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AND
PEE DEE FARMER.

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EDITOR AND PROPRIETOR.

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IMPROVEMENT IN THE BREED OF HORSES.

It will be found on inquiry that good horses have been becoming gradually scarcer in our fairs for the last twenty years; and we find that many, of what was considered the most useful sort have now entirely disappeared. The breed is quite extinct.—Where for example, do we now find the fine short legged handsome cob, whose action and strength enabled him to go any pace, and to carry any weight that could ride? How few of the splendid carriage horses which were met with fifteen or twenty years ago are now to be seen! Nay, how few of anything really good is there to be met with?

The breeders having parted with their best mares, are now under the necessity of employing those which remain. For these, perhaps, they look out for a good horse; but whatever may be the good qualities of the sire, the produce will, in a greater or less degree, receive the impression of the dam. If she want size, or is defective in her formation it is a hundred to one if the foal does not exhibit many or most of her defects. The stock, however, is reared, and may it is thought, turn out a good horse; and certainly we are sometimes agreeably surprised in the progress towards perfection which some badlike foals make; but, in general we are disappointed.

In the selection, therefore, of breeding stock, a fine sound eye, a pleasant countenance, with the organ of benevolence (as the phrenologists speak, fully developed in the breadth of the forehead, is not to be overlooked as an indication of mildness of disposition; but the previous history, if known, is the best criterion to found an opinion on.

The most conspicuous degeneration is to be found in the strength and due proportion of the different parts; the limbs and body are not in harmony with each other, and in almost all there is want of strength. Let size and strength, therefore, be kept in view; but let all have proportion. In the form of the body we have a strong index of the constitution! on the form of the chest depends in a great degree the bottom and durability of the race-horse; it is the essential of his wind. The exterior of the chest, the ribs and their muscles, and the diaphragm, are the active agents in respiration; the lungs themselves are passive. Upon the mechanical formation, therefore, of the ribs, depends in a great degree the powers of respiration; they must be long and circular at the posterior part to form a large thorax. Unless the chest (thorax) be large and easily acted on by the muscles, when the animal is making great exertions, as the blood is then flowing through the lungs with a velocity increased according to the degree of exertion, it must either pass through in an impure state, and be sent to other parts of the system unfit to fulfill its proper office, thus allowing the body to become fatigued for want of due nourishment; or otherwise by the chest not being capable of sufficient enlargement to admit of the free flow of blood through the lungs, the animal becomes almost choked, by the inability of the muscles to enlarge the chest sufficiently and is thus on the point of being suffocated; here lies the connection between the blood and the mechanical formation.

A capacious chest is, therefore, essentially necessary to enable the animal to continue any protracted and severe exertion.—But there is a form also necessary for speed. In order that every part may contribute to the same end, we find, in all well-formed animals for speed, that the anterior of the chest is somewhat flattened on the sides, in order that the anterior extremities may be allowed to approximate, which is indispensably necessary in rapid progression.—Without this arrangement there would be a constant changing of the centre of gravity during motion, and instead of moving in a smooth gallop or trot, the horse with a wide chest would be waddling like a duck.

A natural elipsis should be presented in the front view. On the other parts of the trunk I need offer few remarks. Of length we generally have enough, but the breadth is often scanty. The loins should be broad and muscular, in which case length is an advantage; the whole trunk should describe a sweeping natural outline formed by two gentle curves, the posterior being the slightest, which is formed by the tail; unless we have the tail well up, it is rarely set, and animals with too low a set tail are never good goers. But we may see a well-formed trunk, and still find some important parts deficient; we may see a well-made body, with legs unfit to carry it. The legs and feet are the most important parts to be attended to in the whole machine. But it is these parts that are most frequently overlooked in breeding. There is a nicety of adjustment and accuracy of movement necessary in all the limbs of the horse, which might apparently be dispensed with in some other animals. They ought, in the first place to stand well, otherwise the motions are either unsafe or awkward, and there is an unnatural strain on some part or other. The principal power of progression resides in the hinder extremities; but for safety, and the conveyance of the speed acquired by the propulsion of the hinder extremities, we must depend upon the well-sloped, clean and muscular shoulder, the strong and lengthy arm, the powerful shank with firm tendons, the well-set fetlock, and sound foot; without these the progression is deficient and weak.

The most common defects in the formation of the fore-legs are, that either the toes turn too much out or too much in. If turned out, the foot comes in contact with the opposite leg, and bruises it; the pasterns are, at the same time, generally too long, rendering the strain great upon the tendons, and rendering them liable to disease; the action is almost invariably low, and the animals consequently unsafe; the feet also, accommodating themselves to the position and form of the limb, become very liable to various diseases.

If the toes be turned inwards, the animal is awkward in his action, and is continually stumbling; he is also liable to splints and injuries of the fetlock. To insure accurate motion, the fore feet should stand, in a front view, parallel with the sides of the animal's body.

The feet should be sound; flat ones, with low heels, are to be carefully avoided. But even where the hoof looks sound, if groggyness exist, the animals are by no means desirable to breed from.

For safety, pleasure, liberty of action, we look to the fore extremities; but for the power of action, our attention must be principally directed to the posterior extremities of the horse. I would not as some are inclined to do, deny that the anterior extremities are concerned in progression, for, if we cast our eye abroad upon the face of nature, we are at once struck with the wonderful accommodations to particular circumstances in individual cases. In one, the anterior extremities are almost entirely laid aside as useless; while in others we find that they are the principal organs of motion; but in others, again, more especially the horse, a combined and simultaneous action is required. We find the kangaroo, on the one hand, hopping at an immense rate, upon its hind legs with the assistance of its tail, carrying its hands in its pouches, which are only used to support the head while feeding upon the ground: but we observe the camelopard, on the contrary, raised with his fore legs to a height which enables him to nip the buds from the trees of the forest, his hind legs nearly as short in proportion as the fore ones of the kangaroo. But when the fore extremities are to be the organs of motion, they are in one case found bearing the eagle to the chambers of light, and in the other forming oars, by which the monsters of the ocean are enabled to plunge through the mazes of the fathomless deep.

But although we have seen that, in particular circumstances, either the anterior or posterior extremities may become the organs of motion, and that in the horse all are required, still we must recollect that for power and rapidity of motion we must have, in this animal well-formed hind legs. In connection with these, strength of loins and length of quarters are of the greatest importance; but there is a variety in the form of the quarters which must be looked to in reference to the produce, because for galloping, a form of the quarter, and indeed, the whole leg, are required, which differ from that best suited, or usually formed for trotting. For galloping, the lengthy horizontal or finely turned quarter, with lengthy thigh, are best adapted for speed; while for trotting there is a greater degree of sloping in the quarter, which is less pleasing to the eye than the galloping quarter, and a rotund muscularity well observed in all fast trotters. In all, however, this muscularity indicates great strength and action, more especially if it is observed on viewing the animal from behind, that there is a fine arch, from haunch to haunch, over his quarters, and that there is such a swelling out of the muscles of his thighs, that when measured across there would be a greater breadth than in his haunches. The limbs should then gradually approximate each other, tapering with the diminution of the swell of the muscles as they send off their tendons, until they reach the hocks. To this point the eye of the breeder must be scrupulously directed, because there is no point of more importance in regard to action, and none so liable to disease: the diseases, too, depending upon the formation of the part.

Unless the hock is well formed, there cannot be durability; and if there is sometimes speed with a badly formed hock, it is never for a long run. The most common defect which at present exists is a liability to curbs, such being denominated curby hocks; these are seen, on taking a side view, by the smallness of the leg below the hock, by the great projection of the point of the hock, and by a bent-like appearance at the lower part of it, with a greater or less tuberosity at the back part; these hocks are also more liable to spavins and other diseases of the hock joint.

There is also an opposite form of hock which is too straight; this is connected with a great length of pastern, and is liable to thorough-pins in the hock, windgalls and sprains of the suspensary ligament at the fetlock-joint. A wellformed hock viewed from behind, should stand with the toe of the hoof, and the fetlock, in a line running parallel with the body, or, if altered from that direction, the toe should incline a little outwards. The tendon forming the hamstring should stand clear and free from the back of the leg above the hock; and the back part of the leg from the hock, viewed latterally, should descend from the point of it to the fetlock in a straight line, or if otherwise, rather scooped out below the point of the hock than in the opposite form; the tendons should be clean and well marked, and the shank equal in breadth at the hock and fetlock, and the broader the better.

The limbs can scarcely be too short, if combined with the qualities we have mentioned, but the shanks from the hock and the knees to the ground should be selected as short as possible: and that these parts may be divided in due proportion, the fetlock should stand with the rest of the limb and the foot at an angle of 45 degrees, in which case it will be of a proper length and proportion.

In addition to these remarks, I have only to add that in breeding, it appears to me, that although good horses of any description will always sell well and pay the breeder, strength and action are the strongest recommendations of every market.

Sussex Agricultural Express.

THE MORUS MULTICAULIS.

To the editors of the National Intelligencer.

BALTIMORE, APRIL 11, 1839.

GENTLEMEN: A letter appeared in the National Intelligencer of the 9th instant, headed "LETTER TO N. B. STODDART," on the subject of the culture of silk in this country, which contains several statements deemed by me erroneous, and which I must ask permission to correct. The writer, "L. T.," objects to the morus multicaulis—first, because it was "imported from a climate so different from ours, which cannot stand the winter;" secondly, and "which, by the rapidity of its growth, shows the shortness of its life." To the first objection I have only to remark that the white mulberry itself is a native of China, and was imported into Italy and France from that country; so that the first objection to the multicaulis fails; for, if the multicaulis was imported from a country so different from ours, so was the white mulberry. But, reasoning from analogy aside, I know, from eleven years' possession of the morus multicaulis, that it is equally as hardy and just as capable of standing the winter as any other mulberry whatever, when planted upon its natural situation and soil. I have had it eleven winters, and have not yet lost a single bud from the effects of winter. A single tree was given to Dr. HOSACK by Dr. PASCALIS, in the spring of 1830; the latter gentleman planted it on his estate at Hyde Park, on the North river, on a high bluff 200 feet above the level of the river, and exposed to the northern blasts. That tree remains there still, never having lost a limb or a bud by winter. And, let me here remark, that the white mulberry itself is not found north of that locality, except in gardens, and not often there. I could mention hundreds of instances where the morus multicaulis has stood the winter unharmed, besides these cases, but it is deemed unnecessary.

The second objection, "the rapidity of its growth shows the shortness of its life," is the greatest recommendation that can be given of the mulberry tree. It grows so rapidly that we can plant it this spring, and get a crop of silk from it this *summer!* Is this an objection to an American? Is not the speedy return of the proceeds of an investment the greatest recommendation that the investment of capital can have? And suppose the trees were all to die in ten years, (my old tree is now *eleven* years old, and no signs of dying yet,) the returns they will have made by the "rapidity of their growth" will have more than paid for replanting them. So that this second objection is disproved.

"L. T." next says that "the drought of some parts of Europe injures them exceedingly." The fact is directly the reverse in this country. During that most unparralleled drought of last summer, the morus multicaulis preserved its luxuriance more perfectly than any other tree, native or foreign. Indeed, the old trees were entirely unaffected by it, and none but the very young ones suffered at all, and even those not as much as the majority of our native trees. With us its large leaves are not more easily spoiled than those of the common white mulberry. "L. T." also asserts that the morus multicaulis leaves "contain a less quantity of nourishing substances; the worms fed with them are often subject to many distempers," &c. The whole of this sentence is directly opposed to the truth. From the most careful experiments, it has been found that 80 pounds of morus multicaulis leaves contain as much nutritive matter as 100 pounds of the best of other varieties; that 80 pounds of the morus multicaulis will produce as much silk as 100 pounds of the best of any other kind; and that the worms are just as healthy on one kind as the other, disease being caused exclusively by mismanagement in some form or other. Let me quote another sentence from this writer; and that it may not escape the attention of the reader, let me make it the more conspicuous by placing it by itself *paragraphically.*

"Good God! have they not eagerly adopted all the improvements lately introduced in the culture of silk by Verri and Dandolo? Have they not lately preferred to the common white mulberry with which their ancestors used to feed the silk worms, the *Alpine morus*, which grows even in the most northern climates, and the *morus morettii*, or *machrophylla*, which can be equally propagated both from seeds and from cuttings?"

If the reader has done reading this exquisite paragraph, I will just remark, that the people of France and Italy have not adopted all the improvements of Verri and Dandolo, and that these improvements are only adopted in a very few large establishments in either country, the mass of silk culturists continuing in the old routine of their forefathers, in spite of Dandolo and all others. They have not preferred the *Alpine morus*, for they *never saw it*; it is an American production, raised, it is true, from the seed of the variety of white mulberry called the *moretti*; but it is American, both in growth and name, and never was seen or heard of in Europe. If particulars are desired, here they are. The Alpine mulberry was raised from seed of the Moretti mulberry, by Mr. Whitmarsh, of Northampton, Massachusetts. Out of many thousand trees thus raised from the parcel of seed, and numerous varieties, he selected a few of the best, and named them THE ALPINE; and this only two years ago. This name never was know in Europe until it was seen in American newspapers. Let me stop here to ask what can be thought of a writer who makes such blunders.

"L. T." also confounds the morus *morettii* and *machrophylla*, or considers these names as synonymous, which is another instance of his knowledge of the subject on which he writes. He also says the moretti equally propagates from seeds and cuttings. Now, I do know that the moretti is very difficult to raise from cuttings, and that it cannot be raised from seed at all! The moretti being itself but a *variety* of the white, the produce from seed are almost as various as their numbers. I saw some thousand raised from seed last summer, and the varieties were too numerous to count; the most of them were evidently the common white mulberry, and a few like what are called the Alpine.

I must conclude this by assuring "L. T." and A to Z, that the morus multicaulis will never be superseded in this country by either "*Alpine morus*," morus moretti, macrophylla, Dandolo, alala, Calabrian, or any other. It has been fully tried, and found superior to all other kinds in all the valuable requisites for the silk culture in this country. Respectfully, yours.

GIDEON SMITH

PEACH TREES.

Peaches are propagated by *budding*.—The stock should be of *plum*, and the tree is to be planted as young as circumstances will allow. The season is just when the leaves become yellow, or as early as possible in the spring. And now for the pruning and forming the tree.

The practice is to plant the tree, and let it grow in its one way. The consequence is that it runs up to a long naked stem, with two or three naked limbs, having some weak little boughs at the top. The tree should, in the first place, be budded very near to the ground. After it be planted, cut it down to within a foot and a half of the ground and always cut sloping close to a bud. In this foot and a half, there will be many buds and they will the first summer send out many shoots. Now, when shoots begin to appear, rub them all off but *three*. Leave the top one, and one *on each side*, at a suitable distance lower down. These will in time become limbs. The next year top the *upright* shoot (that came out of the top bud.) again so as to bring other *horizontal limbs*, pointing in a different direction from those that came out last year. Thus the tree will get a *spread*. After this you must keep down the aspiring shoots, and every winter cut out some of the weak wood, that the tree may not be overburdened with wood. If in time the tree be getting thin of bearing wood towards the trunk, cut some of the limbs back and then they will send out many shoots, and fill up the naked places. The lowest branch of the tree should come out of the trunk at not more than *nine* or *ten inches* from the ground. By this management, the tree is always in a state of full bearing; *always young*.

ON THE PREPARATION AND EMPLOYMENT OF ASPHALTUM.

Translated for the N. Y. Observer from the St. Petersburg Northern Bee.

Asphaltum has the appearance of hardened pitch, is of a black or dark gravel color; and when broken, the fracture has a glassy appearance. It is hard, does not melt in water, but is easily melted by heat, and cools with equal rapidity. It consists of lime and bituman, and its production is easily explained by the solution of mineral coal by subterranean heat, during which the bituminous vapors arising from the coal are imbibed by a stratum of lime covering the coal-bed. As far back as 1825, 1826, and 1827, in the 7th, and 9th numbers of a French Journal entitled "*Memorial de l'officier du genie militaire*" was described the employment of asphaltum for covering the vaults of fortresses; but in consequence of the limited circulation of this Journal, which is published exclusively for a corps of military engineers, asphaltum has but just begun to be employed in public works in France.

The first experiment was made about five years ago, in Lyons, on the bridge Moran, across the Rhone. The trottoirs were covered with a layer of asphaltum, procured near Seyssel, in the Department of the Ain.

In Paris, for the first experiment, a part of the trottoir upon the Port Royal, was laid with Seyssel asphaltum; after two years' trial, this was scarcely worn at all, whilst on the surface of the surrounding stones, which had been laid at the same time, the traces of feet were very perceptible. After this experiment, a small part of the boulevards at Paris was laid with Seyssel asphaltum; M. Pouloceau employed it for the trottoirs of the Carrousel bridge, &c. In other parts of France asphaltum has been employed also in the way of experiment, for covering the roofs of houses as well as in several hydraulic works.

Notwithsanding the complete success of almost all these experiments, the expensiveness of Seyssel asphaltum has prevented the extension of its application to building, and its introduction into general use. Leaving out of view the increase of price occasioned by the company which has obtained the privilege of exclusive proprietorship of the Seyssel asphaltum beds, its price will always remain on account of the expense incurred in cutting it out, melting in order to purify it, and in carriage.

In Paris, Mr. Brilliante substitutes artificial asphaltum for natural, with great success. He buys up at a very low price the bituminous remnants from coal thrown out of the retorts employed in preparing the carburetted hydrogen gas used for lighting the streets; to these he adds pitch, and melts the whole together in boilers, mixing it up with earth reduced to a fine powder, sifted and dried, and at last pours it into forms in which the composition cools and hardens.* In this simple manner a material is obtained, which has the same qualities as natural asphaltum.

The bituminous matter must he melted carefully, without allowing the fire to become too powerful, as it very easily takes fire. After it has been a sufficient time melted, a considerable part of the oily matter evaporates, and the mass becomes thicker. The degree of liquidity ought to be such that it may be easily mixed up with the pulverized earth. This should be done with great care, so as to make of it a completely uniform mass, in which the unassisted eye should not be able to distinguish the particles of earth.

In imitations of natural asphaltum lime was at first mixed with the pitch; but experience soon showed that any pulverised mateial would answer the purpose, only it must be thoroughly dry and very finely powdered. The proportion in which it should be added is not as yet positively determined. At present four parts (by weight) of powdered earth are mixed with one of bituminous matter. The forms into which the artificial asphaltum is poured may be varied at will. For greater convenience of carriage, the size of the pieces does not exceed a cubic foot. The inner surface of the forms must be of polished metal, that the asphaltum may not adhere to it. M. Brilliante makes use of cast iron forms.

Asphaltum possesses a quality invaluable in the art of building; that of being perfectly impenetrable to water. In warm weather it is somewhat flexible, so that a slight inequality of the surface on which it is laid does not prevent its durability; but in cold weather it becomes brittle. It attaches itself strongly to any dry, rough surface, and does not allow water to pass through where it has been joined together by heat.

Artificial blocks may be made of asphaltum, and laid like blocks of stone or bricks; but a preferable method of using it is, to profit by its property of being easily melted, and to pour it out upon the spot, in one solid mass. It is generally useless, and only occasions unnecessary expense to have it very thick.

Its proper use is evidently to cover the surface of a pavement or building, when it is required to render them water-proof, or to give them a considerable as well as uniform power of resistance against friction.

For this purpose it is sufficient to pour a thin layer from one to two inches in thickness, over the surface of a building, of whatever material, earth, wood, stone, &c., it may be composed, and in whatever position the surface to be covered may be placed. It is only necessary it be dry and rough. The asphaltum should at once be poured over to the full thickness required, as hot asphaltum will not attach itself to cold, and it cannot therefore be poured over in successive layers.

It is equally useless and unnecessarily expensive to make use of pure asphaltum; it it is melted on the spot where it is wanted, and to one part of it are added three of dry, coarse-grained, hard sand, which has been first passed through a seive, in order to cleanse it, and to obtain grains of uniform size; it is then carefully mixed together, and this composition is used in the work. For the sake of brevity, however, we will sometimes call it simply asphaltum.

I will now describe, as I witnessed it in Paris, the way in which one of the boulevards was paved with natural and artificial asphaltum; the method in both cases was precisely the same.

One each side of the boulevard is laid a cordon of hewn stones; the one towards the houses rather higher than the opposite one; consequently the surface of the asphaltum, extending in a straight line between them, is inclined towards the street, which allows water to run off. After levelling the ground between these cordons, a hydraulic beton is spread over it and levelled; the surface of this must be as much lower than the top of the cordons as the thickness of the layer of asphaltum, viz. about an inch and a half.—When the beton is thoroughly dry, it is time to commence pouring the asphaltum upon it.

It may, however, be observed, that the beton beneath the layer of asphaltum has been more of lately found to be altogether superfluous. If the quality of the soil itself be good, it is sufficient to spread over the place a layer of the same kind of earth, then to level, tread down, and smooth it with the reller just before pouring over it the melted asphaltum; where the soil is soft, a layer of clean sand will prove as durable a foundation for the asphaltum as a beton.

The work is carried on in dry weather, because asphaltum will not adhere to the wet surface; besides, any water remaining under it, not being able to evaporate, will freeze in cold weather, and consequently force up the layer of asphaltum.

In case of a sudden and brief shower of rain, the work is stopped, and the surface prepared for the reception of the asphaltum is covered over with mats, which imbibe a part of the water. The work is not renewed until the surface upon which the asphaltum is to be poured has become sufficiently dry.

A moveable stove is employed in the work, made of sheet iron, 3 1-2 feet high, and 2 1-2 in diameter. The upper part contains a boiler, which is used for melting the asphaltum, or for drying the coarse sand and gravel which is to be mixed with it. Around the lower part of the stove are drawers (or boxes,) used also for drying sand and gravel.

After filling up the boilor with one part of asphaltum and three parts of clean and perfectly dry coarse-grained sand, the mixture is stirred up thoroughly, until it becomes a uniform mass; it is then ladled out into small buckets, and immediately carried to the place where it is wanted. The stove is placed within ten fathoms of the place where the work is going on, that the asphaltum may not become cold on the way thither. The number of stoves must of course depend upon the extent of the work, and the degree of activity with which it is carried on. The asphaltum is poured across the boulevard in stripes of 2 1-2 feet wide. An iron rule is first placed perpendicularly to the cordons, its height being equal to the thickness of the layer of asphaltum, and its upper surface even with and touching the edge of the cordon on each side. The asphaltum is then poured from a bucket, beginning from the upper cordon, in order that it may flow down the declivity. By means of a wooden shovel it is spread over the whole width of the stripe, is levelled, and aided in its course downwards, or kept back, in order that the thickness of the layer may be nowhere less than that required. At the same time a hot iron is drawn along the edge, in order to unite it with the adjoining stripe already cooled. After this a very thin layer of coarse dry sand or gravel is scattered upon the still soft surface, and immediately pounded in; this enters the asphaltum, and forms a firm crust, preventing it from melting by the heat of the sun, and adhering to the feet of passengers.

The Asphaltum is poured out every two or three minutes, from buckets containing not above half a cubic foot each. The reason of the smallness of the buckets, as well as the narrowness of the successive stripes of asphaltum, is that one may have time to spread out and level it with a shovel before it cools.

In some parts of the boulevard the artificial asphaltum has been forced up and even split; this proceeded not from the bad quality of the material, as some suppose, but merely from the work having been carried on in wet weather.

The repairing of a layer of asphaltum is a very simple affair; it is only necessary to break out the injured part, remelt it, and pour it back again, uniting it with the surrounding asphaltum by means of a hot iron.

In England M. Cassel has taken out a patent for the use of artificial asphaltum. In this patent his mode of employing it is described at length; but it is much more complicated, and not a whit better than the French, for which reason I spare my readers the details of it.

Some have tried to make asphaltum from common tar, and with success; but it requires to be boiled for a long time in order to expel a great part of the oily particles, and thus to obtain a consistent mass, which will harden at the usual temperature of the atmosphere.

Asphaltum may be also employed with advantage in paving streets and chaussies, being poured in a layer over the broken stone employed in Macadamizing.

*Mr. Leblanc, engineer of bridges and roads at Lyons, first discovered that with a mixture of pitch the composition hardens very speedily, but without it always remains in a soft condition.

From the New York Obvserer.

THE DAGUERREOTIPE.

The following is an extract from a private letter of Professor S. F. B. Morse to the editor of the Observer, dated, Paris, March 9th.

"You have perhaps heard of the Daguerrotipe, so called from the discoverer, M. Daguerre. It is one of the most beautiful discoveries of the age. I don't know if you recollect some experiments of mine in New Haven, many years ago, when I had my painting room next to Prof. Silliman's, experiments to ascertain if it were to fix the image of the Camera Obscura. I was able