ROBERT FULTON AND THE PENNSYLVANIA CANALS

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THE canals of eastern Pennsylvania long ago passed into economic oblivion, and some have passed into physical oblivion. Few people realize the great monetary cost and sacrifice entailed in their construction. The hopes of economic greatness for the state once rested chiefly upon them. The promise was made that revenue from the levy of tolls "would support the government and educate every child in the Commonwealth." Elsewhere "the revenues from tolls were soon to pay off the state debts and provide a surplus of funds so great as to free the inhabitants forever from the burdens of taxation." But the canals of Pennsylvania, like those of most other states, did not yield returns sufficient to cover capital charges and maintenance expenses. The panic of 1837 and the advent of rail transportation wrecked the hopes of the builders, and in 1857-58, when most of them were sold to railroad companies, the net loss to the state amounted to approximately sixty million dollars.¹

Interest in canals began in Pennsylvania before 1800. Governor Mifflin, who was particularly concerned with the development of inland transportation, did what he could to stimulate the formation of societies and companies that would encourage the building of canals or roads. One of the earliest of these was the "Society for the Improvement of Roads and Inland Navigation," consisting mostly of Philadelphians, which was formed in the upper room in the northwest corner of the State House in Philadelphia on Monday, January 31, 1791. The organization, with Robert Morris its president, Timothy Matlack its secretary, and Samuel Miles its

¹ The Readinger Adler, especially after Frederick List became editor, carried articles on canal construction in practically every issue. Complete files of the Adler are carefully preserved in the Berks County Historical Society, Reading, Pennsylvania. See article by author in Pennsylvania Magazine of History and Biography for January, 1942, entitled "Frederick List, Champion of Industrial Capitalism."
treasurer, was "instituted with a view to the improvement of the natural advantages of Pennsylvania and the encouraging useful designs and undertakings for the promoting of its trade, agriculture and manufactures and population by the means of good roads and internal navigation."

One of the first questions considered by the society was that of a canal to connect the waters of the Quittapahilla and Tulpehocken creeks, which had been under discussion in the state legislature. These streams flowed into the Susquehanna and Schuylkill rivers respectively. A committee was appointed in February, 1791, to investigate the matter and report its conclusions at a later meeting, and on September 5, 1791, the society recommended to the legislature the incorporation of a company to raise sufficient capital for constructing a canal between the Schuylkill and the Susquehanna. Since no contractors could be found who would undertake the execution of a work of such magnitude without assurance that funds to complete the task were in hand or in prospect, Governor Mifflin on September 29, 1791, approved an act incorporating the "President, Managers and Company of the Schuylkill and Susquehanna Navigation." The corporation was authorized to construct means of inland navigation between the mouth of the Swatara creek, on the Susquehanna, and the mouth of the Tulpehocken creek, on the Schuylkill, in order to open up communication between the city of Philadelphia and the back country to the west and northwest.

The canal between the Schuylkill and the Susquehanna was never very successful. Railroads soon captured public attention, and inland water transportation was all but forgotten. In the general office in Lebanon, however, the early records of the company were kept until 1890, when they were taken intact to Philadelphia. Since that time they have been in the possession of the Reading Company. Made available recently, they reveal some interesting facts concerning Robert Fulton's interest in canal building.²

Fulton, born in 1765 in the town of Little Britain, now Fulton, in Lancaster county, Pennsylvania, is generally remembered for his exploits with the steamer Clermont on the Hudson river in the

² The author wishes to acknowledge his indebtedness to Mr. Jay V. Hare, vice president of the Reading Company, for making these and other research materials available.
year 1807. But for many years he was greatly interested also in canals. In London, where he had gone to study painting under Benjamin West, he was in May, 1794, granted a patent by the British government for a double inclined plane to be used in inland water transportation. He wrote various public articles on canals, one of which appeared in 1795 in the London Morning Star. In the spring of 1796 he published his Treatise on the Improvement of Canal Navigation, in which he endeavored to prove that small canals navigated by boats of little burden were preferable to canals and vessels of the dimensions then in use in England. He recommended that conveyance over mountainous countries be accomplished by inclined planes, upon which vessels navigating the canal would be raised and lowered from one level to another, or by the use of ingenious machinery for raising and lowering boats perpendicularly. Power was to be obtained by means of water taken from a superior height and applied to a water wheel or by the weight of a body of water received into a coffer, which was to move in a direct line between the higher and the lower level through a perpendicular shaft or well made in the earth for the purpose. The inventor proposed also, by a modification of his machinery and the employment of what he called double inclined planes, to effect passage over a valley from one summit to another.

Though deeply involved in engineering experiments of various kinds, Fulton did not forget his native state. In March, 1796, he wrote Governor Mifflin a letter and inserted it in a copy of his treatise on canals. But apparently he had written the governor previously; a letter found in the records of the "President, Managers and Company of the Schuylkill and Susquehanna Navigation" reads:³

³ Strangely enough, Fulton makes no mention in his March letter of his communication of February 24.
of Six miles per hour from one extremity of the Continent to the other, which Circumstance will draw Passengers and articles which Require Quick transfer, on to the Channels of Water Conveyance And Thus they have a direct tendency to take in And Conduct the whole Carriage of a Country to and from the Various and most Remote districts, which will facilitate manuel Labour and open an extensive home Market. And to Which I have also added a plan for forming Canal to penetrate from the Marts of trade to the Interior Country, On Such A Cheap and Systematic principle, that one Ton of Grain or other Material, may be Conveyed From Fort Pit or any other point distant 3 or 400 Miles to Phila. for 21 Shillings, this consequently will draw fourth the Produce of the Remote Countries, Give energy to the People Encourage Population and Stamp a Value on every Acre of Ground. But having formed this System It is my most Ardent wish to transmit a full sense of the operation and Its Importance to my native Country. And having Observed your address to the house of Representatives in 95 In which your Ideas of the Importance of easy Communications through a Country are so Congenial to my own. And So earnestly Recommended the Consideration of the house. I Am induced to Write you on the Subject As I consider it a necessary precaution to have the exclusive Right of Vending and applying my Said Invention In the American States, Secured to me my heirs &c. by an act of Congress, Previous to exhibiting the System of proceeding This I hope you will Conceive my Indubitable Right for although any Perquisite or persentage Which I might Require for the use of my System; Could never in the least effect the Carriage of Materials Yet on the numerous Canals it might be productive of emolument to me. And Such Rights being Secured to Inventors Is the Greatest Possible Inducement to exert their Mental faculties, And In this Request I hope to have your Assistance. Convinced that Your high Sense of the Importance of Easy Conveyance Will urge you to promote every plan which may tend to produce So desirable an end. I have therefore Requested my friend Bringhurst to Wait on you to Confer on the Business who will transmit Your Resolutions to me. and immediately on the Right being Secured I will forward the plans and Mode of proceeding which will give the Blessings of Water Carriage to every district In America. The Importance of which must be too obvious to a discerning Mind, to Need Any Comment from me hoping for your friendly Aid In this Negotiation which I mean
should extend to the whole of the States I Remain with all Possible Respect your Most Obedient And Very humble Servant ROBERT FULTON.

No. 9 Watling Street London.

The above letter was accompanied by the following communication to the governor from Benjamin West:

LONDON, Feby. 23rd. 1796.

Dear Sir

By the ship which conveys this letter to you, Mr. Fulton, a native of Pennsylvania, and now in this country will address one to you on the subject of Canal Navigation. He was induced to this by motives of attachment to his country, and seeing your speech to the Legislature of Pennsylvania on the improvement of inland Navigation, Turnpike Roads, &c, &c.

What Mr. Fulton's propositions to you on this subject are, I know not; But I am induced by motive of friendship to genius and science to inform you, that I have examined his Models, Plans, and improvements in general on Canal Navigation, and find they are on unerring principles. For example. The moderate expense in making his canals compared with the old plans; the straight directions they are capable of being carried over Mountains, and Plaines, where feeding waters can be brought into them without the expense of erecting docks, Bridges, and Aqueducts; the expedition and cheapness by which property can be conveyed on them, and the great Utility to a Country by enabling the distant inhabitants to send their produce to the Capital for so moderate an expense as his System proves can be done to a demonstration, not to be contradicted.

Such are the great features of his improvement on Canal Navigation, that I have not the least doubt, but that it will be found to extend its advantages in conveying even Passengers with greater Dispatch, than that of Turnpike Roades.

For further recommendation, I have to add, that Mr. Fulton's, Models, and Plans have been examined by engineers, Committees of Canals, and others professed in Hydraulicks, and the result of those examinations are an acknowledgement of their superior Utility.

By this discovery, I hope not only America but this country will derive that advantage, which the discovery
seems pregnant with, and the engenous inventor will likewise, receive a reciprocal advantage with the Public of both countries.
That this may be realized, is the sincere wish of
Dear Sir
Your Obedient Serv.,
BENJ'n WEST.
His excellence Tho's. Mifflin.