometimes they may be seen on the tops of trees, and at others on the ground at a distance from the ponds, appearing perfectly motionless. This assemblage is very curious. The nearest heronries to Richmond Park are the one near Walton-on-Thames, and that in Windsor Great Park, both of which would scarcely furnish the number above mentioned. There seems to be no reason why these birds should congregate and remain for so long a time in the listless manner in which I have seen them; nor why the birds from two heronries should meet at the same time in a place so far distant from their usual haunts. It is seldom that one sees more than two or three herons together in the same place, and then only when they are watching for their prey.

A bittern (*Ardea stellaris*) was lately shot by one of the keepers in Richmond Park. Though nearly dead when he was going to pick it up, it showed great ferocity.

From the scarcity of this bird in England, few people are acquainted with the dismal noise it sometimes makes. Mr. Rennie describes it in a very picturesque manner.

"Those," he says, "who have walked in a summer's evening by the sedgy sides of unfrequented rivers, must remember a variety of notes from different water-fowl; the loud scream of the wild goose, the croaking of the mallard, the whining of the lapwing, and the tremulous neighing of the jack-snipe. But of all these sounds there is none so dismally hollow as the booming of the bittern. It is like the interrupted bellowing of the bull, but hollower and louder, and is heard at a mile distance, as if issuing from some formidable being that resided at the bottom of the waters. This is the bittern, whose windpipe is fitted to produce the sound for which it is remarkable. These bellowing explosions are chiefly heard from the beginning of spring to the end of autumn; and are the usual calls during the pairing season."

I have been informed by keepers that, if they wound a bittern, it requires great caution in taking it up, as it will frequently dart its pointed beak at their faces, and it always makes a vigorous resistance. Mr. Bingley says that this bird will wound the leg of the sportsman even through his boot; and that it sometimes turns on its back, and fights with both its bills and its claws. When surprised by a dog, it is said always to throw itself into this posture.

THE BAT.

"Now air is hush'd, save where the weak-eyed bat,
With short, shrill shriek, flits by on leathern wing."—Collins.

It is probable that we had formerly a larger breed of bats in this country than we find at present. One of the workmen employed in the repairs of Cardinal Wolsey's Hall, in Hampton Court Palace, brought me the skeleton of a bat, which he found at the end of one of the rafters of the ceiling. The animal, when alive, must have been as large as a pigeon. The *hooks* were very strong. The natural history of the bat is very curious, and we have some particulars respecting it in M. St.-Hilaire's work, to which I have already referred in speaking of the mole. The claws of the hind feet of the bat are all of an equal length, and thus better adapted for enabling the animal to suspend itself, which it does with the head downwards, that being its natural posture of repose. By adopting this attitude, the bat, on being disturbed, can readily disengage itself, and dropping into the air, can take flight immediately. The wings of bats serve them as a sort of mantle or cloak when at rest, and in which they sometimes also cover up their young, though they will at other times fly about with two of them hanging to the breast in the act of sucking. The wings, by their delicate structure and extent, serve as feelers to the animal in guiding its flight

in the dark. The celebrated naturalist Spallanzani ascertained this to be the case, by the following experiment:—He hung up some cloths across a long room, with holes in them here and there, large enough for a bat to fly through. On turning loose some of these animals, which he had previously deprived of their sight, and, as much as possible, of their hearing, he found that they flew without the least difficulty through the holes in the cloths. It is inferred, that as they did not any where touch the cloth, they must have been warned of their approach to it by feeling the repulse of the air set in motion by their wings, and have distinguished the hole by no such reaction taking place. This is analogous to the case of a blind boy, who on coming towards a person, standing perfectly still in a room, when he had approached within a short distance, suddenly stopped, stamped with his foot, and then turned off to one side. This boy must have perceived a difference in the action of the air. But I once observed a still more extraordinary instance of this susceptibility in discovering danger, in the case of a blind horse. I was in the habit of driving this horse in a gig, and by way of experiment I often brought him suddenly up to a closed gate, through which he had probably never before passed, but he always stopped short, and I never could force him against it. This horse was perfectly blind, and must have avoided the gate in consequence of perceiving that there was some immediate intervening object which obstructed that current of air which he had previously been conscious of. We know that a blind horse will sometimes step into a hole or a ditch, but he rarely runs himself against a post or a tree. It may be thought that, in these two last instances, the *ears* assisted in guiding, probably by their being able to perceive a difference in the sound of their step.

But to return to the bat. She will sometimes settle on the ground; and when she does this, she shuts up her wings, and is then able to walk, and even to run, at a good pace, though awkwardly. She probably only alights in search of food when she is unable to procure it on the wing. When on the ground, she runs to find some eminence from which she may raise herself into the air. Bats hybernate by getting into concealed places for security, and they then wrap themselves up in their wings.

They are gregarious animals. Vast numbers of them were lately found under the roof of an old building in Richmond Park. I had two sorts of them brought to me, nearly similar in shape, but one very considerably larger than the other. This latter is probably the *Vespertilio altivolans* mentioned by Gilbert White. It measured nearly fifteen inches from the tip of one wing to the tip of the other. Its ears were very short, and its fur of a chestnut color. The place where it was found had a most offensive and noisome smell. These larger bats were quite as numerous as the smaller species.

MANUAL OF MANNERS.

CONVERSATION.

This is a subject which requires the utmost tact and discretion. Conversation depends generally on subjects started by chance; but the tone of the conversation of modern society is too often of an insipid nature. It consists, in a great measure, of vain compliments, the current rumors of the day, idle jests, superficial wit, scandal without end or purpose. How few are able to sustain a serious conversation, or prolong a useful one!

Chit-chat, which is generally harmless, is always amusing; but every thing savoring of scandal ought at all times to be strenuously avoided.

In conversation you should speak only of matters of which you know something. Never venture upon any subject of which you are ignorant, unless it be for information. If you wish to secure attention, address yourself to the capacity of those to whom you speak, by not appearing to be more learned than they are; by which means you may draw out their knowledge, which otherwise they will keep to themselves. It is common enough to hear persons who have acquired a smattering of science constantly using technical terms, but which they frequently misapply. The truly learned make no such pretensions. They find their own language sufficient for the expression of their sentiments, and they eschew every thing that savors of affectation or pedantry. It is painful to hear a person laboring to show his learning, while all the time he may be only exhibiting his ignorance. In conversation all that is required is to speak to the purpose. The best-informed are generally the least pretending. They speak little even of those matters of which they know most, and they never take it upon them to express themselves decidedly on any matter of which they are not sufficiently informed.

When you speak of religion, or about religious matters, let it be with reverence; and

never give any countenance to profanity or levity, when uttered by any one in your hearing. Remember that evil communications corrupt good manners. To be witty at the expense of religion is the sign of a depraved mind and a corrupt heart.

Never dispute about sacred things. It is often the case that those who appear most addicted to arguing about theology, are not only ignorant of the first principles of religion, but have generally very little religious principle.

Avoid, if possible, touching upon subjects which you have reason to know will be displeasing. It is somewhere truly said,—"There are particular things that touch a man's pride too nearly to be spoken of lightly." Have regard, therefore, to the feelings of those with whom you converse. Politeness will teach you the tact of directing the conversation to such topics as you know to be agreeable, or in which you believe those in whose company you may be are most versant.

Good humour, when it is kept within bounds, is the charm of conversation, which is always the better for a little seasoning of wit. But, as has been remarked, wit without wisdom is a dangerous weapon. To take upon you to furnish mirth for the whole company is not only undignified, but you will find it an arduous task. The professed wit, though his company may be courted, can never himself be esteemed. A harmless jest will enliven the conversation, although it may be lively enough without jesting. A good thing, whatever the proverb may say, is always the worse for being repeated; and whether it is heard or not when first uttered, it should never be twice spoken. The beauty of these things is their point; and to give *that* effect, they must come trippingly off the tongue.

It is not contrary to good breeding to laugh in company, and even to laugh heartily, when there is any thing amusing going on: this is nothing more than being sociable. To remain prim and precise on such an occasion is sheer affectation. Keep a strict guard, however, over the propensity to ridicule; for this is a species of wit that is not always understood, and may be unpleasantly resented. To crush a jest in its first conception is preferable to giving utterance to what may hurt the feelings of another. "A witty saying often leaves a mortal wound."

It requires a great deal of temper to bear with satire. Rochefoucault says, "Raillery is more insupportable than reproach." An innocent joke, however, is harmless. Never allow a supercilious smile to be seen on your countenance, nor permit yourself to sneer at any one. "No debt is so surely or so liberally repaid as contempt."

To jest on the sorrows or the misfortunes of another, or to ridicule bodily defects, is heartless and unfeeling.

Avoid punning. That trifling kind of wit, although not deserving of the severe reproof of Dr. Johnson, that he who would be guilty of perpetrating a pun would pick a pocket, is nevertheless unworthy of a man of education or breeding. The unlettered do not comprehend, and the really learned do not countenance it.

In conversation, you will find it the best way not to be ambitious of saying smart things. Every one, however, is now more brilliant than his neighbor, and one is almost forced to be witty in self-defence.

There is nothing more annoying than interruption, except perhaps contradiction. The person who is speaking to you, whoever he may be, or on whatever topic, except a personally insulting one,—for that admits of no license,—is entitled to a patient hearing; and, when a question is asked, courtesy requires that a reply of some kind or other should be immediately given.

Contradiction is the greatest rudeness any one can be guilty of, and many persons will not brook it, for it creates a sort of revulsion in the feelings which it is sometimes difficult to control. Those who possess a high idea of their own merit, as well as persons of an argumentative disposition, are apt to be guilty of this gross breach of good manners. From the vehemence with which some persons maintain their opinions, it should seem as if the welfare of the world depended on the matter in dispute. The folly of argument is apparent in this, that nothing is gained even although the point in contention should be conceded. It is better, however, to make some concession for the sake of peace, than provoke or prolong any altercation or dispute, about a matter too, which, after all, may be of the most unimportant nature. Argument, where entered upon, should be conducted in a mild and gentlemanly manner; in which case it tends to enliven the conversation, which might otherwise become dull, by uniformity of opinion.

Public topics form fit subjects for conversation. Matters purely confidential ought never to be introduced. Keep faithfully the secrets that are intrusted to you; but, for your own peace, never be anxious to obtain the confidence of another.

He who loves to indulge in idle babble shows himself unreasonable, and to a certain extent dishonest, for he occupies the time which might have been employed in listening to some person of sound information and

good sense. It was well observed by Goethe, that of "all thieves, fools are the worst; they rob us of both time and temper." It is difficult to say which is most objectionable, —a silly timidity which prevents a man from opening his mouth, or a flippant presumption that prompts him to engross all the conversation to himself. We may endure the silence of the one, when we cannot tolerate the empty noise of the other.

It is impossible to prevent people from talking of themselves and their own affairs. At all times avoid this mark of a vain and little mind, which obtains no sympathy; for, as Shakspeare says, "What is Hecuba to me, or I to Hecuba?" If you are prone to speak too much of yourself, you will be apt to become tiresome; if too much of others, censorious. A knowledge of the world is of immense advantage in this respect. There are people so conceited, that they have always tact enough to direct the conversation to matters concerning themselves; while many there are who take a pleasure in complaining of their lot, and of the dulness of the times.

It is allowable in some cases to conceal our sentiments; but we ought never to do so for the purpose of deceiving others. Make it a rule never to give utterance to falsehood: in all circumstances, and whatever be the consequence, adhere to truth. To be detected in any subterfuge, is to subject yourself to continual suspicion; for no credit can ever be given to one who has once been convicted of an untruth. Though neither truth nor sincerity oblige us to speak what we think in all cases, we should in no case say what we do not think.

Truth is the best ornament of conversation. If you have to describe any thing, narrate the matter as it happened, plainly and concisely, without being too diffuse on the one hand, or too minute on the other.

Speak not too loud, nor yet too low. The former may bring on you the accusation of rudeness; the latter, subject you to the charge of whispering—which is at all times an invidious thing.

Never use oaths in conversation. Swearing is the mark of a vulgar as well as of an immoral man, and says very little for his head or his heart. The well-bred make use of neither offensive names nor contemptuous expressions. Some people say rude things without any intention to offend: on the other hand, there are many, especially among those who do not possess much merit, who are too ready to take offence at what is said by others.

Rousseau justly remarks, that "the tone of good conversation is neither dull nor frivolous. It is fluent and natural; sensible, without being pedantic; cheerful, without being boisterous; elegant, without being affected; polite, without being insipid; and jocose, without being equivocal. It deals not in dissertations or epigrams; conforms to the demands of good taste, without being bound by rule; unites wit and reason, satire and compliment, without departing from the rules of a pure morality, and allows all to speak on subjects which they understand. Each one expresses his opinion, and supports it, in as few words as possible; and no one attacks that of another with warmth, or upholds his own with obstinacy. All impart information, and all are entertained."

Considering the value of good conversation in improving the mind, and giving a tone to the manners, it is strange how few parents think it worth their while to instruct their children in the art. "A considerable part of their time in schools," it has been well observed, "is spent in acquiring facility in written composition; and yet, have we not occasion to relate a hundred times, where we have only occasion to write once?"

In conclusion, the young and inexperienced are seriously advised not to presume to give an opinion upon every subject indiscriminately, as some do who ought to know better. Rashness of decision is no proof of judgment; and a professed critic, like a professed wit, gains few friends, though both may have their admirers. Silence is often all that is requisite to preserve esteem; and a well-timed modesty will prevent those weaknesses of character from being observed which all are apt to betray in thoughtless or idle conversation.

On the subject of behavior in company, Legh Richmond gives the following excellent advice to his daughters:—

"Be cheerful, but not gigglers. Be serious, but not dull. Be communicative, but not forward. Be kind, but not servile. Beware of silly, thoughtless speeches; although you may forget them, others will not. Remember God's eye is in every place, and his ear in every company. Beware of levity and familiarity with young men; a modest reserve, without affectation, is the only safe path. Court and encourage serious conversation with those who are truly serious and conversible; and do not go into valuable company without endeavoring to improve by the intercourse permitted to you. Nothing is more unbecoming, when one part of a company is engaged in profitable and interesting conversation, than that another part should be trifling, giggling, and talking comparative nonsense to each other."

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END OF VOLUME I.