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ORIGINAL COMMUNICATIONS.

For the Weekly Magazine.

ARTHUR MERVYN;

OR, MEMOIRS OF THE YEAR 1793.

[Continued from page 230.]

I ROSE at the dawn, and without asking or bestowing a blessing, sallied forth into the high road to the city which passed near the house. I left nothing behind, the loss of which I regretted. I had purchased most of my own books with the product of my own separate industry, and their number being, of course, small, I had, by incessant application, gotten the whole of them by rote. They had ceased, therefore, to be of any further use. I left them, without reluctance, to the fate for which I knew them to be reserved, that of affording food and habitation to mice.

I trod this unwonted path with all the fearlessness of youth. In spite of the motives to despondency and apprehension, incident to my state, my heels were light and my heart joyous. "Now," said I, "I am mounted into man. I must build a name and a fortune for myself. Strange if this intellect and these hands will not supply me with an honest livelihood. I will try the city in the first place; but if that should fail, resources are still left to me. I will resume my post in the corn-field and threshing-floor, to which I shall always have access, and where I shall always be happy.

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I had proceeded some miles on my journey, when I began to feel the inroads of hunger. I might have stopped at any farm house, and have breakfasted for nothing. It was prudent to husband, with the utmost care, my slender stock; but I felt reluctance to beg as long as I had the means of buying, and I imagined that coarse bread and a little milk would cost little even at a tavern, when any farmer was willing to bestow them for nothing. My resolution was farther influenced by the appearance of a sign-post. What excuse could I make for begging a breakfast with an inn at hand and silver in my pocket?

I stopped accordingly and breakfasted. The landlord was remarkably attentive and obliging, but his bread was stale, his milk sour, and his cheese the greenest imaginable. I disdained to animadvert on these defects, naturally supposing that his house could furnish no better.

Having finished my meal, I put, without speaking, one of my pieces into his hand. This deportment I conceived to be highly becoming, and to indicate a liberal and manly spirit. I always regarded with contempt a scrupulous maker of bargains. He received the money with a complaisant obeisance. "Right," said he. "Just the money, Sir. You are on foot, Sir. A pleasant way of travelling, Sir. I wish you a good day,

I, I

day,

prospects. Our philosopher asked many questions as to their natural history and productions. *La Roche* observed the sublimity of the ideas which the view of their stupendous summits, inaccessible to mortal foot, was calculated to inspire, which naturally, said he, leads the mind to that Being by whom their foundations were laid.—“They are not seen in Flanders!” said *Ma'moiselle* with a sigh. “That’s an odd remark,” said *Mr.*, smiling.—She blushed, and he enquired no farther.

’Twas with regret he left a society in which he found himself so happy; but he settled with *La Roche* and his daughter a plan of correspondence; and they took his promise, that, if ever he came within fifty leagues of their dwelling, he should travel those fifty leagues to visit them.

[To be Continued.]

A Letter, to Dr. Benjamin Smith Barton, on supplying the City of Philadelphia with Water.

Boston, December 18, 1797.

DEAR SIR,

ALTHOUGH this letter should not contain one proper idea on the subject matter of it, or afford one new and useful hint, yet I do myself honour by writing, because it evinces my anxiety for, and regard to the city of Philadelphia.

The epidemic which has prevailed in two summers in that city, is very alarming. It is natural for mankind to receive the abatement, or interruption of an evil, as its cure.—But when it has been so exceedingly distressing as that which has afflicted your society, it is our duty to be anxiously engaged in the means, which under a Divine blessing, may avoid it, or arrest its progress in future.

Whether the fever has been imported, or whether it has been generated in the city, yet there is clearly, a general pre-disposition to it at a

certain season of the year; and this must be produced by a general cause. I may be altogether in an error, when I attribute it to the air, and water. But believing that I am right, I wish to offer you a few thoughts on the subject, as to a remedy.

I have not had the pleasure and advantage of being much in Philadelphia, but I recollect the face of the city as a plain. There are no hills there, and of course must be a deficiency of springs in the earth. The water of your wells must of course, when the water is low, depend in a great measure, upon filtrations from the river, and from recesses near the surface of the ground, or from both. The waters, as they pass, partake of the damps and vapours near the noisome vaults, &c. This, added to the injury they receive from their stagnant state in the wells, cannot fail to render them very un-wholefome.

Your atmosphere is not agitated by the sea-breezes which we complain of in Boston. The reflection, by the brick walls, of the rays of the sun, in the heat of summer, renders the air, in a degree, unfit for respiration, and deprives it of that elasticity which is necessary for the support and invigoration of animal bodies. I need not dwell upon an hypothesis, with which you are infinitely better acquainted than I am.—But now for the remedy.

The waters of the Schuylkill Falls, are, as I am informed, forty-four feet perpendicularly higher than the streets in Philadelphia.* Those falls are seventeen miles from the city. There has been an attempt to form a canal there, which for the present is laid aside. My project is, to form a subterraneous aqueduct from those falls to the city. This can be done, at comparatively a very small expence. A canal can never rise above the lowest level of any part of the

* The elevation of the river near Norristown, appears to be referred to. Ed. channel,

channel, but an aqueduct, upon hydraulic principles, may be brought over any height not superior to that of the fountain from whence it draws. The canal must be on a level or declining by locks, and therefore must be sunk at great expence into hills and mountains; but three feet below the surface of the ground secures the aqueduct from the frost.

Six logs of hard pine, laid in a trench, each having a caliber of three and an half inches, and leading from a fountain of forty-four feet higher than the places of delivery, will issue 180 gallons of water each minute, 10,800 gallons in an hour, 279,200 in twenty-four hours. The logs being of a caliber of four and an half inches, will deliver double the quantity. This calculation may appear to be extravagant, but it is founded in an actual experiment which I shall mention. This quantity of water will supply your families, your factories, your cattle, your shipping, and answer the purpose of washing your streets, and sprinkling the sides of your houses. A perpendicular tube in the front of each house, may have a plug in the head or side of it. A tin tube with a head, formed for sprinkling, may be placed in it, in such a manner as to wash or cool the sides of the houses, and to wash the street. If the fountain is forty feet higher than the street, the tendency of the water to a level, and the force of a column forty feet high, will wash the walls of the highest house. I need not mention to you, the great advantage derived from the use of *living* or *running* waters.

The expences of this work, on a free and generous calculation, may be as follows.

Allowing one mile for circumstances of unfavourable ground, the whole may be eighteen miles in length. The logs ought to be ten inches diameter at the smallest end, and about fourteen feet long. The price will be five cents for each foot in length; multiplied by six will

make 1600 dollars a mile; 18 miles, allowing for wastage, will be thirty thousand dollars—Digging the trench four feet deep, boring, and placing the logs, at 12 dollars a rod, will amount to 69,120 dollars, all added, makes 99,120 dollars. The other charges, such as reservoirs, gates, iron rings for the receiving logs &c. may raise the expence to 110,000 dollars.

The calculation as to expence, is from my own experience, in an aqueduct formed from a pond in Roxbury to Boston, five miles in length, which has been much under my care and attention, as president of the corporation to which it belongs: but the same might be done much cheaper now. A machine is invented by a man in this state, which turns the log whilst the auger stands fixed. A log, turned by the force of a water wheel, is bored and fixed in seven minutes. The logs here were five cents a foot, but I conceive they may be floated down the Schuylkill and Delaware much cheaper. The expence of drawing them to the works will be considerable, but that I have included in the twelve dollars a rod for the work.

The quantity of water is calculated in this way—a log of three and an half inch caliber one mile from a fountain, and forty-eight feet lower than its surface, delivered 92 gallons in one minute. At five miles from the fountain the quantity was much less, but no experiment has been made to determine the quantity of diminution.

The quantity was not lessened by the aqueduct's passing a height, within ten feet of the level of the fountain, after it had descended forty-eight feet below it, but certain circumstances, incident to the operations, will lessen the quantity. There will be a check to the current from the roughness of the wood. The log next to the fountain must receive the succeeding one, this forms an interruption which creates an eddy

and abates the force of the water—encreasing, proportionably as you proceed from the place of reception, to the place of delivery. In Europe they have leaden or cast iron tubes, which obviate these disadvantages in a great measure. The encrease of the diameter of the caliber will render these obstructions much less, but as the logs must be longer, I believe, that those of three and an half inch bore, though you have one third more in number, would be preferable.

A reservoir on an elevated place near the city will be necessary, because the water may be running to that in the night time, when none is used in the city. This may be made of bricks laid in a cement composed of one third lime, and two thirds earth, called by the Dutch *Terras*, and by the Portuguese *Pazzellaro*. This mortar I find, by experiment, petrifies and becomes as hard as stone when kept under water. This earth is found on a hill in Saint Eustatia, where there is the appearance of a former volcano, and near the burning mountains in Portugal. Perhaps it is the ashes of a volcano.

The whole expence of cross horizontal tubes, leading through all the streets, and the upright tubes, at each house, added to the sum before mentioned, may arise to two hundred thousand dollars. The tax of five dollars on each house, will pay a great interest upon this capital. Nor is this money lost, for the labour of drawing a family's water from a perpendicular tube, in the kitchen, or by the door, will be annually, more than five dollars less, than drawing it from wells, by pumps, or by other machinery.

If I am misinformed in regard to the height of the water at the falls, yet it is certainly high enough to water the city, and six logs* will be enough to conduct it there.

Your candour will find an apology for my intruding a tedious letter upon you. Should you be of opinion

* A trench containing six sets of logs.

that any ideas in it can be useful, you will communicate it to whom you please; but I could wish that my friend Mr. Bingham might read it, if you should shew it to any one.

I have the honour to be,
With great respect,
Your most humble servant,
J. SULLIVAN.

DOCTOR BARTON.

DO THINGS IN STYLE.

THERE are many new customs, which have been but very lately introduced, which we of the old school, plain men like (perhaps you and) me, find it rather difficult to adopt, principally from the language made use of by those who would recommend them. Some apology indeed may be offered for the introduction of new language to express new things, which the founders of our language could not be supposed to know any thing about; but as our authors of dictionaries plod on in the old way, and take no more notice of new phrases than if they did not exist, it falls hard upon us, who are somewhat too far advanced in life to go to school again, and whose organs of speech, I am afraid, are not pliable enough to learn a new language.—In making my complaint to you, I know I am pleading the cause of many others in a like situation; but I am afraid I may not make myself thoroughly intelligible, and must therefore use a descriptive kind of circumlocution, which you perhaps will be able to make out with some difficulty, but which your young readers will catch by a single hint.

Of late years, Sir, I find that whatever we do, we must *do in style*. Now this *doing things in style*, being a general rule, and applied to every action of our lives, puzzles me very much to find out its real meaning in any one case. If we build a house, we must build it *in style*. If we furnish it, the furniture must be *in style*. If we give a dinner in it, it must