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ADDRESS

Delivered before the Montgomery County, Pa., Agricultural Society, by J. R. Tyson, LL.D., of Philadelphia, an Honorary Member.

Mr. President, and Gentlemen of the Montgomery County Agricultural Society.

You cannot expect to hear, nor can I hope to utter, much that will be interesting or valuable to you as practical farmers. My life has been passed among books and men. The green fields of the country, though ever a charm to me, have only been the habitual resort of a few lazy summer weeks, less to investigate the peaceful laws of nature, than to escape those wrangling controversies which concerns the laws of men.

Fresh air, amusement, and recreation are sought by the inhabitants of cities, in their rural excursions. They seek to acquaint themselves with country life or agricultural duties. Content to see smiling verdue and luxuriant abundance, on every hand, they do not inquire with Virgil, *Quid faciat lætas segetes*, by seeking that entertainment which the principles of vegetation would afford, or trouble themselves with tracing the connection between the private thrift of the farmer and the growth of national prosperity. Other arts are important, but that of agriculture is indispensable. Some minister to our convenience, and others to our luxury; but tillage contributes not merely to both, but is essential to the first necessities of animal nature.

Under such circumstances, I feel that the compliment of an invitation to appear before your Society to-day, is more owing to the accident of my being a land-proprietor in your County, than to any ability I possess to entertain or instruct you, on your own subject. Indeed, I must throw myself wholly upon your indulgence in treating a topic somewhat foreign to my ordinary studies, and which no one can presume me to have adequately mastered.

While I can pretend to little knowledge of agriculture as a practical art, it would be uncandid not to admit the existence of many opportunities of oral instruction, in its theoretical principles. The house and land referred to, and which I occupy during a portion of the year, were those of a venerable and lamented relative, whose name is well known to your Society in connection with the cause of agriculture. It was the place of his birth and residence during a long life. By frequent visits, from early childhood, to his hospitable roof, I became enamored of his calm and ennobling occupations. From his lips, more than even *Georgics* of Virgil or the *De Rustica* of Columella, I imbibed a taste for a pursuit at once of deep private interest and of diffusive public utility. The clustering memories of joyous infancy and boyhood are rather deepened and sanctified, than lessened or dissipated, by time and absence. Within a few miles of the spot he the mouldering remains of my maternal ancestors for several generations. To [illegible] of such circumstances and [illegible] may be ascribed my connection with the acres which record them.

As successor, on *Woodlawn Farm*, to Job Roberts, the author of "The Pennsylvania Farmer," you, no doubt, expect from me a sketch of the results of some of those experiments which were conducted in its fields. The performance of this duty, however imperfectly executed, will show that not to know some of the experiments and improvements of which they were the theatre, is to be unacquainted with the history of improved and systematic tillage in our State. I hasten, therefore, to discharge this engagement, in requital of a debt due to the memory of this eminent pioneer, and in justice as well to the County whose farming interest he advanced and illustrated, as to the State at large, the dawning of whose agriculture he hailed and brightened, and whose radiant morning gave promise of a rapid and bountiful maturity.

According to the record of his family Bible, Job Roberts was born on the 23d of March, 1756, now (in 1856,) a little more than one hundred years ago. His birthplace, of which I have spoken, is in Whitpaine Township in this County, in the mansion* and on the farm where also he died, on the 20th of August, 1851. He was therefore, at his death, in the 96th year of his age. It may be mentioned as evidence of the longevity of his race, or the salubrity of his native air, that his grandfather attained the same age, and that his father lived to his ninetieth year, both on the same spot.

A hundred years ago, the schools in Pennsylvania, out of Philadelphia, were not numerous or of a high grade. Mr. Roberts enjoyed as good opportunities of education as the neighborhood afforded, but it must be acknowledged that these were slender. But he seems to have repaired by assidnity at home, the literary deficiences of his teachers at school. Whatever were his precise wants in this respect, he disciplined and cultivated his mind by reading, and attained a style in conversation and writing which sufficed to express his ideas with perspicuity and force. Such was the tone of his character, that, in early life, he was distinguished among his compeers, as the first man in a large circuit of country. He was habitually consulted by his neighbors in matters of difficulty, whether in political, personal, or rural affairs. In trusts, and as umpire, arbitrator, and juryman, he was often in request. He steadily declined political office, though he was frequently pressed to accept it. But Governor Mifflin, in the year 1791, unsolicited, sent him a Commission as a Magistrate of the County, a position which he acted in with remarkable credit and carefulness, down to the year 1820, when to the general regret he voluntarily resigned it, and returned his Commission to Governor Hiester. In this post, he healed disputes and reconciled differences, which but for his personal interposition and influence, would have led to expensive and protracted litigations. Of the many judgments which he rendered as Justice of the Peace, *no one was ever reversed on certiorari or appeal.* On the contrary, it is related of the lawyers of Norristown, when applied to by a defeated party before him, that they generally advised the litigant to acquiesce in the judgment. This fact, which is well established, is as honorable to the legal profession of Montgomery County, as it is to the Justice whose intelligence and integrity were in such high repute. The sterling purity of Mr. Robert's character, gave him as much influence with his contemporaries, as even his original and vigorous understanding. His name, whenever referred to, in the forensic discussions of the court-house, was always introduced with the greatest respect, and often in terms of emphatic eulogy. Happening one day to be at Norristown, while a student of law, I went into the court-house, where a celebrated lawyer was addressing the court and jury. For some purpose of his speech he drew a sketch of Mr. Roberts as a man, as a former Justice, and as an agriculturist, and made him the standard of excellence in each. He was followed by the opposing counsel, who admitted, in all its parts, the justice of the delineation, but he denied the fairness of any application to his client, by way of contrast. In conversing with the older members of the Bar, I was informed that the character of Mr. Roberts was regarded by them as public property, and was a standing theme of illustration of example. In the public discussions, all testified to his discriminating common sense, and to his incorruptible and fearless integrity.

He was a keen observer of men and things. Whether in the retirement of his agricultural labors, or in the society of his friends, whether surrounded by angry litigants, where he sat as the Judge, or in the court-house where his judgments were examined as a magistrate, or his statements were analyzed as a witness, the exposure of his mind never forsook him. He steadily attended to the subject before him, and lent himself to it alone. From this habit, he acquired a great variety of useful and practical knowledge, which was always at the service of his friends. Mr. Joseph Fulke, of Gwynedd, to whom is attributed the interesting obituary notice of him, which appeared in the Germantown Telegraph, of September 10th, 1851, makes a similar remark. This writer says that he had known him for above sixty years, and was never in conversation with him for fifteen minutes without learning something. All who approached him while in the vigor of life, bear the same testimony. Men of learning and travel eagerly sought the society of a man who was not distinguished for literary attainments, and who had never been two hundred miles from his own dwelling. In this domestic habit he seems to have appreciated and applied the adage of the Southern planter, that "the best manure is the foot of the master." His associates acknowledged that they always received some pregnant hints, and carried away with them much that was practically valuable. The late eminent Professor, Dr. Thomas C. James, his near neighbor in the summer, was often struck with the brightness and ingenuity of his views, and has not unfrequently repeated to me his remarks in application of familiar facts, which evinced great originality and acuteness. It is in this native turn and active play of mind, that we trace the secret of his success as a husbandman. When I once quested to him the sentiment, that a man was a public benefactor who taught two blades of grass to grow where one grew before, he observed that "attention to the laws of nature, and bestowing the labor she required, would often multiply the one blade to four blades and even a much greater number."

When Mr. Roberts began life as a farmer, agriculture was little attended to as a science in Europe, and less in Pennsylvania. He attained his majority in the year 1777. The difficulties in his way were various. He could not obtain even the implements of good husbandry. Many of those now in common use were then either unknown or not in this country. To supply his wants he devised some and made others from descriptions which he found in foreign works.—How important thorough farming is to practical results, and how soon its effects may be discovered in the multiplication of these "*blades of grass*," the first incident in his career furnishes an example. In the year 1790, he proposed to build a barn of noble proportions. His father, who was living, opposed his scheme as chimerical, insisting that it would be impossible ever to fill it from the crops. At his request, Mr. Roberts agreed to reduce the plan of his intended building to a size four times as large as the one then in use, alleging that a plantation containing 350 acres of good land, ought to fill a barn of greater dimensions. The old gentleman entertained a high idea of his son's skill in the raising of crops, but he believed that it was visionary to expect that the increased productions of his acres would ever enable him to do more than to "half fill" the projected inclosure. In the course of two years from the time of its erection, the new structure was *not* only full, but double the quantity within it, was housed in temporary buildings outside, or put away in ricks and stacks.

In 1785, a few gentlemen in and around Philadelphia, agreed periodically to meet together with a view to improve the system of farming, then in vogue. It is well known, that these consultations gave rise to *The Philadelphia Society for Promoting Agriculture*, which came into existence some years after. This Society was the earliest systematic movement in this country to improve our domestic tillage. How much this public and beneficent design was promoted by General Washington himself, who entertained the most enlightened views on the whole subject, and how far it was assisted by Judge Peters, and other eminent men of that day, all know who have looked into the early struggles of this art in Pennsylvania. Mr. Roberts, then a young man, and living but far without, at that early day, the aid of a good turnpike road for frequent communication with these gentlemen, endeavored to form a similar Society in his own country. But the effort was premature. The men of sufficient leisure and congenial spirit, were too few in number to form an association. He therefore determined to apply himself singly to the business of an improved system of agriculture, with a view to effect, for his own benefit, and the public example, what could be accomplished by unassisted exertion. He had, he believed, a genial soil, susceptible of improvement, and capable of repaying culture. He therefore deliberately resolved to bring it into as high a condition of productiveness as the imperfect and clouded state of the science would permit. We have now the lights which he and other benefactors have left us, and especially the aid which, since his time, geology and chemistry have imparted. Liebig has done much, and the fertilizing composites which this chemist and others have suggested, have done more.

Observe the astonishing result of various concentrated fertilizers, especially of Peruvian Guano. If these had been known, or their properties understood and admitted in this country, we hardly know what such an agriculturist would not have accomplished. The Peruvians, who have employed it upon their lands almost since the time of the Incas, and experienced its marvellous effects, have adopted a saying expressive of their sense of its inappreciable value to vegetation. "Guano" they say, "*though not a stint, works miracles.*" This manure, which the great and learned Von Humboldt vainly tried for nearly half a century to introduce into Europe, as a manure, was at last imported into England, in the year 1839 or 1840, for chemical purposes. About this period, the French chemists discovered the fertilizing qualities of the salts of ammonia, and other substances, which so largely enter into the composition of guano. It was then applied as stimulant to growing crops, and the effect was almost incredible. From that time, its reputation rapidly spread, and, finding its way into this country in the year 1845, we all know how universally it is sought, and what prodigies it has effected. More than a hundred thousand tons are annually consumed in the United States. But science is supplying other aliments to land, perhaps equally efficacious, and which, less volatile, require less care in the application to prevent the escape of the ammoniacal salts. If the venerable Humboldt, who so long and zealously pleaded the cause of guano to insensible Europe, had addressed his reasons to the agriculturists of this country, it cannot be doubted that he would soon have found an attentive and willing auditory.

Though destitute of these aids, Mr. Roberts knew the value of deep ploughing, and of cross or oblique ploughing, of lime to assist vegetable decomposition, of plaster for animal substances, of weeding, and of barn-yard manuring. All that these could effect, and in the best manner, all that observation, reflection, and experience, from time to time, revealed, were promptly resorted to. The result was, as he tells us in a book which he published in 1804, entitled "The Pennsylvania Farmer," that he raised from a field of 10 acres 565 bushels of wheat, which is 56½ bushels to an acre. Even at the present day, such a crop would bring a prize in the distribution of agricultural premiums. He informed me that after the publication of his work, he raised 360 bushels from a lot of six acres, which is 60 bushels to an acre. This, he said, was about the year 1820. Such a product, if occasionally equalled, is very seldom exceeded at the present day, either in this country or Europe. He leaves his testimony in favor of thorough tillage, and attributes to it much of what his land effected. "Thorough ploughing," he says, *in a great measure*, supplies the want of manure, by keeping the earth in a loose state ready for the reception of atmospherical influence." When thus loosened and all its particles minutely divided, in combination with the proper kind of manure, a limit can hardly be imagined to the productiveness of a genial soil. He laid great stress upon the *time* of ploughing, and insists that "one ploughing in the fall is of more benefit than two ploughings in the spring." All his experience confirms the truth of that man's philosophy, who left the testamentary injunction to his sons to hunt for a treasure hidden in his land by thoroughly turning up the ground all over his estate. It proves too the probability of the story told by Pliny of the vine-dresser, who, after dividing his estate between his two daughters and himself, found by applying the same amount of labor to the one-third which he retained for his own subsistence, it yielded as much as the whole vineyard did before the division. The Romans so well understood the disadvantage of large farms, and the benefits of that thorough tillage which small ones more readily admit, that their great poet has left, in his Georgies, for our instruction, this brief but expressive sentiment:

laudato ingentia rura
Exiguum colito.*

Mr. Roberts shows that careless husbandry does injury to the land, that in proportion to the parsimony with which labor and manure are withheld, will be the poverty of the farmer, and that his wealth will increase in the exact ratio of their augmented application. "I am convinced," he observes, "that 50 acres of land, properly managed, will produce more than 500 badly conducted. The profits of the 10 acres, if you will examine the above accounts, you will find upwards of £120 a year, clear profit. If 50 acres were conducted in the same manner the profits would be £600 a year." (He must of course be understood to speak of domestic currency, the £600 being equivalent to $1600 of our federal money.)

The perfection of agriculture consist in making every part of the ground produce the largest quantity of which it is capable, at the smallest cost, and least injury to the soil. What land is capable of doing may be learned from the gardeners and nursery-men around Philadelphia.—They know that loosening the earth by frequent and deep ploughing and digging, plentiful manuring, diligent weeding and needful irrigation in seasons of drought, bring into activity all the latent principles of germination and fertility. These little patches of earth repay tenfold all the labor applied, and fivefold all the manure expended upon them. Manure, without tillage, performs only half of its office, and tillage without manure, making the land dependent upon the atmosphere, the rain, and the sun, supplies only half its wants. The best writers agree that land thoroughly broken up and loosened by the plough and harrow, will do better without manure, than with this addition, applied upon a merely scratched surface, or in hard and clayey soils, upon compact masses of earth thrown up by a single inroad of the plough. But it is the combined effect of both, the manure being fitted to the soil and the crop, that secures a remunerating harvast.

In England, from the populousness of the country, and the limited area of the agricultural districts, land is sometimes subjected to its utmost capacity of production. But writers assert that, even there, it is capable of bringing forth ten times more than what it now produces. According to Goldsmith,

"A time there was, ere England's griefs began,
When every rood of ground maintained its man."

By this rule, each acre of land could be made to sustain four persons. It is easy to calculate, at that rate, the value of fifty acres, which, under the present system of tillage in Pennsylvania, is rarely sufficient for the comfortable maintenance of a small family. According to Goldsmith's couplet, a farm of fifty acres should subsist two hundred men; so that after supplying the wants of a family of ten persons, the amount of products to be disposed of would support one hundred and ninety! The celebrated Cincinnatus, whose honors as Consul, Dictator, and General, were more than regal, cultivated a farm in Italy, it is computed, of about three acres in extent! What wealth might not our farmers accumulate with freeholds twenty times the size of the great tiller of Rome, if their comparatively noble domains were cultivated with commensurate labor and equal intelligence!

Mr. Roberts lays great stress, in his treatise, on the superiority of *soiling* cattle over the system of pasturage in vogue. I do not understand him as recommending the practice of immuring them in stalls, where it would be alike cruel and injurious to confine them. They could readily be placed and fed in a field supplied with shade and water, and large enough to enable them to roam, if not at will, at least enough for healthful exercise. It is certain that, in the system of pasturing cattle, more grass is trodden down and destroyed than consumed. Our author computes that one acre from which the herbage is cut and fed, will go as far as eight acres which are pastured.*

But to return to the period of 1785.—At that time the use of plaster of Paris or gypsum was unknown in Pennsylvania, except perhaps by Mr. Roberts and the late Judge Peters. The last-named gentleman wrote a treatise upon it in 1797, in which he speaks from experience of its fertilizing qualities. It was certainly not much, if at all employed as a manure, until some time after the revolutionary war, which terminated in 1783. Mr. Roberts tells us in his "Pennsylvania Farmer," published, as we have seen, in 1804, of its being then in general use among farmers. In another place, he speaks of its being specially applied by him in 1788, and not as if it was a first application. I well remember, when a child, the words of a parting interview between him and Judge Peters, whose conversation had been upon the uses and abuses of this manure. "Squire Roberts," said the Judge, "the public give to me the credit of introducing the use of gypsum into Pennsylvania, but I am not sure that you are not entitled to that honor." Mr. Roberts pleasantly answered that, however the fact might be, as he had taken much of the profit, Judge Peters should have all the credit.—I do not refer to this question of priority to deprive an eminent man and prominent pioneer of the reputation which public fame has accorded him. Judge Peters unquestionably first called public attention to this substance in 1797, by a treatise, in which he refers to his experience of its use fifteen years before. It is enough to say, that its appropriation by both these agriculturist was nearly contemporaneous, and that a question of precedence can scarcely be made, where each acted independently of the other, and where the efforts of both were so eminently meritorious. The introduction of gypsum to the notice of our farmers, and its adoption by them as a means of fertilization, is a fact of no small consequence in the history of our domestic agriculture. I refer to it only in order to mark it as an era in our rural annals.

But if his priority in the adoption of gypsum may be questioned, his claim to other improvements are incontestable.—Such was the state of our domestic tillage eighty years ago, that the ploughs and harrows were unfit for their purpose.—These of his own invention were substituted by the farmers around him, in a large district of country. The harrow especially was highly approved, as it worked by hinges in the middle, so as to divide and ride gently over any irregularity or obstruction. He devised also a roller for land, in the year 1792, on novel and approved principles. This implement was, for a long time, the only roller used in that part of Montgomery County, and it is still in use by many farmers who will not allow it to be supplanted by any other.

It is a curious fact, illustrative of the stationary or unprogressive state, in modern times, of that classic region whence we have deprived so much of the *utile* as well as the *useful* in life, that nearly the same form of plough is now employed in Italy, as in the time of Augustus. We have in Martin's edition of the first Georgic a draught of the present Mantuan plough, which is nearly the same with that described by Virgil, above eighteen centuries ago.

In the rearing of Indian corn, the method of Mr. Roberts was as novel as it was successful. He soaked the grains intended for seed in water drained from the barnyard, or the accumulation of which, he had a large reservoir. The grains began to germinate in twenty-four hours after they were put into the steep. In this state then they were planted. The corn never failed; it grew vigorously on every hill. When the maize was from a foot to a yard in height, this fertilizing liquid was pumped from his reservoir into a hogshead, drawn upon wheels, and from which it was poured on the hills by a convenient contrivance. The result was an invariable and valuable crop,—averaging seldom less than eighty bushels to an acre.

About the year 1815, he invented a machine for dropping the grains, which was not only accurate as to distance, but it deposited the required number for every hill. This invention was never patented, and has been superseded by an implement which is said to work with more precision and certainty. In order to conduct his farming operations on as large a scale, and with as few laborers as possible, he resorted to various expedients. Among these, was a water wheel moved by a gentle stream, for churning cream into butter, in a dairy producing one hundred and fifty pounds a week, was a matter of no trifling importance.—This device was introduced in the year 1797, and was as beautiful as it was complete. How far the reputation which his butter enjoyed was owing to this system of churning, may be a subject of conjecture. Certain it is, that many persons yet remember, with keen satisfaction, the excellence and flavor of an article which was coveted at any price.

A machine, now so common, for the paring of fruit, was invented by him at an early day, as well as various other devices which necessity required or convenience suggested.

Having in this way furnished himself with the useful implements of husbandry, and cultivated his acres to the highest point of which, at that day, they seemed to be susceptible, he turned his attention to what were then esteemed objects of embellishment and luxury. About the year 1800, he undertook the extensive task of inclosing all his fields with hedges of thorn. He accomplished what he undertook, and for more than a quarter of a century enjoyed the pleasure of surveying a perfect system of hedge-rows around his fields and the outer lines of his estate.—But alas! the blight of a severe winter killed those of English and Virginian origin, leaving to him and his successors, only a couple of hedges as memorials of what, at one time, so tastefully and generally prevailed. But for many years they were an ornament, and constituted a source of pride. He refers to the cultivation of the thorn for hedges, in his book already quoted; and, in 1824, he contributed an article to an agricultural work on the best mode of treating them. It cannot be doubted, that while they continued, they were complete, substantial, and beautiful fences. He often mentioned a visit he received from the late Dr. George Logan, of Stenton, soon after the return of that gentleman from his well-known *embassy* to Europe, under the unofficial auspices of Mr. Jefferson. "Dr. Logan," he said to me more than once, "pronounced my hedges quite equal to the best he had seen in Europe." They flourished to a considerable extent in 1830, according to a writer in Hazard's Register of Pennsylvania for June of that year. This writer describes, in terms of the warmest approval, the general aspect of the farm, at that period, and thus expresses his admiration of Mr. Roberts's thorn fences. "Hedges of thorn," he writes, "of different descriptions, inclose many of his fields, making altogether, a distance of more than three miles. These hedges were planted and brought to perfection, without any assistance but that which he derived from books, and the limited means of observation within his reach. They exhibit a most flourishing appearance, and may be advantageously compared, in point of vigor, compactness, and beauty, with any of the boasted thorn-hedges of Europe. Nothing can be more agreeable than the view, from an eminence, of these fences, encircling his highly-cultivated and luxuriant fields."—(6 vol. Has. Reg. Penna. p. 92.)

Mr. Roberts has left upon record his opinion, that none of these thorns can be permanently relied upon in this country, except that which is known as the Newcastle thorn. Of the many kinds which he attempted to propagate, all perished except that single variety, which alone survives to the present day.

Ignorant of the mechanic art, he yet applied himself, with assiduity, to the acquisition of manual skill in the use of mechanical tools as an indispensable part of the business of farming, especially in a new country, where from the scarcity of artisans, the farmer had to depend in a great measure upon himself. He was able to superintend the manufacture of, and partly to make, a cart, a carriage for two horses, and a sleigh; the two last, for many years, being the only vehicles of the kind in his neighborhood. It was in the year 1780 that he first drove in this carriage, which I have often heard was the only one, which, for twenty-five years, appeared within the limits of Gwynedd or North Wales Meeting, in this county. Whether from the simplicity of the times or the state of the roads, worshippers went to meeting and church, in those days, either on horseback or on foot.

He was one of the first in the State to introduce and breed the Merino Sheep. Forty years since, he clothed himself and some of his friends in fine broad cloth, manufactured out of the beautiful wool which these animals furnished. He warmly espoused the propagation of silk-worms and mulberry trees, of which he had a large grove, more than half a century ago. Various articles of his silk-manufacture, such as cloth, stockings, and other parts of dress of that material, are still in existence, of a date as ancient as the war of the American Revolution.

When we reflect upon the variety of his engagements, we are surprised at the manner in which he fulfilled them all. He raised the condition of his land to the highest pitch to which it could be cultivated at that time, and sustained it there, while he attended to the duties of Magistrate, and gave much of his time to public trusts and private hospitality. In the beginning of the present century, he compiled a book, at once the result of various reading, and the careful record of his own experiments. At this day, when intelligent oversight may be purchased as well as performed in person, these various offices may easily be discharged by the largest farmers. But half a century ago, few persons could be found in Pennsylvania to whom such delicate duties could be committed. They were to be done by the master, or left undone altogether. He was able to accomplish all this without much apparent effort, by the observance of method and system, for which he was remarkable through life. "Order," he said, "is Heaven's first law." He therefore sought its aid, and found it, as described by Dr. Blair: a ray of light which darted itself through all his concerns. His example, as an intelligent, systematic, painstaking and successful husbandman, has been of eminent advantage to all within the scope of his influence. It has done something towards elevating the character of a pursuit, which, from being regarded with indifference or contempt, is now considered one of the noblest, as well as most useful, occupations in life. This calling had a strong hold upon his taste and affections. He tells us in the Introduction to his treatise on farming, that his inclination tended to make practical agriculture and improvements in husbandry his "amusement and principal study," and that, "having read most of the authors on that subject," he subjected their theories to the test of experiment. We have in that performance, a register of his observations and proofs, and it is not extravagant to say, that even those farmers who practise upon the improved methods of culture since introduced, will be edified and enlightened by the many pertinent facts and valuable suggestions there recorded. We cannot deny to him the merit of a pioneer in Pennsylvanian agriculture, of an acute observer of the laws of nature, and of an original investigator of the principles involved in those laws.

A farmer of Susquehanna County, by general acknowledgment one of the best in his vicinity, informed me, several years ago, that he followed the system of culture recommended in Mr. Roberts's treatise. The son of that farmer has since raised the astonishing crop of 180 bushels of shelled Indian corn to an acre, from a field of five acres, by the adoption of such obvious improvements as an intelligent cultivator, already on the right track, would know how to employ. Mr. George Walker, the agriculturist referred to, testifies by his mode of cultivation, to the efficiency of thorough tillage, as a means of production. "The ground," he says, "was kept *loose and mellow*, and the grass and weeds subdued." It must, however, be remembered that all of Mr. Roberts's experiments were made on his own farm, and that what may be a judicious treatment of that soil and soils of similar properties, may not be universally applicable. Many hints may be gleaned of great practical value to all soils and every locality. For example, two of his principles may be regarded as fixed and invariable laws. One is, that the old plan of letting an exhausted field lie fallow to rest, without tillage or manure, is erroneous and improper. The other is, that in order to secure a succession of crops, you must give back to the land by tillage and manure, the elements of which the previous crop has deprived it.

But, aside from these direct benefactions to agriculture, his example as a practical tiller does much to lift the art of rural economy from the low station to which vulgar opinion had consigned it. In a word, we have in Mr. Roberts a personal exemplification of the dignity of manual labor.

Cincinnatus, who was found at the plough when summoned to fill the highest office which the mistress of the world could confer, was of patrician birth and connections. In the martial atmosphere of Rome, the utility of agriculture raised it, as a profession, to an equality with that of arms. Curius, Cato, Scipio Africanus, and many other illustrious Romans, labored as farmers in the field. As the Roman Deputies always found Cincinnatus at the plough, we may suppose he felt the force of the truth which Franklin's verse has made familiar to us all:

"He that by the plough would thrive
Must either hold himself or drive."

It was upon this principle, that Fellenberg established his farm-school, near to Bern, in Switzerland, and it is upon this that an Academy of our own, already incorporated, is to be founded, in Centre County, in this State.

To the many men in this country who have united manual training to cultivated understandings, we may add the example of the gentleman whose career I have reviewed, long recognized as one of the earliest as well as most enlightened agriculturists of Pennsylvania. To a philosophe printer in Franklin, to an astronomical ploughman in Rittenhouse, to a legal and political cobbler in Sherman, we have a learned and erudite blacksmith in Burritt. The lessons of general biography enforce the theory of our own beautiful institutions, and show that the brightest intelligences of all nations and times have been those whose honors were not inherited, but those who

"self-compelled,
Have earned the station, which, in life, they held."

With other men who have assiduously employed their hands in honorable industry, Mr. Roberts testified to the excellent effect which an active body produces upon the mental activity and power. It not only did this, and cured a consumptive tendency, accompanied with alarming symptoms in early life, but it preserved him to a cheerful, green, and useful old age.

The physical state of our new, magnificent, and teeming country, requires the fostering hand of intelligent industry, rather than that of fastidious taste and decorative embellishment. It is time enough to attend to the ornaments benefitting the capital of a building, when its foundations are laid, and its base is securely constructed. In a word, if some of the wealthy men of business in Philadelphia, whose education and turn of mind, rather practical and intelligent than elegant or refined, were not so too much allured by a temporary or morbid fashion for costly and exotic *flowers*, and would unite their efforts and money in the cause of useful experiments in agriculture, they would find in the pursuit as high a satisfaction, and contribute quite as largely to the public weal. This great State of ours, with such an impulse, would bloom and blossom as the rose. The example, beginning in our metropolis, and stretching around it, would soon spread itself like the rays of the sun, shooting from a common centre, and be diffused to the utmost limits of our luxuriant territory. Pennsylvania is already the greatest wheat-growing State of the sisterhood, and her farmers, by common consent, are among the best in the Union. Let Montgomery County do her full share towards preserving these praiseworthy characteristics, and add her contingent to the common stock of improvement and production, as well as of public repute and fame. The products of superior tillage will materially contribute to the value of her mineral treasures, and both unite with her manufacturing skill to build up a vast internal and external commerce. It has been said of Pennsylvania that she has abundance of coal and iron;—enough of one to warm her friends, and of the other to cool her enemies. To this it may be added, that her luxuriant fields, cultivated by intelligent husbandmen, will as abundantly supply the necessary food for both.

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*The date on the front gable of this house, which is durably built of stone, is A.D. 1713.

*Praise large farms; but cultivate a small one.

*Mr. R. illustrates the difference between *soiling* and *pasturing* thus: "A farmer pastures his stock; his neighbor cuts the grass and feeds his. Each has thirty two head of cattle and horses. He that pastured, consumed two acres per head, being sixty-four acres; and he that cut and fed kept four head on an acre, being eight acres."

He thus shows that eight acres on one system are equal to sixty-four acres on the other; that is, while it requires sixty-four acres to sustain thirty-two head of stock on pasture, the same extent of acres suffices to support two hundred and fifty-six head upon the soiling plan. If this be true the thirty-two head might be kept on eight acres, and fifty-six acres of the sixty-four would remain for productive and valuable crops. What a saving and profit would amount to! He cites the experience of an English farmer in favor of the *soiling system*, as follows:

"A farmer in England soiled twenty horses and seven cows from seven acres of clover, without giving any corn or hay. He closely watched the management of his tenant with the same number of stock pastured in a field, and it proved that one acre mowed went as far as six pastured. When his beasts had eaten five acres, the tenant's had consumed thirty acres, and the tenant's horses were in inferior condition." (pp 74-5.) He adds, that a man and boy perform all the work and attendance incident to soiling forty or fifty beasts.