JOSIAH WHITE AND THE LEHIGH CANAL

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IT IS the purpose of this paper to familiarize students of history with the life and activities of Josiah White, one of Pennsylvania's outstanding early nineteenth century canal builders. Too little has been said or written concerning this Quaker philanthropist. This brief study portrays him as a modest, yet openly frank man; an incessant worker, although never too busy for his family and friends; an inventive genius, but not a braggart; a shrewd financier, capable of amassing a fortune, and daring enough to risk it all for a worthy project; and an industrial leader with a personality rich enough to maintain the trust and cooperation of all workers under him. The Lehigh Coal and Navigation Company should be greatly indebted to this individual for his untiring efforts in the early history of the organization's development.

A familiar name in the history of early New York canal building is that of DeWitt Clinton; and quite as familiar in the history of early Pennsylvania canal building is Josiah White. He was born at Mount Holly, Burlington county, New Jersey, on March 3, 1781, the son of John and Rebecca White. His ancestry goes back to Thomas White of Omnen, Cumberland county, England. Josiah White's father, John White, was engaged in the business of "felling" cloth, and also in farming. His early death left a "widow indeed" with four sons, all too young to give her much assistance.

Philosophy can be perceived by youth as well as by more mature minds, and Josiah's youthful philosophy was that to play was a business in itself which gave him the greatest enjoyment; to grow into manhood meant that to play would shower shame upon him by his fellow men and, therefore, something of a more useful character would be the leading object of maturity. His formal education started when he was at the age of fourteen, but his schoolmaster impressed not the advantage of education, but the rod.
At fifteen, he was forced to select an apprenticeship, since it was essential that his mother be relieved of her dependents as soon as possible as her care and offerings were very meagre. She urged apprenticing as a tailor or merchant tailor rather than anything like store-keeping because such in her mind was an incentive to exaggerated pride, idleness, and cunning craftiness which she feared would be a disadvantage to him. He, however, preferred a mechanical trade such as that of joiner or carpenter, since he enjoyed working with tools. At the same time he wanted an apprenticeship that would guarantee an honest living, a respectable living, and allow the possibilities of financial gain. His selected destination, however, was an apprenticeship in 1797 to James Hutton of Philadelphia, to learn the hardware business.

The Hutton hardware business was located at 53 Market Street at which place it was agreed that Josiah White would find board, washing, and a salary of twenty dollars a year. After having served one or two years, James Hutton, who was by disposition quite a lazy man, left most of the business practices in the store to his apprentice. Mr. Hutton, in quest of a "get rich quick" without too much work attached, attempted a shipping business adventure, shipping Tryash coffee to Hamburg. It proved profitable and at the same time served as an incentive to other "easy" ventures. These profits, however, soon turned into debts and more debts. He launched himself as a building contractor, with the idea that all of the hardware equipment be purchased by the carpenters from his store. Alas! This venture went the way of the first—increased indebtedness. An attempt was now made to erase this accumulated indebtedness by business venture number three, a bakery. This had real appeal to him since it required no work at all on his part and would, he dreamed, yield a fifteen to twenty per cent profit. In this case, however, it was a situation in which too much cream resulted in only skimmed milk.

During these adventures Josiah White's business and ethical senses were not being improved, except that he came to realize the folly of man in expecting huge profits without any personal application of labor. With such a background for his first apprenticeship, he began looking elsewhere for an opportunity to secure something of his own, or else to become an aide to someone better equipped to teach him how to earn a livelihood. Such an opportunity appeared with Joseph Dilworth, hardware mer-
chant, who owned a store at 29 Market Street. This man, having
failed in his business, offered his store and stock to Josiah, who
was now only twenty and a half years of age, which of course
was not the legal age to make any such purchases. It was arranged,
however, to date the transaction as of March 5, 1802. The money
wherewith it was made surely was not earned while serving under
James Hutton, for White was not the type to have taken advantage
of his employer. In fact, the financing was arranged through the
sale of his patrimony, which amounted to between five and six
thousand dollars.

Having completed this purchase, of which the hardware stock
was valued at only one thousand dollars, he moved out onto a
sea of credit by ordering from England stock valued at four
thousand dollars, and later stock valued at five thousand dollars.
His bravado in this venture merely shows us that he believed in
selling only when one has something to sell. His hopes in this
initial enterprise were high. His aim was to earn a profit of
forty thousand dollars within a period of nine years. His age
would then be thirty. If successful in this, he would put twenty
thousand dollars on interest and live on the other twenty thousand
dollars. His purpose was to purchase a farm for ten or twelve
thousand dollars and put the balance of eight or ten thousand
dollars on interest, and from this point become independent. In
this way he aimed to be an example of comfort and philanthropy
for others to copy.

His first year’s business yielded a profit of three thousand
dollars. Within six years, by 1808, his dream was realized; he
had earned forty thousand dollars. Retirement was in order, and
he sold his business to his brother Joseph and Sam Lippencott.
Thus, Josiah White was apparently well satisfied with himself as
a business man.

In 1805, he married Catherine Ridgeway of New Jersey. Her
eyearly death, caused by a pulmonary disease within three years,
saddened Josiah’s life tremendously but not to the point of in-
activity. In 1810, there is recorded a second marriage to Eliza-
beth White of Philadelphia. They made their home on Arch
Street between Seventh and Eighth Streets. They also built a
country home on Ridge Avenue, which they called “Rural Hall.”
It was in the atmosphere of this beautiful place that their five chil-
dren were born.
Josiah White was now ready to begin the realization of his Utopia. The issues which faced him were dual in nature: should he apply himself and his money in some measure that would benefit others, or should he keep his accumulated wealth in the form of personal interests without altruistic aims? The only choice that he could happily make would be the first—that of altruism.

It was in 1810 that Josiah White made his first purchase which was directed towards helping others—the investment of fourteen thousand dollars in the Falls of the Schuylkill River for the development of its water power. Within a year he realized the difficulty of the task that he had undertaken. Here began a seven year period during which he again reverted to the rôle of a laborer. His interest was so keen that in 1812-13 he petitioned the state legislature to improve the Schuylkill River by slack water navigation. As an incentive for the legislators, he informed them that coal existed in abundance up the river. White made various attempts at renting this water power to mills that were built along the river but each attempt failed because too often the back water of the river forced the mills to stop working. He also tried to interest the city of Philadelphia in buying this water power instead of using their steam power, but to no avail.

Within a short time a Mr. Joseph Gillingham became interested in White's project and invested his capital to the extent of seven-sixteenths of the total investment, thus creating a partnership. White had by this time, through his inventive mind, produced a type of wire-wrought-rolled nail and a kind of wire usable for fences, and had also constructed a 410-foot span of wire bridge at the Falls. For the manufacture of these wire products, he had built a large number of mills along the river. These products were all successful as far as perfect pieces were concerned, but not at all profitable. Fate seemed to work against the partners and their plans; for on April 1, 1815, a terrible fire destroyed their mills which caused a loss of all their investment—White's whole estate. The result was a forced borrowing of cash, whereupon he became a debtor to the extent of twenty thousand dollars.

Before more money became involved, White realized, against his personal desires, that he must get rid of this Schuylkill venture. He made another attempt to sell, this time to supply the city with Fairmount water, but again was rejected. He then
turned his genius towards the improvement of the Schuylkill River for slack water navigation by means of dams and locks. A Schuylkill Navigation Company was incorporated in 1815 with Josiah as the founder. The first election of this corporation ignored him by not making him its president. In face of such discourtesy he soon turned his attentions from this river to the Lehigh.

Erskine Hazard appeared at this time, and together with the White personality and selling power pursuing him there resulted a new partnership agreement with a dual purpose. This was the Whitestown Manufacturing Company which made nails and which had permission to make available the water power on the western side of the river. In the early progress of this second wire mill of White's, the scarcity of Virginia coal was being felt as a result of the War of 1812. Upon a friend's recommendation they procured a cartload of Lehigh coal and found it very satisfactory for their purpose.

The discovery of this coal added weight to the belief that the Lehigh River had great possibilities for navigation. Josiah White invited his old-time partner, Gillingham, to visit the Lehigh to ascertain its value and possibilities, but Gillingham refused the invitation, thus ending their business relationships and interests.

Fate, again, introduced a Mr. George F. A. Hauto to White, who welcomed his new acquaintance's interest in the Lehigh project. These two with a William Briggs toured the Lehigh and arrived in Bethlehem on Christmas Eve, 1817, and then moved north to Lehighton and the Mauch Chunk Mountain. Being satisfied with this expedition, they returned to Philadelphia to plan for the future.

The organization had White as designing engineer, Hazard as scribe and Hauto as financial agent to secure additional funds for their project. A threefold plan was started, first, to smooth the old road of nine miles which had been made by the old company to get coal through to the river; second, to grade this road which would be usable as a bed for a railroad later; third, to improve the river by contracting the channel funnel fashion. They would have to build low walls, provide artificial freshets, dam up the water and release it periodically, thus providing regular descending navigation.
One may recall that before this period the Lehigh Coal Mine Company was formed, having run a lottery and raised ten thousand dollars. They secured laws from the legislature for their purpose, but failed in the attempt. The company then granted these privileges to several lessees who in turn failed, thus giving our aforementioned trio the opportunity to succeed. They leased ten thousand acres of this company's land, agreeing to pay one ear of corn a year if demanded, and from and after three years to send to Philadelphia at least 40,000 bushels of anthracite each year. This was on March 20, 1818. With this security they hastened to Harrisburg, and secured a law giving them permission to improve the navigation of the Lehigh River.

Immediately the three men set about their individual tasks, and in each instance obstacles beset their paths. To secure financial aid, at least fifty thousand dollars, Hauto attempted individual subscriptions, but found them rather scarce; some believing such an investment was mere folly; others believed the coal venture satisfactory, but not the navigation project; while still others were offering vice versa opinions. In order to reach all available resources it was decided to create two separate companies.

On August 10, 1818, the first of these, "The Lehigh Navigation Company," was created with a subscription of fifty thousand dollars coming from individuals on condition that those who furnished the money should have all the profits accruing from the navigation up to twenty-five per cent, that all profits beyond that should go to the said three who should also retain exclusive management of the concern.

Work was begun immediately at the mouth of the Nescohonning Creek, which was considered the dividing line between the two grand sections, with a labor crew of thirteen men. By September they were working from their movable town called Whitestown on the Lehigh.

On October 21, 1818, the second company was formed and called "The Lehigh Coal Company." The twofold purpose of this organization was to build a road from the coal mines to the river and to bring the coal to the market by the new system of navigation. This company functioned with subscribed capital of fifty-five thousand dollars on condition that the managers were entitled to all profits above twenty per cent. They immediately laid out a road, seven miles in length, finished in 1819, and "believed to
have been the first road ever laid out by an instrument on the principle of dividing the whole descent into the whole distance as regularly as the ground would admit of, and have no undulation."

The two companies were being ably managed, and everything appeared to be in readiness to begin operations when a drought of unusual severity proved that the ordinary supply of water in the Lehigh could not be relied upon to afford regular navigation. It seemed necessary to secure "artificial means" of keeping water at proper depth to allow regular navigation. A plan recognized as artificial freshets, accompanied by an invention of Josiah White's which was comically labeled a "bear-trap" but regularly known as a sluice gate, was employed to remedy this. These gates retained water in pools until required for use. When the dam became full and the water had run over it long enough for the river below it to acquire the depth of the ordinary flow of the river, these sluice gates were let down and the boats which were lying in the pools above passed down with the artificial flood. Twelve of these were constructed in 1819, and this used up the whole of the company's capital before the proposed plans were completed.

Destiny and Josiah White were "pals." At this period the City of Philadelphia, after much persuasion, bought the Schuylkill Falls property for one hundred and fifty thousand dollars. Nine-sixteenths of it belonged to White and seven-sixteenths to Joseph Gillingham, and White was thus able to pay all his debts contracted therewith and have a liberal balance to compensate him for his seven years of labor at that place. With this sum he could have allowed himself a comfortable living for the future, but Providence directed his continuance with his personal labor on the Lehigh where he and his money were still needed. Joseph Gillingham managed to save his estate through this sale, and moved away from Josiah White's investment ideas.

If further improvements in these companies were to be continued, it was evident that additional funds would be needed. The managers suggested their personal subscription of ten thousand dollars if the companies would mortgage all their holdings to White and Hazard. (The third partner, Hauto, having been requested to resign because of his unreliability, left the firm on
March 7, 1820.) The stockholders rejected the proposition and censured them for spending entirely too fast. A battle royal ensued between the two sets of stockholders, each claiming that they were wasting the resources on one company and ignoring the other company. The problem of appeasement was in itself an undertaking. The method used, however, was a combination of these two companies into one consolidated corporation. On April 21, 1820, the organization became known as the “Lehigh Navigation and Coal Company.”

Under this new arrangement, and with the additional twenty thousand dollars secured through stock subscription, the navigation of the river was put in order and 365 tons of coal were sent to Philadelphia to be sold at eight dollars and forty cents a ton. This shipment was evidently too large for the needs of the city as there was no preparation made for its use. Previous companies had charged as much as twenty-one dollars a ton and that in itself was no encouragement for the building of furnaces for its use. The public feared for the welfare of the company and predicted that few would ever use coal. Nevertheless, with this quota there began the first regular shipment of anthracite coal, the first fruits of the concern, the first from the Lehigh and the first in America.

On February 13, 1822, the Pennsylvania state legislature granted this corporation an act giving the combination of companies the title of “The Lehigh Coal and Navigation Company.” This action eased the majority of the stockholders who were beginning to be concerned over the possible loss of their interests.

By 1825, it was evident that the business on the Lehigh could not be extended as fast as the demand for coal increased since it was necessary to build a new boat for each load of coal. We must remember that plans for descending navigation only were cared for in this project. The boats used were called arks—boxes sixteen to eighteen feet wide and twenty to twenty-five feet long. At first, two of these were joined together by hinges to allow them to swing up and down when passing the dams or sluices, but as men became more expert in their work and the channels were straightened and improved the number of arks joined was increased until a length of one hundred and eight feet was reached. Steering was managed with long oars such as were used upon a
raft. Machinery was designed to cut in a definite form the planks of which these arks were made and the builders became so expert that five men could put one of the sections together and launch it in forty-five minutes. This sort of boat was used on the Lehigh until 1831, when boats which could be returned up the river began to take their place. By this year, 40,966 tons of coal were sent down, which required so many boats to be built that they would have extended over thirteen miles if placed end to end. As it was, the arks made but a single trip and were broken up for lumber at the end of the voyage. The spikes, hinges and other iron work were returned to Mauch Chunk by land—a distance of eighty miles. For two or three years the men who brought the boats down walked back, after which some of the tavern keepers inaugurated a sort of jitney service with rough wagons to carry them back at a reasonable fare. The great consumption of lumber for the boats soon made it evident that the coal business via the water route could not be carried on much longer. The managers decided that the time was ready for a change in the navigation of the Lehigh and since the Schuylkill region had a slack water navigation, there was no reason why the same could not be employed on the Lehigh.

The acting managers, White and Hazard, who had moved their families into the Mauch Chunk area in 1820 and 1821, now proposed a plan for steamboat navigation with locks one hundred thirty feet long and thirty feet wide which would accommodate a steamboat carrying one hundred and fifty tons of coal. This plan, satisfactorily experimented with, would be of little value unless the Delaware were also improved so as to allow the large boats to reach the Philadelphia market. Application was then made to the legislature for an act for the improvement of the Delaware River upon this plan, but the Commonwealth decided upon the construction of a canal along that river. Thus an end to all thoughts of steamboat navigation on the Lehigh was in evidence.

The coal business was by this time becoming so large that it was difficult to keep the turnpike to the mines in good working order without coating it with stone, and it was determined that the best economy would be to convert it into a railroad. The only railroad then in use in the United States was the Quincy Railroad, about three miles in length, built in the fall of 1826. This new
railroad from Mauch Chunk to the Summit Mines was begun in January and was completely in operation in May, 1827. It was nine miles in length and had a descent all the way from the Summit Mines to the river. The whole transportation of the coal upon it was done by gravity, the empty wagons being returned to the mines by mules which "rode down" with the coal. Each of these wagons held three or four mules and, incidentally, these wagon cars offered the first "dining car" service in the United States—it was on these downward trips that the mules received their meals. This system of "gravity" and "mule return" was the suggestion of Josiah White.

After having secured the assurance that the Delaware division of the Pennsylvania Canal would be made, the managers decided to go on with a canal and slack-water navigation upon the Lehigh from Mauch Chunk to Easton. Canvas White, a relative of Josiah White, was invited to take charge of this project. We can list him as the company's first civil engineer (1827). His proposal for a canal forty feet wide was overthrown in favor of Josiah White's insistence on one sixty feet wide on the surface and five feet in depth with locks to be one hundred feet long and twenty-two feet wide, adapted to boats of one hundred and twenty tons. The wisdom of this size was clearly demonstrated, for other canal companies in the United States followed the example. Work was begun in mid-summer of 1827, and the canal was opened for use on June 26, 1829.

With the inauguration of this canal service there opened an era of expanding trade from the Lehigh area to the Philadelphia and New York markets. Hundreds of thousands of tons of coal yearly were trafficked down this waterway along with other products, such as lumber, grain, iron, iron ore, slate, salt, brick, stone, fish, and other miscellaneous articles.

Josiah White's intensive energy had realized his early purpose—that of giving something to humanity which was truly beneficial. His interest in this project, however, did not lag with its completion. He is listed as one of the acting managers until within a few years of his death in 1850, the seventieth year of his life.

Thus, this paper has revealed the inauguration and development of one of Pennsylvania's then most prized avenues of inland navigation. The progress of man and science have in this day gradually allowed it to decay, to be superseded by our more modern means of transit.
In conclusion, a portrait may be given of this great inventive genius and outstanding philanthropist. His religious faith and practices, Quakerism, played a large part throughout his life in making his earthly stay pleasant and kind. His personality attracted men to him from all classes. He took a personal interest in those whom he employed and in the prosperity of their families. Many men remained with him during a long series of years and were promoted from time to time as the business increased and the opportunity permitted. He required of these workers industry, temperance, and faithfulness. He never looked upon a man as a machine made merely to labor, but as a living, intelligent, responsible, feeling and mortal being, to be treated and trained as such.

We have intimated his capacity toward great mechanical ingenuity; never having had the benefit of scientific training, he relied more upon his own experiments than upon the recorded experience of others. He was quick at taking hints, and industrious in recording the results of his own observations. Twenty-five items are accredited to his inventive talents.

In the latter part of his career, he was brought into intimate association with many men of high culture, wealth, and influence; and he never failed to secure their respect by his candor, sound common sense, and straightforward integrity of purpose. He was a positive man and generally ready to give positive opinions on all subjects that interested him; but he had no desire either to give or to take offense; and as he grew older he became more and more considerate of the feelings and prejudices of those who differed with him. His charity became of a more comprehensive character and his benevolence was great.

Thus, his greatest achievement, the canal, is today but a place of scenic value and quietude. Occasionally one can witness an old “canal boat” being drawn by a mule on the towpath down the canal, but it is apparent that its usefulness is past. In reality it is assuming a playground character—swimming during the summer, skating during the winter, and boat riding for those who find it novel to entertain parties of friends on these old time boats. Its future, undoubtedly, it can be nothing more than a preserved relic of early Pennsylvania transportation, which we and the children of the future can refer to as being at one time one of the greatest inland navigation projects in the United States.