

DELAWARE AND ITS CANAL
THE EARLY HISTORY OF THE CHESAPEAKE AND DELAWARE CANAL
1769-1829

by

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A thesis submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Master of Arts.

June, 1958

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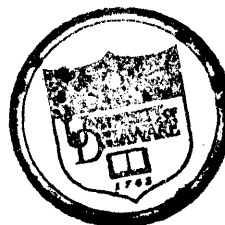
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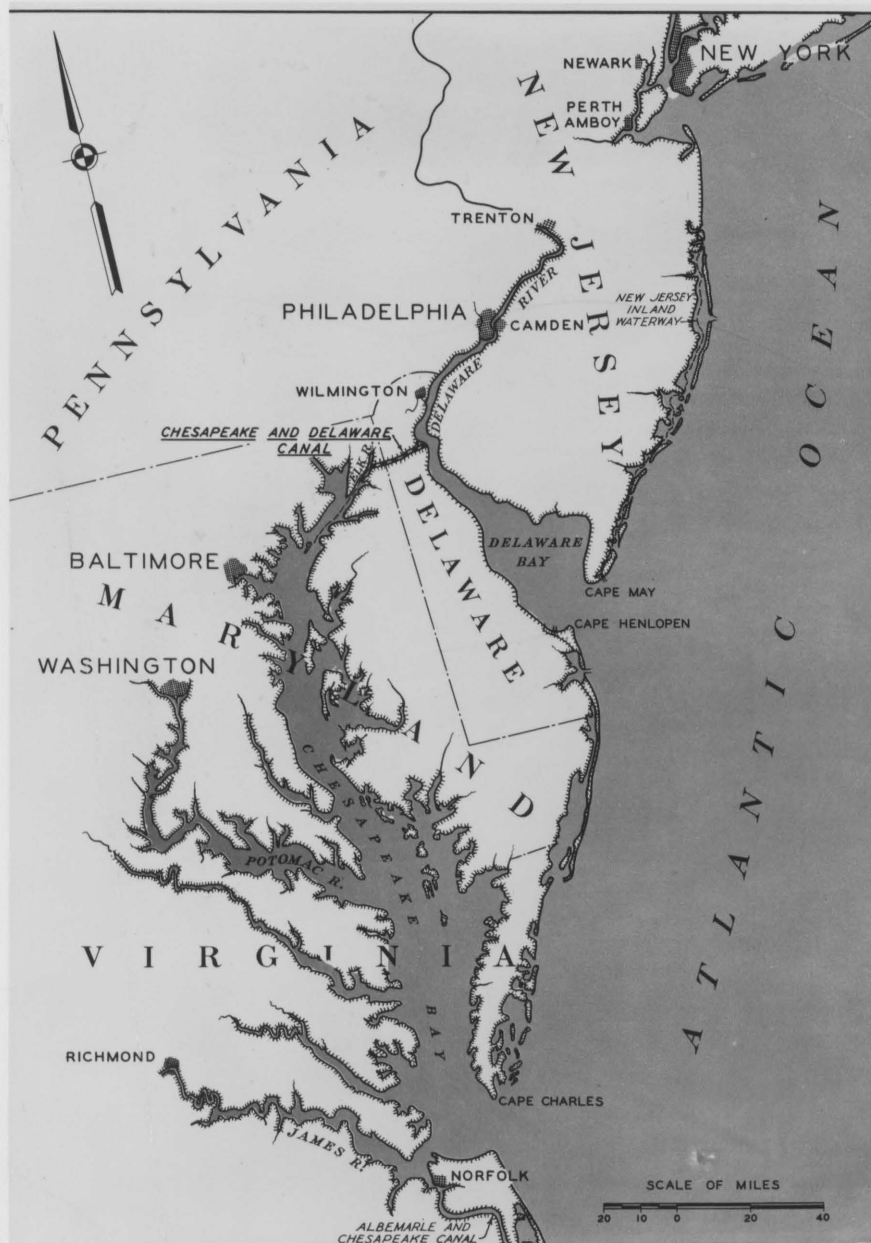
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Chesapeake and Delaware Bays

Corps of Engineers, United States Army, The Chesapeake and Delaware Canal, facing p. 1.

PREFACE

This study of the early history of the Chesapeake and Delaware Canal has been made possible by a fellowship from the Eleutherian Mills-Hagley Foundation, and was written to meet one of the requirements for the Master of Arts degree at the University of Delaware. It developed from an interest in transportation that was kindled by my associations with the foundation. The subject of this thesis indicates the wide interests of the foundation, which is in the process of completing a museum devoted to the industrial history of America as depicted by industry along the Brandywine Creek.

While preparing a museum research report on transportation in Delaware during the early nineteenth century, I became aware of the lack of readily available information on the Chesapeake and Delaware Canal, a significant artery of transportation which has been called "the parent of all the canal projects in the country." Despite the importance of the waterway, its prominence in national affairs as well as in the relations between Delaware, Maryland, and Pennsylvania, and its continued existence and use since 1829, the history of the Chesapeake and Delaware Canal had remained untold. As originally conceived, this study was to embrace the complete history of the canal. From the abundance of material relating to the canal through the period of its successful completion in 1829, however, I have decided to terminate the story there. The history of the canal in operation, briefly summarized here, will--it is hoped--be told at a later date.

My debts of gratitude to the many persons who have helped in countless ways with the preparation of this thesis cannot be adequately expressed. The staff at the Hagley Museum have given generously of their time and experience. I am most indebted to Mr. Peter C. Welsh, who encouraged in me a desire for both accuracy and artful presentation. He has cheerfully taken the time to read the entire manuscript and--to my great profit--has offered many suggestions. Dr. John A. Munroe, of the University of Delaware, also has unselfishly given of his time and knowledge. My colleague, Mr. Carroll W. Pursell, Jr., has provided assistance in the form of notes, criticisms, and example.

The personnel at the libraries and historical societies where I did research were, without exception, helpful and courteous. Special acknowledgment is deserved by the staffs at the University of Delaware Memorial Library, the Historical Society of Delaware, and the Pennsylvania Historical and Museum Commission, all of which accepted my several impositions without complaint. The typing and proofreading were cheerfully and competently handled by my wife.

Ralph D. Gray

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SUMMARY

The peninsula separating the Chesapeake and Delaware bays is indented with numerous streams. A dividing ridge, approximately eighty feet in height at its summit, causes them either to flow eastward into the Delaware or westward into the Chesapeake. The headwaters of these streams feeding the two bays are within a few thousand yards of each other, a fact which suggested at an early date a project to connect by an artificial waterway the Chesapeake and Delaware bays. The eighteenth century visionaries of this plan were succeeded in the nineteenth century by active proponents, such as Joshua Gilpin, who labored to achieve the waterway.

At no time was the project far removed from the minds of the far-sighted after 1769. In 1803 a company, jointly chartered by Maryland, Delaware, and Pennsylvania, was finally formed which began construction the following year on a Chesapeake and Delaware canal to run from the Elk River in Maryland to the Christina River in Delaware. The attempt soon proved abortive when money sufficient to complete the canal could not be obtained. The canal company lay dormant for eighteen years. Stimulated in 1821 by the desire of Philadelphia merchants for an all-water route to Pennsylvania's interior and by New York's great example of canal construction, the Chesapeake and Delaware Canal Company was reorganized and refinanced in 1822-1823. The canal, relocated and enlarged, was pushed to a successful completion in 1829.

When the canal line was placed to the south of its original location near Wilmington and New Castle, most of Delaware's support of the waterway was alienated. Although opinion in the state had always been divided, strong

encouragement for the earlier canal route was found in northern New Castle County, especially among Wilmington merchants and industrialists. They opposed the new location, however, for two basic reasons. First, the relocation was seen merely as a jealous gesture towards Wilmington on the part of the Philadelphians who had gained the direction of the canal company. Secondly, it was sincerely believed to be physically impossible to dig a lasting canal through the selected region.

Difficulties met in the construction of the canal lend weight to the force and sincerity of Delaware's objections to the lower route. Nevertheless, perseverance, aid from federal and state treasuries, and engineering skill enabled the canal builders to achieve what in its day was considered a monumental engineering feat. The canal, whose grand dimensions made it an immediate and notable tourist attraction, proved useful to bay navigation and national defense. A series of misfortunes prevented the waterway from becoming a paying business, but its usefulness cannot be doubted. In 1919 the largest stockholder in the company, the United States Government, purchased the canal property and franchises. Subsequently widened and deepened, the waterway now plays a vital role in the inland navigation of the United States.

PART I

PLANS, 1769-1798

CHAPTER I

THE CHESAPEAKE AND DELAWARE CANAL

Neither in Europe, nor in our own country do I know a line of inland navigation, which by so short a distance, and at so easy an expense, unites such extensive and productive ranges of commercial intercourse.--Benjamin Henry Latrobe, 1808¹

The Chesapeake and Delaware Canal is one of the few waterways constructed during the canal era that is still in operation. It is of major importance in the Atlantic intracoastal navigation system, which permits sheltered passage along the Atlantic and Gulf coasts of the United States. Vessels unsuited for navigating long stretches of open sea, by utilizing the intracoastal waterways, may move safely between all coastal points from Massachusetts to the Mexican border.² The Chesapeake and Delaware Canal, which unites the waters of Chesapeake Bay and the Delaware River, is a central link in the system, shortening by nearly three hundred miles a voyage from Philadelphia to Baltimore. Indeed, the "outside" journey around the peninsula was rarely attempted in the early nineteenth century because of the inconvenience and the uncertainty of success.³

It was estimated that the canal would shorten the time of a voyage from Philadelphia to Baltimore by six to eight days.⁴ Not only would the canal speed communications, but its vast possibilities as a conveyor of farm produce, lumber, coal, iron, and miscellaneous commodities made it highly desirable. In addition, the two wars with England vividly demonstrated the military needs for the canal. Despite its importance and continued prominence in the history of the area and the nation, very little of the canal story is known. Time has obscured memories, taken its toll of contemporary records, and canal enlargements have erased many traces of the original canal accouterments.

No great amount of intellect or insight was necessary to first conceive the idea of cutting an all-water route across the narrow neck of land separating the two bays. The topography of the Delaware peninsula is essentially flat. A low ridge extending down the peninsula reaches a maximum elevation of approximately eighty feet. It forms a watershed from which streams flow eastward into the Delaware River or Bay, and westward into the Chesapeake Bay. The proximity of the headwaters of those streams presented the thought of joining them at the heads of their navigation by a short artificial ditch or channel. This project was looked upon as a work of nature left by the Creator for man to complete as a monument to human industry and ingenuity.⁵

The waterway, simple to envision, was not simple to effect. The intricacies of canal construction, the theory of lock navigation, the necessary engineering skill was unknown or lacking; combined, these tended to make most seventeenth and eighteenth century proponents of the canal little more than visionaries. Men such as Augustine Herman and Jasper Danckaerts, even Thomas Gilpin, were more prescient than practical in their advocacy of the canal.⁶

The commercial reasons for the canal were recorded by a Labadist missionary, Jasper Danckaerts, in 1679. In his journal of a trip through the American colonies, he wrote:

The digging a canal through was then talked of, the land being so low; which would have afforded great convenience for trade on the South River, seeing that they would have come from Maryland to buy all they had need of, and would have been able to transport their tobacco more easily to that river, than to the great bay of Virginia, as they now have to do, for a large part of Maryland. Besides, the cheap market of the Hollanders in the South River would have drawn more trade; and if the people of Maryland had goods to ship on their

own account, they could do it sooner and more readily as well as more conveniently in the South River than in the Great Bay What is now done by land in carts, might then be done by water, for a distance of more than six hundred miles.⁷

In the long struggle to build the waterway--a definite goal of peninsular settlers from the mid-seventeenth century on--Thomas Gilpin was the first person to take serious steps towards that end. With his initial efforts in the late 1760's begins the story of the construction of the Chesapeake and Delaware Canal that took sixty years, hundreds of men, and millions of dollars to complete.

CHAPTER II

FIRST SURVEYS

It was agitated to cut a Canal from a branch of the Bohemia to St. George's Creek on the Delaware, which is about eight miles from Tide to Tide, and would have been done had not this war commenced.--Lt. Enos Reeves, 1781¹

Thomas Gilpin was a prosperous Quaker merchant of multifarious interests. His career combined scientific versatility with astuteness as a businessman. Gilpin inherited lands on the Susquehanna River, plus an estate and a flour mill on the Brandywine Creek; he later purchased over one thousand acres in Maryland at the head of the Chester River, where he established a milling center at Gilpinton, now Millington. By virtue of his various economic activities, he quickly realized the need for improved inland navigation. Moving to Philadelphia in 1764, Gilpin soon took the lead in awakening the city merchants to the transportation problem.²

The growing port of Baltimore was beginning to make inroads into the western trade of Philadelphia. As early as 1750 Baltimore had gained "much of the trade of settlers west of the Susquehanna River."³ The trade of the Susquehanna River, which cut through the heart of central Pennsylvania and drained two-thirds of the state, but which debouched into Chesapeake Bay, was the cherished hope of both cities. With it went control of the vast hinterland which Pennsylvania claimed was rightfully hers, but which Baltimore also claimed by reason of geographic location. To gain access to the commodities deposited at the head of Chesapeake Bay, Gilpin was struck by the utility and facility, both to Philadelphia and surrounding areas, of a Chesapeake and Delaware communication. He devoted himself to the task of acquiring sufficient information to test the practicality of the waterway, and of inducing the merchants of Philadelphia to build

it. With the aid of friends, Gilpin made careful explorations of the peninsula, surveying and running levels of different routes. He concluded that a canal could easily be made at a reasonable cost. A line but thirteen miles long, through a country of easy digging and plentiful water, was required. Early in 1768 he began writing to the leading Philadelphia newspapers on the necessity of constructive action, and his journey to England in the same year "may have been primarily to investigate the Duke of Bridgewater's Canal," which had been completed in 1761.⁴

Gilpin was primarily interested in opening a canal from Duck Creek to the head of the Chester River, "which he then owned, and where he partially resided," but he made enough surveys, plans and estimates of other possible routes for a general comparison of the advantage of each.⁵ The entire work was condensed into one survey and estimate before it was presented to a committee of merchants in Philadelphia, formed "for the improvement of the trade of the province," whose interests had been stimulated by Gilpin's continued and effective newspaper propaganda. Then, having shrewdly marshalled mercantile support for his scheme, Gilpin laid his plans, surveys, and estimates before the American Philosophical Society, the natural repository of such ideas.

On April 7, 1769, "the Committees, for American Improvements, and for Trade and Commerce, [were] appointed to meet on Monday Se'ennight to digest the Papers now lying before the Society, for opening a Canal to join the Waters of the Delaware and Chesapeake Bays." The committees were also directed to "prepare a scheme of Application to the Merchants &c of this City, for defraying the Expence" of examining the best route, taking levels and estimating costs.⁶

Two weeks later the committee appointed to prepare the application for financial aid reported with its prepared draft which was read and approved. A committee of five was selected to present "To the Merchants and others of Philadelphia" the following statement:

The American Philosophical Society . . . have had sundry Proposals laid before them for opening a Canal, between the Navigable Waters of Delaware & Chesapeak Bays, representing that the same might be done in several places, but particularly between the Heads of Bohemia and a Branch of the Apoquineminck sic, called Drawyer's Creek, where the distance from tidewater to tidewater is but 12,000 Perches, or about 3 3/4 miles.⁷

The statement further represented that the canal would be of great benefit to the general trade of Pennsylvania and Maryland, by opening a water communication between them as well as by "drawing the Produce of the rich and growing Settlements on the Susquehannah and its Branches down that River to the Ports in Maryland, to be from thence either immediately exported or sent to Philadelphia." The society, asked to take the necessary levels and soundings, to select the best route, and to estimate the expense, was willing to help as much as possible by providing equipment and trained personnel, but the funds of the infant group were inadequate to defray all the expenses. For that reason, application was made to the merchants and citizens of Philadelphia.⁸

The mercantile group to which the committee applied was cognizant of the need for improved transportation routes in the colonies. Aware that much of the increased traffic with the interior of Pennsylvania was beginning to go to Baltimore or other Maryland ports, the merchants heartily approved the canal survey plans. A subscription was begun immediately, which raised £140 within two weeks. A committee of investigation, composed jointly of American Philosophical Society members and of merchants, led by John Lukens, Surveyor-General of Pennsylvania (including Delaware), set out in May, 1769.⁹

During the years 1769 and 1770, numerous routes were examined by the committee. The first pass to receive attention was that between the Bohemia and the Appoquinimink rivers, "which, tho short, presented considerable difficulties, and besides, was thought too low in the peninsula, for the advantages of Pennsylvania."¹⁰ It was estimated that a six-mile canal with locks could be constructed at an expense of £40,000. No estimate of a "free passage" or through cut--that is, a lock-free, sea-level waterway--was made because of the distance from the highest ground to water level. A tidewater canal was considered "an undertaking beyond our present abilities."¹¹ This accorded with the conceptions of Thomas Gilpin, who consistently advocated the construction of smaller, less costly canals in the beginning. Enlargements could be made later.¹²

At the same time that the report on a Bohemia-Appoquinimink canal was made, Gilpin submitted the results of his own survey of a route from his property on Chester River to Duck Creek, near Smyrna. The twelve miles from tidewater to tidewater could be traversed by a canal fourteen miles long, having to overcome a maximum height of only thirty-three feet as compared to fifty-six feet in the original line. There was sufficient water to supply the canal and locks to a height of twenty-two feet above the tide. The middle ground, land higher than the top level of water by eleven feet or less, was just four and one-half miles long. The land was suitable clay or loam, free from stones, through which Gilpin estimated a small canal for flat-bottomed boats only could be constructed for £8,050. Without loss of the original expense, the waterway could be enlarged to a lock canal for shallops at an additional cost of £20,248.¹³

When the results of the two surveys were laid before the society, difficulties were apprehended in both instances. The great expense of the

first was its chief drawback; the second plan was objected to because it would "carry all the navigation of the river Susquehannah (which is the great objection in view,) too far down into Chesopeak-Bay, for an advantageous communication with Philadelphia."¹⁴ For these reasons, other surveys were requested at more northern locations, particularly routes from the Elk River to the Delaware River. The survey committee were voted the thanks of the society, and a per diem of fifteen shillings. It was further resolved that the drafts and remarks of the committee be "carefully preserved."¹⁵

The additional surveys requested were completed "with great diligence, and in the extremity of winter."¹⁶ Attempts had been made to begin in the fall but "the uncertain Season . . . & the Swamps being full of Water, had deterred them from proceeding on that Service." The committee reported in December that "as soon as the Winter should set in, & the Swamps be frozen over, they would immediately proceed."¹⁷ The surveys, begun in January, were completed early in February, 1770. The committee had divided into two parties, each surveying different routes across New Castle County, Delaware. Both groups found satisfactory conditions. The committee then proceeded, according to their instructions, to Peach Bottom Ferry on the Susquehanna, in order to learn of "the different Falls and Rifts in that River; and to examine where the best and shortest road could be made from that place to Christiana Bridge."¹⁸ Joshua Gilpin later designated the road to be laid out an object of equal importance to the committee as the canal, for their purposes were identical.¹⁹

It is evident that the supreme motivation of the Philadelphia promoters was capture of the interior trade of Pennsylvania. As the Susquehanna

River was "the natural channel through which the produce of three-fourths of this Province must in time be conveyed to market for exportation," the desire for easy communication with that mighty stream is obvious.²⁰ The road was to be a temporary solution; the canal a permanent one. Moreover, the road was to be entirely within the limits of the province of Pennsylvania. The thirty-two mile overland route was considered the shortest carriage between the navigable waters of the Susquehanna and the Delaware. Below Peach Bottom Ferry, treacherous falls and rapids made boating dangerous, but to that point, and from Christiana Bridge to Philadelphia, the navigation was known to be safe and easy.²¹

The activities of the survey committees of the American Philosophical Society are well known through the minutes of its meetings, the published papers of the society, and through Thomas Gilpin's journals, letters and reports.²² A map collating the results of the surveys accompanied an abridgement of the committee's report which appeared in the first volume of Transactions of the American Philosophical Society.²³ Nothing further seems to have been done towards effecting a waterway communication between the two bays prior to the Revolution. The survey is believed to have "stirred enthusiasm comparable to that stirred by the prospect of observing a transit of Venus which was about to occur," but the enthusiasm was quickly stifled by the approaching conflict.²⁴

Other plans were considered to accomplish the same ends by overland communications. In 1771 the legislature of Pennsylvania declared the Susquehanna and its tributaries public highways, but made a significant reservation: "Nothing in this act shall be deemed to enable the commissioners to clear . . . the River Susquehanna of and from the natural obstructions

in the same to the southward of Wright's Ferry," now Columbia.²⁵ The natural impediments to free navigation of the lower Susquehanna were great; the Pennsylvania legislature refused to remove those barriers, thus sacrificing the interests of the people living in the interior for the benefit of Philadelphia. Although the majority in the state were for free navigation, the majority in the legislature, controlled by the three original counties of Bucks, Chester, and Philadelphia, were opposed.²⁶

The same year, 1771, a broadside appeared addressed "To the Merchants and other Inhabitants of Pennsylvania," signed by "A Friend to Trade." Alarmed by Baltimore's increasing trade with the interior of Pennsylvania, the writer reviewed the several schemes proposed for diverting that trade to Philadelphia. He praised the projected canals, both the Chesapeake and Delaware and one proposed to connect the Susquehanna and Schuylkill rivers, but believed they were not the "immediate answer" to the problem. The "Friend to Trade" advocated construction of the road from Peach Bottom to Christina River, and a road from Lancaster to Philadelphia.²⁷

A second broadside, appearing a month later, answered the "Friend to Trade." The disputant feared that the canal between tributary streams of the Susquehanna and the Schuylkill would not suffice, nor did he believe the Lancaster Turnpike would be satisfactory, particularly to those removed from the road. "Navigation is the only answer," the writer claimed, but he recognized that Philadelphians were wary of any navigation scheme which would favor the town of Wilmington. "We are alarmed with the phantom of Wilmington," he argued, "a very phantom indeed, since it is presumed that one fourth of our exports have passed by that town for fifty

years past without any known injury to our trade." But since no agreement could be reached concerning "the only eligible scheme that offers, I mean a canal between . . . Delaware and Chesapeake Bays," the writer presented an alternate scheme.²⁸ The substitute proposed was a canal far from the growing mart of Wilmington, one running from the Conestoga Creek in Lancaster County to the Susquehanna and the Schuylkill rivers. Sentiments similar to those stated earlier by Thomas Gilpin were expressed in this paper.

Gilpin disapproved of the turnpike proposed from Philadelphia to Lancaster. By computations, he demonstrated that the most economical route to Philadelphia from the Susquehanna was overland by way of Christina Bridge, then by water via the Christina past Wilmington to the Delaware River and up to Philadelphia. On an average wagonload of freight, the savings by this route over any other was eighteen shillings. Gilpin believed this was "so considerable that no turnpike can turn the carriage from this natural channel, which itself will be equally improvable" by an improved road surface.²⁹ Similarly, Gilpin scoffed at the idea that Wilmington would be a dangerous rival. The route he favored ran through Wilmington; it was the most economical and as it ran along the southern boundary of Pennsylvania it would "secure all produce to the northward from going south."³⁰ In spite of these advantages, the Christina route, according to Gilpin, was being senselessly shunned:

Wilmington is a place that exports little of what goes to it, the rest is brought to Philadelphia, and it is seldom that any produce has been stopped in coming by, and never at a less price than if it came here. Wilmington does not ship off one fourth of the produce of that country, or of what goes to it: besides it is a child of Philadelphia it gains its supplies from the city of all European and other foreign articles, except a little West Indian produce, and even its imports from the Islands is sic generally sent here to sell on commission. This therefore cannot be a place

to be dreaded, or a cause why we should go around at the additional expense of 50 per cent. carriage, to avoid coming thro it, and risque the loss of our trade from an imaginary danger. If the trade of this city be preserved its ascendancy will keep down others.³¹

Despite the intensity of the debate and the immediacy of the issue, the question proved to be academic. With the advent of war, schemes for internal improvement came to an untimely end. Samuel Rhoads' prediction in 1771 that "we expect shortly to be canal-mad" had overlooked political exigencies. Although most merchants agreed with him that it is "indisputably certain, that what port soever on this continent can acquire the greatest share of its inland commerce, must proportionately advance in riches and importance," radical improvements in inland transportation awaited more settled times.³²

CHAPTER III

POST-REVOLUTIONARY AGITATION

No country in the Universe is better calculated to derive benefits from inland Navigation than this is, and certain I am, that the conveniences to the Citizens individually, and the sources of wealth to the Country generally . . . will be found to exceed the most sanguine imagination.--George Washington, 1785¹

At no time during the Revolutionary War was the canal project far removed from the minds of its promoters. In fact, its non-existence was often bemoaned by General George Washington and others faced with the delay, expense, or perhaps impossibility of transporting men, supplies, and ordnance across the peninsula.² It is understandable that soon after the peace the proponents of the Chesapeake and Delaware Canal were again active. The country's leading men, Washington and Franklin, Madison and Jefferson, applauded and encouraged their efforts.

A statistical study of eighteenth century corporations to improve inland navigation, made by Joseph S. Davis in 1917, revealed that the interest in improving waterway communications immediately following the Peace of Paris was not peculiar to the Delaware Valley. Most pre-Revolutionary projects, particularly those originating in Pennsylvania and Virginia, were revived, and numerous other canals were proposed, several of which were undertaken and a few completed. Maryland granted the first "full and complete canal charter" in December, 1783, to the proprietors of the Susquehanna Canal, designed to make the lower Susquehanna navigable.³ Through 1800, Davis listed seventy-four inland navigation corporations, beginning with one in 1783 and reaching peaks in 1792 (eleven) and 1796 (twelve). This number comprised 22.1 per cent of all the corporations of the period.⁴

The first official record of the renewed attempt to build a Chesapeake and Delaware Canal is found in the acts of the Pennsylvania legislature. In 1785 the legislature authorized negotiations with Delaware and Maryland on the canal subject, and on improving the navigation of the Susquehanna River. In a letter transmitting this news to the governor of Delaware, the secretary of the Supreme Executive Council expressed a hope for Delaware's "approbation and support of a measure so important to interests of all concerned." He requested that the proposition be laid before the Delaware legislature as soon as possible "& in such manner [that would] be most likely to procure it a favourable reception."⁵ In a longer letter to the governor of Maryland communicating the same proposition, the secretary stated:

This proposition rests upon the fair and equal ground of reciprocal advantages:--of the three States concerned, that of Delaware will perhaps derive the most immediate advantage from the first part of the plan--but we cannot but flatter ourselves yt. your Legislature like ours will see that in promoting the immediate interest of an intervening State she does not ultimately forego her own.⁶

As a result of the suggestion by Pennsylvania, commissioners were appointed by each of the states to confer on the two subjects. At the same time, plans were being discussed for a canal to connect the Cooper and Santee rivers in North Carolina, and work was progressing on the canalization of the lower Susquehanna. George Washington, aware of the various works planned or in construction, was equally aware of the value of a successful pioneering work. In a letter to Governor William Moultrie in 1786, Washington wrote:

It gives me pleasure to find a spirit for inland navigation prevailing so generally To begin well . . . is all in all: error in the commencement will not only be productive of unnecessary expence, but, what is still worse, of discouragements.

Washington suggested that the services of a professional engineer from Europe be obtained by the several canal companies jointly. "One may plan for twenty to execute," he said, "One person of activity might design for all . . . , and visit the whole three or four times a year."⁷

Although the idea was sound and recognized a definite need for professional engineering advice, it was fruitless. Maryland and Delaware refused to cooperate with Pennsylvania on the Chesapeake and Delaware project. Delaware was even reluctant to discuss the problem, as its trade and commerce was in an infant state. The committee in the Delaware legislature to which was referred the suggestion from Pennsylvania announced that a navigable communication between the Chesapeake and the Delaware, "if carried into effect at this time would tend to injure the carrying Trade of this State--Your Committee would rather recommend that the Roads of Carriage in this State should be improved."⁸ Nevertheless, in June, 1786, five commissioners from Delaware were appointed to discuss a canal between the Chesapeake and the Delaware, the improvement of the Susquehanna navigation, and "any other subject tending to promote the commerce and mutual convenience of those three States."⁹ According to Francis Hopkinson, a Pennsylvania commissioner, the meeting was to be held November 27, 1786.

In the meantime, there was action elsewhere. The original purposes of the Annapolis Convention, convened during the previous month, was to discuss a Potomac and a Chesapeake and Delaware canal and other commercial questions, but the absence of Maryland delegates precluded this. Indeed, the absence of eight of the thirteen colonial delegations led to the calling of a second convention to be held in Philadelphia in 1787, which developed into the Constitutional Convention. What was first to have been "a little

meeting of two or three states to talk about the Potomac River and some projected canals [became] a meeting of all the States to discuss some unit or new system of legislature on the subject of trade."¹⁰

Neither private meetings nor general conventions brought about agreement on the Chesapeake and Delaware Canal. Maryland and Delaware feared Pennsylvania would be favored disproportionately by the communication. James Madison wrote Jefferson:

Maryd has I understand heretofore opposed the undertaking, and Pena means now to make her consent to it a condition on which the opening of the Susquehanna within the limits of Pena will depend. Unless this is permitted the opening [of the Susquehanna] undertaken within the limits of Maryland will be of little account. It is luck that both parties are so dependent on each other as to be thus mutually forced into measures of public utility.¹¹

Pennsylvania had no similar favor to withhold from Delaware in order to strike a bargain.

Efforts were made to convince Delaware of the advantages of the canal with reasoning, with appeals to patriotism, and even with veiled threats. In 1792 some "Observations on the advantages of the proposed canal from the Chesapeake to the Delaware" were printed. The beginning measures by Pennsylvania and Maryland towards which Delaware had remained aloof were recited. "The Inhabitants say," continued the author, "a canal . . . would probably be a disadvantage to them, not only by making a thoroughfare across their state, but by depriving them of the great advantage they now enjoy by being the carriers of the commodities transported."¹²

On the contrary, the "Observer" thought the canal would bring Delaware numerous advantages. In the first place, a closer unity among the middle states would result. The Chesapeake and Delaware, the Potomac, and the Susquehanna canals would bind the states "powerfully--with a certain cement--interest. The advantages [would] be mutual."¹³ Philadelphia and

the trading towns in Delaware would receive as much from Baltimore's province, Chesapeake Bay, as the metropolis of Maryland would derive from the Susquehanna River. Moreover, trade would be made easy, cheap and expeditious. Manufacturing and commerce would increase, land would be improved, population would grow, and the respective resources of different areas could be exchanged. Coal, limestone, and building stones were found in abundance on the banks of the Potomac and the Susquehanna; Delaware, however, destitute of these commodities, was better adapted to grass and cattle, while the Chesapeake Bay area was best suited for raising Indian corn and tobacco.

A special plea was made to the Brandywine millers, whose mills were capable of producing 300,000 to 500,000 barrels of flour annually.¹⁴ The Brandywine and other mills in Delaware, "the mainspring to the trade and commerce" of the state, imported much of their wheat from Maryland, where the grain could be obtained at a lower price. This enabled the millers to "pay the expense of cartage from Chesapeak, and have a sufficient profit besides." Because of the scarcity of improved mill seats in the Chesapeake Bay area, and "the former uncertainty of the Baltimore market," this was possible. He warned, however, that "if Delaware state should still continue to withhold her consent, and this communication should not be effected, they may probably be eased in future of the burden of being carriers, as well as the advantages they now enjoy arising therefrom." The Susquehanna mills and the Baltimore market, both gaining, would be sufficient to process and distribute Maryland's wheat crop. Without the canal, the Brandywine millers could no longer expect to prosper as they would "labour under the great disadvantage of paying the land carriage of their wheat from Elk." Canal tolls, on the other hand, would be but one-sixth of the land carriage per ton-mile.¹⁵

If draymen in Delaware opposed the Chesapeake and Delaware Canal, so did civic-minded citizens in Baltimore. Maryland's opposition was centered in the city, whose trade of the Chesapeake Bay and the Susquehanna River was threatened by the canal. One articulate citizen of the young commercial center wrote strongly against the project:

In sound policy the state should rather adopt some wholesome provisions to retain the exportation of these important articles (wheat and flour) from her own seaports, than assist in forming a highway for their safe passage into Delaware. From the great superiority of situation and expense of portage across the isthmus between the Chesapeake and Delaware Bays, Baltimore, though much inferior to Philadelphia in wealth and population, hath of late commenced a degree of rivalry with that city. Remove the barrier, all competition is immediately terminated. She at once sinks into the station of an inferior or secondary market.¹⁶

Opposed by groups in both states through which the waterway Pennsylvania wanted so desperately was to pass, recourse was made to alternative plans. James Higgins, a Delaware citizen, who admitted he was "activated by the two-fold motive of public good and private advantage," sent the governor of Pennsylvania a scheme he had devised to open the canal. Realizing the canal would probably affect the interest of persons owning "wharves, Landings &c. and would probably occasion the Legislature of Delaware to oppose" such a measure, his plan called for the necessary land to be purchased by an individual. He elaborated on the scheme:

In such case I presume there would be a right to cut what Grounds would be thought necessary independant of any Legislative grant. It is said with us that Pennsylvana would furnish the money gratis to cut the canal would the States of Delaware & Maryland consent to the measure--if so I will engage to purchase the lands from Tide to Tide and accept a Toll as compensation for the sacrifice--I already possess a Mill at the head of the Bohemia the only spot within Delaware at which the tide-waters of Chespeak flows, and some of the other grounds thro' which the canal would pass from thence.

"As it is necessary the matter should remain within the knowledge of

very Few," Higgins concluded, "I shall rely on yr prudent use of the present paper--a general knowledge of which would not only render my plan impracticable but might do me injury with those who disapproves the work."¹⁷

This deceptive plan was not undertaken, but others were. As one means to capture the Susquehanna Valley trade, the Lancaster Turnpike Company was incorporated in 1792. The hard-surfaced road was completed four years later.¹⁸ A second attempt was made to build the canal cooperatively. Official negotiations concerning the canal having broken down in 1786, Pennsylvania citizens tried again to enlist the support of her southern neighbors in 1793.¹⁹ In that year, the Pennsylvania Society for Improving Roads and Inland Navigation was moved to action by activity in Maryland. The corporation formed to canalize the lower Susquehanna received an offer for the purchase of their corporate rights by a "Company of Hollanders" early in 1793. Negotiations with the group were delayed until the Maryland company could learn the views of the citizens of Pennsylvania and Delaware on the subject.

The Pennsylvania Society appointed a committee to obtain further information, and to inquire into the circumstances of a Chesapeake and Delaware canal. General William Irvine, Dr. William Smith, Tench Coxe, and other prominent Philadelphians were on the committee which proposed a meeting for persons in all three states interested in the project.²⁰ The meeting was held on June 18, 1793, attended by Pennsylvania Society members, Maryland canal commissioners, and a number of leading Delaware and Maryland citizens. An optimistic, ambitious plan of attack was adopted, calling for a company incorporated in all three states to open the navigation of the Susquehanna from the mouth of the Swatara to the Maryland line, and for

a communication "from Tide Waters of Chesapeak Bay thro the Delaware State to the Tide Waters of Delaware Bay, at some one of the places heretofore contemplated for that Purpose."²¹ Shares in the corporation were to be equally divided among the three states. To accomplish these ends, committees of correspondence were formed, and petitions and bills were to be prepared for presentation to the legislatures of the three states.²²

Newspapers were sanguine in their reports of the meeting, saying that the Chesapeake and Delaware Canal was the most promising of all the important public works of the United States.²³ The grand plans, nevertheless, came to nothing. Pennsylvania then determined to build a canal connecting Philadelphia with the Susquehanna entirely within the limits of her own borders. But the company intended to accomplish this was bankrupt by 1795.

Despite the repeated frustrations, the continued agitation for the canal was not wasted effort. Throughout the period of promotion, from the 1760's until 1799, step by step thoughts on the subject were removed from the realm of personal speculation to that of practical knowledge. When, in 1799, the Maryland General Assembly incorporated a company to build the Chesapeake and Delaware Canal, a major barrier was crossed. The prospects for incorporation of the company in Delaware and Pennsylvania looked bright.

PART II

FRUSTRATIONS, 1799-1820

CHAPTER IV

LEGISLATIVE BATTLES

We conceive the object to be of considerable importance to the good People of this State, and if attained, will prove very beneficial to them.--Memorial to the Delaware General Assembly, 1800¹

The Chesapeake and Delaware Canal Company was incorporated in Maryland in 1799, in Delaware and Pennsylvania in 1801. The joint chartering of the canal company had been a design of Pennsylvania's for nearly half a century. Although Maryland was the first state to pass the act of incorporation, Pennsylvania had initiated action leading to that event on April 11, 1799.

On that date, copies of the Pennsylvania law providing for the appointment of three commissioners to "ascertain the best route for and mode of affecting" a Chesapeake and Delaware Canal, and appropriating money for "opening the Navigation of the River Susquehanna down to the Maryland line" were sent to the governors of Maryland and Delaware. The Pennsylvania law, however, was to be inoperative until Maryland and Delaware made similar provisions towards effecting the Chesapeake and Delaware Canal.² Anxious to achieve an improved navigation of the Susquehanna River, the Maryland legislature acted promptly. Instead of appointing another group of commissioners as suggested, Maryland went a step further by chartering a canal company. The act of incorporation was signed December 7, 1799, just ten days after the introduction of the bill.

Sentiment for the bill was not unanimous in Maryland. Opposition to the measure was centered in Baltimore, but this was overcome by imposing a condition on Pennsylvania. Baltimore was anxious to have the Susquehanna River made navigable; consequently, the canal incorporation act was not to

be in effect until Pennsylvania agreed to permit the clearance and free navigation of the Susquehanna. In addition, of course, similar acts of incorporation had to be passed in Delaware and Pennsylvania.

Robert Milligan, a resident of the Eastern Shore of Maryland, where most of the state's support for the canal was located, explained the reasons for the conditions placed in the canal bill. "The parts that appear exceptionable," he wrote to Thomas Willing of Philadelphia, "were not a matter of choice with us, but were concessions, we were oblig'd to make to those who helped to carry the bill." Milligan advised that, unless the concessions were thought "very material indeed," no revision of the bill should be attempted. If any point "be left unadjusted," he continued, "it will . . . postpone the commencement of the work one whole year."³ Despite the attempt to quicken acceptance and implementation of the act, two years elapsed before final incorporation of the company occurred, four years elapsed before work began.

It was not Pennsylvania but Delaware that caused the delay. The Delaware act of incorporation, "after laying two sessions before the legislature, was only passed by a casting vote, even when the enthusiasm in favor of the canal was at its height."⁴ Opinion within the Delaware legislature had always been divided. As early as 1796, the legislature went on record that it was convinced of the commercial and agricultural advantages of a Chesapeake and Delaware canal. It was resolved by the Senate, and concurred in by the House, that when Maryland and Pennsylvania became disposed to encourage so useful and important an undertaking, "it will be the Interest and the Inclination of Delaware to unite with Those States in accomplishing the Object."⁵ But by 1800 the balance had shifted. In his annual message to the legislature delivered January 10, 1800,

Governor Richard Bassett discussed the acts of Pennsylvania's and Maryland's legislatures relating to navigation on the Susquehanna and a Chesapeake and Delaware canal. "This is a subject that no doubt demands your early and greatest attention," he stated, "as it is one of considerable magnitude, and involves not only the interest of the citizens of this State, but that of a great body, if not the whole citizens of the United States."⁶ Not only the Governor, but more than one hundred citizens of Delaware announced their approval of the canal project in a petition to the legislature.⁷

Despite the enthusiasm shown for the canal, a heated, lengthy debate on the subject occurred in the House of Representatives. A committee of the whole House first heard a virtual reiteration of the resolution adopted in 1796, declaring faith in the commercial and agricultural benefits of the canal. It was then proposed that a bill to incorporate a canal company be prepared.

This resolution was opposed by Kent County representatives, Nicholas Ridgely and Manlove Emerson, who favored adopting a diametrically opposite resolution.⁸ In one of the strangest legislative battles ever witnessed in Dover, the second motion opposing the canal was adopted, and the committee rose to report it. Thereupon, Caesar A. Rodney, the New Castle County representative who had introduced the former resolution, moved that the House disagree to the resolution adopted by the Committee, and instead adopt the one proposed earlier by himself. The question being put, the motion was carried, and Rodney was appointed chairman of a three-man committee to draft the bill.

Even after such adroit manipulation of the legislative processes by Rodney, the act incorporating the canal company failed to become law. After passage in the House of Representatives, it was sent to the Senate for confirmation. The Senate returned the bill, "having concurred therein, with certain proposed amendments." But several of the changes suggested were crucial.⁹ Four of the Senate proposals were merely matters of word choice, but two involved a new principle. Both houses of the legislature were unwilling to grant the privilege of cutting a canal across the state without tangible remuneration, but the senior chamber proposed that a percentage of the net income of the company be paid to the state, and that the books of the company be open for inspection at any time to persons appointed by the legislature. The House had approved of a flat payment to the state--\$15,000 per year for twenty years, \$20,000 annually for the next twenty years, and \$30,000 each year for the following two decades. Finally, the Senate desired to strike out the belligerent phrase, "that it is on condition of the Chesapeake and Delaware Canal Company making payments, and complying with the terms mentioned . . . that the present act of incorporation is passed." Refusal to so act ipso facto constituted repeal of the charter.¹⁰

Kent and Sussex county representatives insisted on the House version of the bill, and refused to assent to the Senate amendments. Nicholas Ridgely and Caesar A. Rodney again squared off in legislative battle. On Ridgely's motion that the House disagree to the Senate amendments, Rodney demanded a roll call vote. Two men, one from each of the two lower counties, joined the six-man New Castle County delegation in favoring the Senate amendments, but the nine remaining Kent and Sussex county members successfully opposed the changes.¹¹ With each house insisting upon its

version of the bill, a Committee of Conference was appointed January 24, 1800, in an attempt to resolve the difference. The joint committee met the following day, but could "come to no determination" on the subject.¹²

Adjournment came with the differences unresolved. In fact, "the legislature's failure to act was the basis for Democratic attack on the administration in the election of 1800."¹³ Governor Bassett again broached the subject in his annual message the following year, recommending early action to "put an end to that suspense and anxiety of mind occasioned by delay, that rests and must rest upon a considerable number of the citizens of this state," and upon those of Maryland, Virginia, Pennsylvania and others in the United States.¹⁴ Once again, the subject was referred to the committee of the whole, which sat January 16, 1801. Again, Rodney presented his resolution adopted in 1800 which declared the canal project "an object of the first importance, which if attained, will, in time of peace, and more especially in time of war, promote the general welfare," and which called for a bill to be prepared for accomplishing the project.¹⁵ Some indication of the effect of the Democratic campaign in the election of November is shown in the fact that the resolution, once defeated a year ago, now passed by a comfortable margin, eleven to seven.¹⁶ The Chesapeake and Delaware Canal Bill was quickly introduced.

Pennsylvania was interested in the outcome of the debate at Dover. Disappointed by the rejection of the bill in 1800, the Pennsylvania Assembly authorized the appointment of three commissioners to attend the current session of the Delaware legislature for the purpose of obtaining the "permission of that State upon proper principles" to construct the canal. Accordingly, Dr. George Logan, Captain John Hunn, who was Caesar A. Rodney's father-in-law, and Presley Carr Lane, "a back Country Lawyer," were appointed

January 22, 1801, to lobby for the canal bill.¹⁷ Instructed to "proceed with all convenient dispatch," the Pennsylvanians hurried to Dover where they conferred with the legislature.¹⁸

Debate had begun January 23, when the bill was read for the third time. Rodney tried to strike a happy medium with amendments he proposed to the controversial seventeenth section. He suggested the company pay to the state one per cent of their net profits after those profits reached ten per cent or more of the original investment. He also tried to meet a criticism of the charter--that Pennsylvania, with its more abundant capital, could purchase a majority of the shares in the company and thus gain control of the canal direction--by proposing that Delaware have the exclusive right of subscribing one-third of the stock. Both the state and individuals could purchase from this block, the only provision being that the said shares must be subscribed within a set period of time. Rodney's amendments were not liked, however, and were defeated by an eleven to six vote.¹⁹ A counter-proposal by Ridgely that the company pay one-tenth of all their profits to the state, and with the one-third stock subscription clause omitted, was carried.²⁰

When the Senate considered this bill, minor objections about word choice were made. The title of the bill, designating the eastern termination of the canal the "river Delaware," was changed to the "bay or river Delaware." This and other changes were accepted by the House, but the Senate's seventeenth section, reviving Rodney's plan that ten per cent of the net income be exacted from the company after profits reached a certain amount, was refused by the House. A Committee of Conference was again appointed by each house. Eventually an agreement was reached in which the Senate payment plan was accepted, but it was added that the company

could not lower its rate of toll without the consent of the Delaware legislature. The bill was passed by both branches of the legislature and signed by the governor January 29, 1801.²¹

The Pennsylvania commissioners, who had lobbied for the bill, could report a job well done. While the Senate and House were discussing canal company payments to the state, groups from both bodies were conferring with the commissioners to arrange for concessions from Pennsylvania in return for passage of the bill. As it was eventually worked out, final authorization of the bill depended upon fulfillment of two conditions by Pennsylvania. The act was to be of no effect until Pennsylvania permitted a Delaware agent to have free access to, for the purpose of copying, all the papers in their land office--warrants, surveys, grants, or other original papers--relating to Delaware. In addition, since the Delaware legislature believed that the "parts of Wilmington and Newcastle in this State, have been materially affected by the operation and effect" of portions of Pennsylvania's quarantine laws, the canal charter was to be inoperative until the Pennsylvania legislature repealed the objectionable parts.²²

The quarantine laws and the lack of land office papers had been troublesome to Delaware merchants and to most property holders. Using the canal bill as a convenient lever, the legislature sought to redress those grievances. The presence of the Pennsylvania lobbyists and their assurance that "these conditions would be complied with on the part of Pennsylvania" probably contributed to the final approval of the canal bill.²³

Governor Bassett immediately notified Governor McKean of the passage of the bill, enclosing the act as finally adopted. This

information was communicated to the Pennsylvania legislature on February 6, 1801. Two weeks later an act was passed incorporating the Chesapeake and Delaware Canal Company in Pennsylvania. The conditions which had been established by both the Maryland and the Delaware legislatures were acquiesced in, although not to the complete satisfaction of Delaware. The action taken in regard to the land records was acceptable, but the changes in the quarantine laws merely angered Governor Sykes of Delaware, who declared the conditions of the canal bill still unfulfilled.²⁴ "In the very repealing clause of their act," he remonstrated, "they added a provision more pernicious in its operation than the grievances before complained of." He continued in menacing tones: "It belongs to you," Sykes told the legislature, "to take decisive measures that we shall not in future be liable to the impositions of our more potent neighbors."²⁵

The bellicose nature of the statement got results. Whether or not intended more for the ears of Pennsylvania than Delaware, within three weeks Pennsylvania made redress. An act was rushed through the legislature which, Governor McKean was certain, would "effectually remove any objections or uneasiness that may have heretofore been conceived against them." He added, as if hurt by the insinuations in Governor Sykes's message, that the administration of Pennsylvania was "disposed to do everything that can be reasonably wished for by our sister state of Delaware."²⁶

The Delaware conditions were met in February; on February 27, 1802, Governor David Hall issued a proclamation declaring the Chesapeake and Delaware Canal Company act of incorporation in full force and effect.²⁷ One reason for the anxiety in Delaware and Pennsylvania to have swift action was that the time limit set in Maryland's act of incorporation for forming the company was about to expire. Two days after Delaware's law went into effect, the subscription books of the company were opened.

CHAPTER V

ORGANIZATION AND PREPARATION

I apprehend that more honest pains have seldom been used in investigating, and deciding on any work.--Joshua Gilpin, 1821¹

According to the laws of the incorporating states, a maximum capitalization of \$500,000, 2,500 shares at \$200 each, was authorized, although whenever half that amount was subscribed, the canal company could be organized. Each state appointed men to whom the subscriptions could be paid. In Delaware, a wide geographic distribution was made of the men authorized to receive the pledges. The managers were Joseph Tatnall, of Wilmington, later the first president of the Chesapeake and Delaware Canal Company; Archibald Hamilton, New Castle; Joseph Israel, Christiana Bridge; William Cooch, Pencader Hundred; Thomas Fitzgerald, Port Penn; Robert Maxwell, Middletown; all of New Castle County. Kent County managers were James Henry and Ebenezer Blackiston, Jr., Duck Creek Cross Roads (Smyrna), James Sykes, Dover, Peter Caverly, Milford; Sussex County appointees were Outerbridge Horsey, Georgetown, Caleb Rodney, Lewes, and Jesse Green, Concord.² No down payment was required of persons who subscribed. It was first necessary to learn if the minimum 1,250 shares could be sold. According to the acts of incorporation, the subscription books would be open for one year from March 1, 1802. On the first of May, 1803, a general meeting of all subscribers was to be held at Wilmington, Delaware, when the company would be organized.

Optimistically, provisions were made in case of an over-subscription. As it happened, however, it was necessary to briefly extend the period for receiving subscriptions. Governor McKean of Pennsylvania recommended this

action on February 16, 1803, because the commissioners of the three states had not received "a sufficient number of subscriptions . . . by two hundred and ninety nine."³

The required amount of subscriptions were obtained soon thereafter. The scheduled organization meeting in May was not delayed. A Baltimore newspaper announced on April 13, 1803, that the meeting was to be at Mrs. Higgin's Tavern in Wilmington, Delaware, where officers would be elected and the necessary arrangements for the immediate commencement of the work would be made.⁴

A large group of enthusiastic, public-spirited men from Pennsylvania, Maryland and Delaware met at the appointed time and place on May 3, 1803. Officers to be elected included a president and nine directors. Joseph Tatnall, a leading Delaware industrialist who resided in Wilmington, was elected president of the company. The nine directorships were divided among representatives of the three states. In addition to the election, a resolution calling for a payment of five dollars on each share by September 1, 1803, was adopted. Officers Joshua Gilpin, Philadelphia, Joseph Tatnall, Wilmington, Kensey Johns, New Castle, George Gale, Cecil County, Maryland, and Samuel Chew, Chestertown, Maryland, were appointed to accept the payments.⁵

Shortly after the general stockholders meeting, the officers of the company met to take steps towards beginning construction. One of the first committees organized was the Committee of Survey, made up of six members of the board. The committee duties were numerous. They were to accompany the engineers or surveyors in their examination and survey of the several most likely places for the route of the canal: suggested

possibilities were between the Elk and the Christina rivers, or between Bohemia River and Appoquinimink Creek. Other routes to be surveyed ran from Back Creek to Drawyers and St. Georges creeks, and from the Sassafras River to the Appoquinimink Creek. The committee was also to ascertain the elevation of the land, the quantity of water in the Delaware streams, and to estimate the terms upon which the necessary land and water rights could be purchased. Four engineers or surveyors, at not more than eight dollars per day, along with such assistants as were necessary, could be employed. To enable the committee to begin its activities, an appropriation of \$1,000 was authorized by the board of directors.

The first action of the committee was the employment of engineers. Benjamin H. Latrobe, an architect and engineer just recently arrived in America, and Cornelius Howard, a Baltimore engineer and surveyor, were hired. Later John Thompson and Daniel Blaney, of Pennsylvania and Delaware respectively, aided in the engineering duties. The preliminary surveys for the canal began in July, 1803.⁶

At the time the newly organized survey committee was beginning its task of collecting complete information on the entire peninsula, the Pennsylvania legislature made an effort to retain some supervisory powers over the operations through commissioners appointed by the governor. Reviving the 1799 law authorizing the appointment of three commissioners to explore and ascertain, with men similarly appointed by Maryland and Delaware, the best route for the canal, Governor McKean appointed Latrobe as one of the Pennsylvania commissioners. A purpose of the 1799 law, passed previously to any act of incorporation, had been to get information in favor of a Chesapeake and Delaware canal. Now it was to be used to help control the action of the canal company officials. The commissioners were

to report to the legislature "with a draft and description of the canal and of all and every the works and locks requisite to its complete operation."⁷

The governor of Maryland objected to the action of Pennsylvania and refused to follow suit. He could find nothing in the canal charter authorizing the appointment of commissioners "to designate the proper course of the intended canal." As the law was interpreted in Maryland and came to be followed, the selection of the route was left "to the President and Directors of the Company . . . , as was the case in the Potowmack Canal."⁸

Several points had to be kept in mind by the surveying committee and engineers as they conducted their investigations. The shortest line over apparently firm, level ground was not necessarily the best or even a possible route. The nature of the soil, the elevation of the ground, the available water supply, and the established trade routes had to be considered. The entrances to the canal at both ends had to be spacious, protected, and within easy reach of a deep channel. The size of the canal was regulated by available water and capital, the expected traffic, and the nature of vessels which would use the waterway.

Keeping these points in mind, the survey committee and engineers diligently pursued their task. Benjamin H. Latrobe, promoted in February, 1804, to the position of chief engineer, directed the activities. The gathering of the information occupied nearly ten months. The difficulties of the investigation were compounded by the local interests aroused. Each of the routes surveyed was favored by the inhabitants or landowners of that part of the country through which it would pass. Joshua Gilpin, one of the

members of the survey committee, stated that while examining the Bohemia River, "we were met by Mr. Bassett and Mr. Bayard, who above all others were interested in having that river included in our plan."⁹ The selfish interests of the local inhabitants--even of the board members--irritated Latrobe. He confided to Gilpin he was so "disgusted with quarrels among the Board of Directors--each wanting the canal to be run according to his prejudices or property holdings," that he was almost ready to resign.¹⁰ Latrobe wrote later that all indications pointed to New Castle as the best terminus for the canal, "but that the majority of the stock subscriptions pointed the other way."¹¹

Latrobe himself later succumbed to the temptations of quick profit through speculation. With Judge Kensey Johns of New Castle, who later became president of the Chesapeake and Delaware Canal Company, the two men in 1805 purchased, "at its current low value . . . a sizable tract where the canal and feeder were to meet."¹² Latrobe's biographer suggests that it is best not to judge of the ethics of this speculation, perhaps occasioned on Latrobe's account by dire need, but at any rate it was an unsuccessful venture. Latrobe never received any money from the sale of the property; instead, it cost him \$425 that he sorely needed.¹³

The minutes of the survey committee reveal the movements of the exploratory groups in great detail. As each stream and the intervening land of the peninsula was examined and measured, preliminary steps were taken towards purchasing the necessary land, mills and water rights. Several groups and mill owners entered conditional bonds with the company. Joseph Tatnall and Kensey Johns, canal company officers, offered to sell portions of their land for canal purposes at one cent an acre, but other property holders were not as self-sacrificing. Alexander MacBeth and

Andrew Fisher, millers along the Elk Creek, "offered to accomodate the Committee with their mills mill seats and water rights." MacBeth wanted \$6,666.66 $\frac{2}{3}$ (£2,500) for his fifty-seven acre mill estate and the water rights, or \$5,866.66 $\frac{2}{3}$ for the water rights alone. Fisher set the price at \$4,000 complete or \$3,733.33 $\frac{1}{3}$ for water rights only. Still other owners refused to come to terms. In August the committee reported that "some difficulties, will probably attend the purchase of the waters of Elk Creek," and suggested that the company apply to the several legislatures for a law to extend the powers of the company to condemnation of water.¹⁴

By November of 1803, the western termination of the canal, as well as the most eligible supply stream, was tentatively determined. The canal was to begin near Elkton, on the Elk River, and the upper Elk River was to be used as the major source of water for the canal. It was of sufficient quantity at the necessary height, and could be carried by a feeder canal to the summit, or upper level of the main canal. In January, 1804, the survey committee was directed by the board of directors to proceed in purchasing the water and land upon the Elk River, and other necessary land. Within three months the purchase of the water rights of the Elk were completed. A considerable portion of the land for the feeder was similarly in canal ownership when, on April 17, 1804, Latrobe announced that the surveying had been completed. Work could begin immediately, particularly the procuring and quarrying of stone. Upon hearing the report, the committee of survey--assuming the task later assigned to a committee of works--directed Mr. Vickers, a stonemason employed by the company, to go to the vicinity of the Elk Forge, where the canal feeder was to begin, and superintend the quarrying. For these preliminary operations, Latrobe was authorized to

procure "3 Wheel Barrows, 3 Crow bars, 1 long bar, 6 picks, 3 Sledge hammers a set of blowing tools Stone hammers & wedges & 300 feet of 2 inch plank," and to make a temporary agreement with the blacksmith at the Elk Forge for having tools repaired.¹⁵ In addition, Gilpin and Latrobe were authorized to hire "one or more groups or bodies" of laborers to begin digging immediately upon the feeders.

CHAPTER VI

FIXING THE LOCATION

The inquietude expressed by the stockholders, after nearly twelve months spent in investigation, at a considerable expence, was such as to prove as the time was come for a decision.--Joshua Gilpin, 1821¹

The original survey authorized by the survey committee was of the route selected to be the canal line. On July 5, 1803, at a Survey Committee meeting in Elkton, Latrobe and Howard were assigned the task of determining the best "rout for a Canal across from the French Town or its vicinity in Elk River to Peach's fishing Place or its vicinity in Christiana Creek & also to New Castle and its vicinity."² The committee itself examined the "ground and waters" of the Frenchtown area, later moving on to the Bohemia River, Appoquinimink River, Drawyer's Creek, and the Delaware shoreline. Although the committee did in fact survey the entire area, examining for itself the numerous routes others pressed upon them, a route connecting the Elk River with Christina River had strong points in its favor--and strong backers--from the beginning.

After just a cursory examination of the peninsula--later examined in detail, the committee ordered the engineers to make careful surveys and drafts of the Elk River from its mouth up to Frenchtown, of Back Creek, and of Christina River "from Wilmington to the [Christiana] Bridge which draft shall distinctly & correctly Exhibit the Width & depth of the Channels of the several streams to be surveyed."³

One of the reasons, perhaps, for the primacy given to the Elk-Christina route was that it paralleled the historic trade route across the peninsula. In 1769-1770, the American Philosophical Society had considered

this route practical and advantageous for a canal. At that early date, the western terminus of the canal had been planned for Elkton Point, some three miles above Frenchtown at the head of navigation on the Elk. Since that period, however, the river had become so obstructed by shoals that navigation above Frenchtown nearly ceased.⁴

In fixing the route of the canal, it was necessary to consider factors other than engineering data. It will be recalled that in 1770 the American Philosophical Society opposed a canal debouching below New Castle because it was "too low in the peninsula, for the advantages of Philadelphia."⁵ Approval by the commercial interest was paramount to success of the canal. Available water supply and expected traffic determined the size of canals, but commercial needs as well as geographic features prescribed canal routes.

For sound economic reasons, then, the manufacturing area of Wilmington received prime consideration in the debate upon the canal line. "A populous town of manufactures is the surest support of a canal," wrote Gilpin in 1821. "Besides it is in this quarter only, that the state of Delaware feels an interest" in the canal.⁶ In addition to the great merchant mills of the Brandywine flour millers, there were countless other mills whose water wheels were turned by northern Delaware streams, such as the Brandywine, White Clay, Red Clay, and Mill creeks. The Brandywine alone, for example, in 1793 was said to have turned in its sixty-mile course a total of 131 mills.⁷ In 1815 there were ninety-nine mills within nine miles of Wilmington. Grain, textile, and sawmills led the list, but there were also gunpowder, paper, iron, barley, and oil mills.⁸

There were more drawbacks to a route lower in the peninsula than its shunning of Wilmington. Most of the tributary streams of the Chesapeake, with the exception of the Elk River, were unsuitable for carrying natural or artificial navigation. On the map these streams form deep indentations of the peninsula and are "apparently of the utmost value for canal communications."⁹ This invariably fostered the idea that canals could easily be situated in those areas. Appearances were illusory, however, for the inlets quickly degenerated beyond the head of the tide to mere rivulets. The situation on the Delaware shore was even worse. Much of the western shore of Delaware was marshy for several miles inland. Only small streams wound through the marshes in narrow, devious courses. The Appoquinimink, one of the best streams for navigation in the area, meandered nine miles to connect places four miles apart. It would be necessary for canals "to resort to the table land or elevated ridges between the streams."¹⁰

Rather than simply having to connect the headwaters of streams flowing into either bay, a suitable canal would have to extend to the mouth of each stream, being hindered instead of helped by the streams. Apparent brevity could not be depended upon; actually, the length of the canal line would vary little whether built on the upper or lower route. The manufactures of northern Delaware, their nearness to Philadelphia, where the strongest support for the canal existed, and possible use of the feeder canal to move farm produce from Chester and Lancaster counties militated in favor of the upper route.

Final determination of the route was not made until the following spring, nearly a year after investigations began. Latrobe commented angrily upon what he considered the unnecessary thoroughness of the

surveys which required him to frequent "as inhospitable, and wild a country as the peninsula can boast, for no other purpose than to explore it in order to satisfy the public that no canal can be carried over it."

The reasons for this additional labor were given as follows:

So much are our courageous Stockholders swayed by public opinion, and local interests, that it is not sufficient that I have laid down a line of navigation where it is evidently most cheaply, most advantageously, and by the shortest course to be effected, but I must also go over every range of ground proposed by every projector who has impudence or interest enough to make himself heard.¹¹

Interest in the route of the canal was keen. The delay in determining the route occasioned by the meticulous surveys--Latrobe said a total of thirty-two distinct surveys were made--gave rise to much discussion of the subject. Residents of the peninsula as well as interested outsiders voiced their opinions, privately at first, but finally in the newspaper columns. Each of various routes proposed had its defenders or detractors. The question, however, was basically one of an "upper" or a "lower" route.

William Duane, editor of the Philadelphia Aurora, personally examined the situation in January, 1804. He discovered from talking with Delaware citizens that Latrobe had "adroitly avoided giving any preference" because of the "contentions arising from the avidity of particular local interests to pass the canal in this or that direction." "The subject excites much interest lower down the Peninsula," he noted, "and the People of Christeen [sic] are not a little solicitous that it should pass thro' their creek" In the course of his interviews with the Delawareans, Duane commented upon the difficulty of finding "a resident totally impartial on a subject that interests them all."¹²

As Duane viewed the situation in 1804, while the surveying was being completed, the most favorable lower route had few advocates and was not likely to be selected. Moreover, there was general agreement about the western half of an upper canal line. There were no objections strongly pressed to a line from the Elk River passing through Glasgow, at the foot of Iron Hill, to a point near the Bear Tavern, about two miles south of Christiana Bridge. "From that point or its neighborhood," Duane wrote, "the three different directions for the canal separate."¹³

New Castle, Red Hook, and Wilmington via Christiana Bridge each had its advantages as the eastern terminus of the canal line--and its supporters. The route to Red Hook was shortest, but its harbor on the Delaware River was shallow and dangerous. Nevertheless, in 1803, Varley's map of the state had listed Red Hook as the best terminal. The New Castle route had somewhat similar advantages and faults--there was shortness of line but an unsheltered harbor. There was, in addition, a "strong federal objection" to both Red Hook and New Castle: in wartime "a privateer might run up the bay and blow up the works, which if the canal were carried to Christiana creek its mouth will be perfectly secured against any sudden incursions or attack."¹⁴

The third alternative, eventually selected in April of 1804, was a line to Wilmington via the Christina Creek. Its advantages were a sheltered, spacious harbor, proximity to large industry, and strong supporters. Although the canal line would be longer, and the creek provided a circuitous route to its mouth, these were seen as minor objections. As Duane pointed out, "this line . . . has the most active advocates; and if I can judge by the neighborhood, the most numerous." He correctly predicted its adoption, basing his reasons partly on "the Wilmington

interest, which is considered here as very powerful in Philadelphia," and partly because "of the real advantage of a more extensive external communication."¹⁵

This interpretation was verified years later by Joshua Gilpin, when in 1821 he published his Memoir on the Chesapeake and Delaware Canal. Gilpin wrote that in Delaware "little interest was felt for the canal, below the Christiana or New-Castle." Only the few landholders along the borders of the canal would be benefited by it in that part of the state. On the other hand, in New Castle county,

the interests of the State of Delaware, the revenues of the canal, and the interests of Philadelphia united in a manner that if not attended to, was in a great degree to desert the objects of the work altogether. It is well known that the area of country, from the Christiana northward to the Pennsylvania line, possesses a command of water power, superior to any of the same extent, in the United States; this has been already improved into a vast manufacturing district, and offers a wide scope for future improvement.¹⁶

Duane also endeavored to learn the "disposition of the directors" towards the various canal routes, for he believed that "upon the characters of men the fate of small as well as of large affairs often depends." The editor had knowledge of only one Maryland director, Major John Adlum of Havre de Grace, whom he considered impartial, noting that he had "no personal interest" in any of the proposed lines. Of the three Delaware officers, Joseph Tatnall, President of the Company, had interests in Wilmington: "It is believed he will be in favor of Christiana if it should depend upon his vote." Bayard, though living in Wilmington, was said to favor the lower, or Back Creek, route. Johns was considered a backer of Red Hook, although he lived in New Castle. "It is difficult," concluded Duane, "to surmise how they will act."¹⁷

Only one of the Pennsylvania directors, Joshua Gilpin, had local interests; the other men, Fox, Fisher, and Tilghman, were without "local inducements to vote wrong." The largely subjective analysis by Duane did not give conclusive results; however, the balance appeared in favor of the Christina River route. Moreover, Gilpin's voice was expected to be heeded, for he had studied inland navigation abroad and was a "man of considerable knowledge and acuteness."¹⁸

One writer disagreed with Duane on his analysis of the most likely canal route to be selected. A "Farmer" answered Duane's article, not to proclaim for his pet route, but to take issue with Duane's facts. He disagreed with the Philadelphia editor on Latrobe's impartiality, New Castle's exposure to southwest winds--"in my humble democratic opinion the least objectionable wind that blows"--and Duane's estimate of distances.¹⁹ Another writer, the self-styled "Friend to the Lower Route," wrote an open letter to the President and Directors of the Chesapeake and Delaware Canal Company, in which he warned them to expect careful scrutiny of their actions. It had been rumored that the route was determined "and that the present is the speculating season," wrote the "Friend." "You must therefore expect to be closely watched, it is a liberty Americans take." He continued with a plea that the directors take the long view in fixing the canal line--particularly to unite "rivers which time will not obstruct." The navigation of the Elk and the Christina had deteriorated in the last fifty years; the same could be expected in the next fifty years. "Will any men act in the face of this," he asked, so that in 50 years their decision will be seen as mean and short-sighted . . . ? Remember, directors, your reputations now, and your memories, which, as founders of this work, will be recorded to future ages, is at stake. Let no little present interest, influence you to inherit future execration.²⁰

Somewhat facetiously the writer reasoned that because land on the north side of the canal would rise in value, the canal should be placed as far south as possible so that it would benefit more people. He also argued that the lower route had the virtues of shortness, facility, defense, and anticipated longevity.

As the heat of the discussion on the canal question increased, the editors of the Mirror invited others "who are possessed of information" to submit letters for publications:

The Chesapeake and Delaware Canal is an interesting subject to the citizens of this state generally, and the editor conceives it his duty to lay before them whatever may be sent to him, not doubting that any mis-statements made by one writer, will be corrected by another.--By the collision of contending writers, sparks of truth may be emitted, and light shed on the subject.²¹

Accepting the editor's invitation, "Centinel" gave his reasons for favoring the Christina River route. The expected use of the rival routes was compared, assuming branches were built both to New Castle and to Wilmington via the Christina. Obviously somewhat biased, "Centinel" found that 2,920 of 3,170 vessels would travel the Christina route. Every sloop, boat, or barge with grain "for Whiteclay, Christiana and other mills up the creek," and every vessel bound for the Brandywine mills, Wilmington, and Philadelphia would use the Christina route. Only those with New Castle for their destination would use the alternative branch.²²

The inclination of the citizens, as well as engineering considerations, favored the upper route. A sufficient supply of water, a sine qua non of canal construction, was available at the necessary height only from the Elk, the Christina, and White Clay Creek. Circumstances dictated the wisdom of keeping the canal close to the source of supply. The nature of the ground and the Delaware shore warned against a lower route. To

Gilpin, the most authoritative person on canal affairs in the company direction, the lower route "was if not impracticable yet in every way ineligible."²³ He felt the route from the Elk to Christiana Bridge "always was superior to any other," for it best accommodated the trade of Maryland's Eastern Shore, and it permitted an extensive communication with the interior of Pennsylvania. It similarly had an economic advantage. Although his preferred route was somewhat longer than the lower route, "not by the length, but by the nature of the ground" was the expense to be determined.²⁴ Even with the numerous locks planned by Latrobe, the upper route was deemed the most suitable. In April, 1804, the location of the canal line was finally determined. "By this time," wrote Joshua Gilpin, "the mind of every member of the board was made up upon the subject; and the inquietude expressed by the stockholders, after nearly twelve months spent in investigation, at a considerable expence, was such as to prove the time was come for a decision."²⁵ It was hoped that all dissension concerning the canal would end, so that work could begin on the canal with dispatch. Actually, the decision as to the eastern half of the canal was left open to review. As Gilpin later explained to Paul Beck, Jr.: "The great object was to get the western end done, on which there was no difference of opinion; & to secure the water in the state of Maryland." The board was perfectly unanimous on the route from the Elk River to the Bear Tavern, but "there was considerable difference of opinion" on the remainder of the line. As Gilpin declared, "the point on which it actually turned was the exposed state of the harbor of New Castle, and the secure one of Christiana."²⁶ When brought to a vote, the board of directors were in favor of the Christina River line by a six to four margin.²⁷

CHAPTER VII

ABORTIVE CONSTRUCTION EFFORTS

It was necessary to suspend operations from no other cause than the failure of funds.--Memorial of the Chesapeake and Delaware Canal Company, 1817¹

Two months after the route was selected in April, the general, or annual, meeting of stockholders was held. There were but minor changes made in the canal direction after one year.² The First General Report of the President and Directors of the Chesapeake and Delaware Canal Company was read and approved. In it was described the organization of the board, the pains taken by them to thoroughly investigate the terrain to be crossed by a canal, the decision on the canal route and their reasons for it. A tidewater canal--a through cut--had been considered by the board, but the increased expense and insufficient knowledge of such waterways indicated that a lock canal "in the usual manner of those in Europe" should be constructed.³ The proposed canal, according to the estimate of the engineers, would cost \$560,000, \$60,000 more than the authorized capitalization of the company. At the time of the first general meeting, however, five hundred shares of stock were yet unsubscribed.

There was a brighter side to the picture. Work on the Chesapeake and Delaware Canal had been in progress one month when the stockholders met. It had begun May 2, 1804, on the anniversary of the organization of the canal company. First to be constructed was the feeder or supply canal, which was to run from the Elk River, at the Elk Forge, to a huge reservoir. The reservoir, planned to cover about one hundred acres, was to be situated one mile from Glasgow, near the main line of the canal. Most of the land for the feeder canal had been procured, some of the tools had been

purchased, and a few men were engaged in quarrying stone prior to May 1, 1804. As soon as the route was determined, the committee of survey had taken immediate steps to begin construction.

It was agreed, for several reasons, to construct the feeder first. No water could be furnished the main canal over most of its length until the feeder was built. If the canal were constructed first, it would deteriorate while the feeder was being completed. Moreover, the smaller canal could serve as a valuable means of transportation during construction of the larger canal. Stone and lime could be transported to the main canal works over the feeder canal, and earth could be carried away from the canal line. Finally, the feeder canal, striking "directly into the heart of Pennsylvania," would serve as the basis for a future canal into Pennsylvania, as had been planned by the American Philosophical Society in 1770.⁴

The construction of the feeder canal was vigorously prosecuted during the first year. In April, Gilpin and Latrobe were authorized by the board of directors to enter into contracts "with one or more gangs or bodies of diggers to commence digging, immediately upon the feeders."⁵ Latrobe was further authorized to purchase tools and supplies to accommodate additional workers. The list of equipment to be assembled reveals the elemental nature of the task assumed by the canal company. Without benefit of power machinery, precision tools, or even expert knowledge, the men buoyantly set out upon an arduous labor, one not completed for twenty-five years. Latrobe purchased the following items: "12 wheelbarrows, 10 doz. Spades, 10 doz. Shovels, 12 picks, 12 Crow bars, 4 sets of boring Tools, some steel, 2000 feet of 2 in[ch] . . . pine boards [and] 1500 feet

of scantling."⁶ Black gunpowder, to be used for blasting, and a "tarras," or hydraulic cement, was procured separately. Of such were canals built in 1804.

Advertisements were published in Philadelphia, Baltimore, Wilmington, and Easton for digging contracts, boards, tools, and building materials. James Cochran, who contracted to construct one section of the Elk Feeder, agreed to the following terms:

Digging not exceeding $1\frac{1}{2}$ Yds. Earth deep	12 $\frac{1}{2}$ Cents p Yd Cube
Below that one yard	15 cts
Below that one yard	20 cts
Puddling, the puddle being first measured as Banks	
In Bank per yd.	12 $\frac{1}{2}$. . .
Puddling at bottom of the canal	20¢
& if the Clay or Earth be wheeled more than 30 yards an additional 5 Cents for every stage of 30 yards, and so also of Puddling in the Bank. ⁷	

Other terms of the contract called for the contractor to deliver a level bottom ten yards wide, and that the "Cube Yard as mentioned above includes digging wheeling out, & trimming to the Slope directed by the Engineer." The company, on the other hand, pledged to "find spades wheelbarrows trussels, ladders, wheeling plank, nails, powder, boring tools, quarry picks, crow-bars & sledges--that is all kind of tools: & put up Sheds & Buildings for the men."⁸

There was one foreboding note throughout the first year of construction. A continual deficiency of money was experienced by the chief engineer, Benjamin Latrobe. Not only did he need money to meet bills and wages, but his own salary payments were irregular and often in the forms of promissory notes.

By May 10, 1804, a crew of fifty men were at work opening a quarry near the intended aqueduct at the Elk Forge. Instead of taking the water

from the east side of the Elk River, the water was taken from a mill race on the western side. It passed over the creek by an aqueduct. As the work proceeded, Latrobe was forced to look for other good quarries. In November, 1803, he and Gilpin had talked to quarry owners in the Chester, Pennsylvania, vicinity, and had conferred with Mr. Traquair, a marble stonecutter of reputation, respecting necessary stonework in marble--for example, quoins of the lock gates. Latrobe was also in charge of providing housing for the canal workers. John Strickland, father of the architect and engineer, William Strickland, was employed by Latrobe as a carpenter. He and four journeymen were directed to erect three temporary frame houses for the workers.

Actual digging on the feeder could not commence until good weather favored the peninsula. In early May fifty men were on hand waiting to begin excavation on the first two sections laid out by Latrobe. More workers could have been hired but adequate accommodations were not available. As Latrobe pointed out, this was the "chief obstacle to such a prosecution of the work as would insure the completion of the Feeder the present year."⁹ Attempts were made to get private accommodations for the laborers, but it proved impossible. On May 12, 1804, the committee of survey authorized the erection of three more houses.

Added to the difficulties faced by the struggling canal company, the canal workers were involved in a serious riot with the townspeople of Elkton. To bring upwards of a hundred sturdy Irish workmen into a small community created friction between the two groups. The heat generated burst into flame in October, 1804, at the Elkton race course. It was not a horse race but rather a gambling side show argument that triggered the riot. The Negro proprietor of a game called "Treeket the

Loop" disputed the claim to victory made by an Irish canal worker. A scuffle followed, in which "the negro is said to have fractured the skull of one of the Irishmen who soon afterwards died."¹⁰ The fighting became general and ended with the pursuit of the Elkton men back to the town, where "a reign of terror was inaugurated which lasted for a considerable time, during which several lives were lost."¹¹

Even more alarming than the labor unrest was the financial situation of the company. The shares of stock in the company were not all taken up, and many persons that did pledge to purchase shares failed to make even the first \$5.00 payment. In June of 1805, the company announced that twenty-one hundred shares had been subscribed, but figures compiled after the company was forced to suspend operations revealed that payments had been made on only 1,792 shares. Construction time and expense on the feeder canal was unexpectedly increased, with the cause attributed to the difficulty of the terrain.¹² This forced a revised estimate of the total expense of the canal, making it clear that even if the shares were all subscribed and paid for in full, there would be insufficient money.

By the end of the first year, during which the surveys were made, expenditures totaled \$9,510.23, but over \$24,000 had been received from the subscribers.¹³ After a year of construction activity, expenditures totaled \$85,915.08. Somewhat less than \$20,000 remained on hand.¹⁴ By this time, \$100 per share had been requested, but many of the stockholders were delinquent in their payments. A total of \$86,487 was unpaid by June, 1805. Delawareans were most negligent in meeting the calls for payment: \$57,575 was outstanding on stock held by Delaware residents. In Pennsylvania, \$11,782 was unpaid; in Maryland, \$17,130. These

delinquencies were caused by death and bankruptcies as well as intentional non-payment. Some Maryland and Delaware shares, moreover, were subject to deductions since they had been given in payment for land and water rights.¹⁵

The dire need for financial assistance prompted the board of directors to apply to the Pennsylvania legislature for aid in February, 1805. The board had sent a petition to the Delaware legislature the preceding month, requesting a change in the Canal Act so that the three acts of incorporation would be more nearly similar. The company also requested "such other aid as to them [the legislature] may seem fit and expedient."¹⁶ In the memorial to the Pennsylvania legislature, however, the company was more explicit in requesting financial assistance. The following main reasons were given:

The peculiar situation of Pennsylvania above all other States in the Union appears to demand an attention to its inland communication. It contains the most improvable lands, and astonishing quantities of coal, iron, limestone, copper, lead, and other mineral productions, but being altogether an inland State all these advantages are lost for want of communications by means of which the produce of the back country can be brought to market.¹⁷

Pennsylvania remained unmoved by the plea, which was repeated twice the following year. Although Governor McKean recommended that the project be supported by public monies, the legislature did not grant aid.

The board of directors refused to become disheartened. It was felt that admirable progress had been made on the feeder canal. In June, 1805, when the board submitted its report to the general meeting, four miles of the five and one-half mile feeder were completed. The work was later characterized as having been done in a "superior manner."¹⁸ The feeder, including the seven necessary bridges and the Elk aqueduct, was expected to be completed during the current year, so that work on the

main canal could start the following spring. Unfavorable ground for the feeder had so greatly increased the cost that it was predicted the main canal would cost less per mile than the feeder.

Optimism was the note of the day at the general meeting. Work on the feeder had given the directors valuable experience, and the tools, materials, and men to build the canal had been assembled. The canal officials were further heartened by the fact that work on the Delaware and Raritan Canal across New Jersey had commenced. Thus, at the time of its completion, announced the board, the Chesapeake and Delaware Canal will "enjoy not only the benefit to be derived from the trade of the two Bays, but of extending that trade from the Southern to the Eastern States, and thus compleating one great link in the communication through the United States."¹⁹

The prospects of the company from the financial viewpoint were not so favorable. In order not to neglect the interests of the stockholders who had paid in full, litigation was regretfully instituted against all delinquent stockholders. This resulted in the payment of many subscriptions in Pennsylvania and Maryland, but "a large number remain~~ed~~ due in the state of Delaware."²⁰ Even if all the subscriptions were paid, the company realized they would be insufficient. It was suggested that if the western half of the canal were completed and put in use (for it would substantially reduce the land carriage of produce to Philadelphia), the revenue derived from that source, plus that which could be borrowed or granted by the state legislatures, would finance construction of the eastern half of that canal. The stockholders were told that applications already had been made to the Delaware and Pennsylvania legislatures, both

of which had passed favorable resolutions. Bills granting the requested aid were not completed during the last legislative session, but they were expected at the next.²¹

Work continued to progress as rapidly as possible on the feeder. Latrobe reported to the company officials on May 30, 1805, that the construction was "carried on with the utmost vigor, which the state of your funds would permit," and that eight of the twelve sections were complete and navigable.²² Latrobe was personally on the job six days a week, spending only Sunday with his family. Nevertheless, the failure of funds eventually forced the discontinuance of the work. From June to November, 1805, work proceeded with a limited number of hands. Latrobe urged that the feeder should be completed as soon as possible, for washings from the rain had already begun to damage the finished portions, but nothing could be done.²³ On November 19, 1805, Latrobe wrote to John Lenthall that the "canal is aground, and all that are embarked with them must go overboard, except the officers."²⁴ Six days later he wrote another friend that all employees were to be fired, with only the officers left to wind up the affairs.²⁵

Activity for the officers did not slacken and stop as did work on the canal. Repeated attempts were made to get aid from the state or from Congress. One of the last payments recorded in the company ledger was made to Kensey Johns, in the amount of \$96.04, for "his expenses travelling to & from Washington & attending Congress with Petition &c."²⁶

Appeals to the state legislatures of Pennsylvania, Delaware, and Maryland had proven fruitless. On the ground that the canal was of national importance, the company presumed to memorialize the United States

Congress for aid. The complete petition was a model of the instrument-- not only was the petition itself of a most explanatory nature, but it was accompanied by statements, estimates, calculations, maps, and, not the least important, a lobbyist.

One of the accompanying documents was an eloquent statement composed by Joshua Gilpin, Kensey Johns, and Robert H. Goldsborough. The paper, entitled Facts and Observations Respecting the Chesapeake and Delaware Canal, contained a brief sketch of the history of canals, as well as a detailed calculation of the economic advantages of the Chesapeake and Delaware Canal. "Despondency of the private subscribers" was listed as the major obstacle to the completion of the canal. Many subscribers were of small fortunes, unwilling to invest them in projects that were unremunerative for several years. Congress remained the only hope of the company, for the canal passed through the extremities of two states and near to another "without being so central to either as to command the general interests of either Government."²⁷

In March, 1806, the House of Representatives heard a report from the committee to whom the petition and documents had been referred. The committee agreed to the importance and great national advantages of the canal. They considered

the project as an opening wedge for an extensive inland navigation, which would at all times be of immense advantage to the commercial as well as to the agricultural and manufacturing part of the company. But, in . . . war, its advantages would be incalculable.²⁸

Nevertheless, because the finances of the country did not permit, the committee concluded it would "not be expedient" to give pecuniary assistance "at the time."²⁹

The Senate was more favorable to the company's appeal. A Senate committee recommended that if money could not be spared, the United States could assist the project by a grant of land, either as a gift or in return for stock. James A. Bayard, a former director of the canal company serving in the Senate, urged his colleagues to accept this plan, but twenty years and such eloquent, forceful congressional supporters as Clay, Calhoun, and Buchanan were needed before federal aid was finally given.

The original petition to Congress--the first of nearly a score--was discussed in March of 1806, but no action was taken. With no other person or group to turn to, all hope for completing the canal in the near future vanished. The tools and materials assembled were sold at a loss, some of the land purchased by the company was returned to its original owners, and, unfortunately for historians, records of the company's activities ceased to be kept. In June of 1806, Latrobe was in Philadelphia to meet the board of directors and officially take leave of the company's employ. The reason he assigned for the standstill of the canal project and internal improvements in general was the "absorption of all our capital by the neutral trade. The turnpike roads which have been opened near Philadelphia, as well as the Ch. & Del. Canal were children of the peace of Amiens."³⁰

The board of directors continued to meet regularly, thereby maintaining the legal existence of the company while they sought ways to bring about a resumption of the work. Requests for federal aid were repeatedly but fruitlessly made. During the lapse in construction activity, Joshua Gilpin compiled and published two books on the canal. The first appeared

in 1809, being merely a collection of documents presented by the canal company board "at sundry times to the Public."³¹ The second publication by Gilpin appeared in 1821, entitled A Memoir on the Rise and Progress of the Chesapeake and Delaware Canal, Accompanied with Original Maps and Documents. Not only did the book give a history of the canal to date, with Gilpin's plans for reviving the project, but the appendix contained other valuable documents relating to the canal that deserved preservation.³² The board of directors could do nothing else but hope.

CHAPTER VIII

NATIONAL DEVELOPMENTS

The present may, perhaps, with propriety, be termed the age of internal improvements.--Editor of the Delaware Gazette, 1825¹

Failure to construct the Chesapeake and Delaware Canal was not an isolated or incongruous event in the history of internal improvements in early nineteenth century America. The movement for improved transportation had attained great strength by 1808. From feeble beginnings in the late eighteenth century, when short canals improved river navigation and when steps were taken to conquer overland distances with improved roads and bridges, there had developed a concentrated attack on the problem of transportation.² An era of internal improvements threatened to burst on the American scene, the event keynoted by Secretary of the Treasury Albert Gallatin's Report on Roads and Canals. Gallatin's heralded report combined the local schemes being urged at the time into a national system.³ McMaster believed "there was little in it that was new," but the broad concept of the program, which was to be completely financed by the government, was original.⁴ Appeals had previously been made to Congress for aid in effecting improvements by private companies--the Chesapeake and Delaware Canal Company, for example--but never had a federal program of internal improvements been advocated.

Among the many schemes for roads and canals embraced by Gallatin were waterways which would permit uninterrupted navigation along the Atlantic seacoast. New England could be united with the South by means of sheltered, inland waterways if only four narrow necks of land in the following states were traversed by canals: Massachusetts, New Jersey,

Delaware, and Virginia.⁵ Twenty million dollars was the estimated cost of the project; Gallatin recommended that two million dollars per year for ten years be set aside for that purpose. He felt that the government should finance the works since they were of national importance. Being of course interrelated, with the benefits of one improvement dependent upon the completion of others, it was essential that all should be completed.

Admirable in its conception, the plan was doomed to failure because of the foreign conflagrations soon to engulf the United States. Not until after the War of 1812 did states begin to construct new roads and canals. Congress, discounting its feeble support of the National Road, did not enter the internal improvements scene until 1825 with a subscription to the revived Chesapeake and Delaware Canal Company. Aid to other canal companies soon followed.

In the second decade of the nineteenth century, however, the country fell "under the influence of grandiose schemes for internal improvements. Each trading center felt that it had to improve communications with its hinterland."⁶ Trade was the lifeblood of cities; to maintain or capture its trade with the ever-advancing areas of western settlement, a commercial center was forced to give primary considerations to the problem of transportation. During the War of 1812, attention had been focused on Europe and the immediate problem at hand. But after 1815, "every old scheme of inland communication by turnpike, canal, or steamboat was at once revived and urged."⁷

New York State was the first to begin work on an effective transportation system designed to connect the East and West. Prior to completion of the Erie Canal, the Ohio Valley received New York freight

by way of Hudson River, Lake Ontario, Lake Erie, and the Allegheny-Ohio rivers. Three short portages, from Albany to Schenectady; from Lake Ontario to Lake Erie, around Niagara Falls; and from Lake Erie to the Allegheny River were required. After 1825, when the Erie Canal was put into operation, a direct route to Lake Erie was provided, reducing freight rates by eighty-five per cent. New York City, already the preeminent commercial center in America, increased its claim to that distinction. Philadelphia and Baltimore were alarmed by the real threat to their western trade. Freight rates to Pittsburgh by way of New York and the Erie Canal amounted to one-third of the cost of transportation over the mountains.⁸ The Pennsylvania State Works, a combined canal-railroad system leading from Philadelphia to Pittsburgh was begun in 1826: the following year the Baltimore and Ohio Railroad was planned, and construction began July 4, 1828.

Not only in the Middle Atlantic states, but in every state of the Union canals and railroads were projected and many were constructed. In New England, the South, and the new West construction went forward at a rapid--too rapid--rate. From 1816 to 1840, "the huge sum of \$125,000,000 was invested in canal construction."⁹

The economic reasons for constructing the canals were real enough. Few products could bear the cost of land carriage over long distances, even on turnpikes. Rivers were the only economical routes of commerce for the first interior settlements. As late as 1818, Niles reported that "two-thirds of the market crops of South Carolina were raised within five miles of a river and the other third not more than ten miles from navigable water."¹⁰ Whenever possible, the benefits of water communications, in the form of canals, were extended throughout the country. Before the

coming of the railroad, their superiority was unquestioned. It was determined that, in a day's work, a team of four horses could draw a wagonload of goods weighing one ton twelve miles over an ordinary road; over a turnpike, one and one-half tons could be moved eighteen miles, but on a canal, one hundred tons could be transported twenty-four miles.¹¹

The Chesapeake and Delaware Canal does not fit into the general picture of canals built primarily for the western trade, although Philadelphians had that in mind during their struggle to build it. Neither does it fit solely into the "commercial canal" category, for it has a strategic value as a ship canal. Recognized as essential to military defense from the time of the Revolution onwards, and as a vital link in the chain of Atlantic coastal inland navigation, the canal eventually received the necessary support to permit its construction. Pennsylvania could not build the canal alone. Baltimore was lukewarm at the prospects, as was most of Delaware. The few Eastern Shore Marylanders and northern Delawareans in favor of the canal as originally proposed could not offer Pennsylvania the support necessary to construct the waterway until they were caught up in the internal improvement spirit of the 1820's.

CHAPTER IX

DELAY AND DEBATE

They respectfully recommend to the first attention of Congress, the Chesapeake and Delaware Canal, being in their opinion of the first importance.--Committee on Roads and Canals, 1816¹

The Chesapeake and Delaware Canal was revived during the height of the canal era. After construction had been halted for nearly twenty years, work was resumed on a relocated, enlarged canal in 1824. Water was let into the full thirteen and five-eighths-mile length of the canal on July 4, 1829, and the opening of the canal was officially celebrated on October 17, 1829. During the period of suspension of the work, the officers of the company had not been idle. Alert to any possible event which would prove beneficial to the company, the board made repeated applications to state legislatures and to Congress for financial assistance.

The company's first petition to Congress was sent December 1, 1805, the release date for all Chesapeake and Delaware Canal Company employees. Despite the eloquence of the appeal, and the forcefulness of the arguments, its pleas went unanswered. In vain did the board point to the numerous advantages of the waterway, which would free the coasting trade of the dangers of the sea, shorten water communications between Philadelphia and Baltimore by 319 miles, promote interstate commerce, decrease freight and insurance rates, and facilitate the military defense of the country.²

Coal from Liverpool was cheaper in Philadelphia than Richmond coal because of the economies of water transportation. A ton of freight

could be shipped from Europe at the same cost that a ton of freight could be moved nine miles over roads in the United States.³ On the grounds of economic necessity, obvious national and military importance, and progress made, encouragement from the federal government was solicited.⁴

The House committee considering the petition agreed that the project was "an opening wedge for an intensive inland navigation, which would at all times be of immense advantage to the commercial as well as to the agricultural and manufacturing part of the community." Moreover, the committee believed that in times of war, "its advantages would be incalculable." Not expecting a war within the next decade and because of financial considerations, however, the committee concluded that it "would not be expedient, at this time, to grant any pecuniary assistance" to the canal company.⁵

The Senate was more favorably inclined to act on the petition. James A. Bayard, former canal company director, sat on the committee to which the petition was referred. Believing the government should aid the company, the committee recommended that, if money could not be spared, a grant of land be made, either as a gift or with the proceeds from the sale of it being credited to the government as shares of stock at the established rate. It was known that some congressmen doubted the constitutionality of the government subscribing to stock in a private company, but that any one should object to giving land seemed unlikely. As McMaster has pointed out,

great blocks of it had often been given for church purposes, for schools; to the refugees from Canada; to the French at Gallipolis; to the Marquis Lafayette; to Lewis and Clarke; to the Revolutionary soldiers; nay, to Ebenezer and Isaac Zane for building a road in Ohio. Why not, then, for building a canal in Delaware?⁶

Although the land was not a gift but was to be used to buy shares, the bill embodying these proposals was twice postponed. In 1807, "Mr. Bayard's bill for granting lands to the canal company," as John Quincy Adams designated it, received prolonged discussion. Henry Clay, who introduced a similar bill granting lands to construct a canal at the falls of the Ohio, joined Delaware Senators Bayard and White in arguing a general policy of internal improvements for commercial and military reasons.⁷ Even President Jefferson, in his annual message that year, "had suggested that the tariff might be maintained and the surplus revenue applied to public improvements."⁸

Bayard, Clay, White, and others pointed out that common economic interests would more firmly bind the several states of the Union. They reiterated the points made in the canal company's detailed and lucid memorial. Commenting on the interrelatedness of internal improvements, they suggested the basis for a grand internal communication system could be laid by exchanging for stock a few of the millions of uncharted areas in Louisiana, land that "can't be sold in a hundred years."⁹

Vehement in their opposition to such a parcelling out of public lands were Uriah Tracey and James Hillhouse of Connecticut. Smith of Maryland was similarly opposed, for he feared Philadelphia would be enriched at Baltimore's expense, but he would not vote against the company incorporated by his state. John Quincy Adams was "violent in his opposition," suspecting that log-rolling between Middle Atlantic and Western senators was going on.¹⁰ But William Plumer, inclined to oppose the bill at first, became converted as the debate proceeded.

When I considered its great importance [wrote Plumer], the use & value of it to the nation especially in case of an invasion--the great facility it would give in conveying the productions of the country to the market--the immense importance of inland navigation--with what

care & expense all well informed nations have attended to the making and improving of canals--the immense tracts of unlocated lands the United States possess not yet disposed of, not less than 300,000,000 acres on this side [of] the Mississippi--& the wilderness world in Louisiana--that our treasury is overflowing, & our national debt rapidly wasting away--as fast as the terms of payment will permit--the bill met with my hearty approbation, as well calculated to aid a great & important & highly useful national object.¹¹

Adams attempted to block consideration of the bill altogether when he proposed that "the bill . . . should be postponed, for the purpose of considering a resolution directing the Secretary of the Treasury to report a general plan for internal improvements of this kind."¹² Principally opposed by Bayard, who made two long speeches, Adams was defeated. But when the canal bill was discussed the following day, Adams renewed his attack. "Mr. White, Mr. Bayard, and Mr. Clay were all roused to reply to me," wrote Adams, "which they all did with some acrimony."¹³ The canal bill was postponed, despite its support, as Plumer believed, of a majority of the Senate. "There is really something insidious in this business of postponing," growled Plumer, "the minds of some men shirk from responsibility--they are averse to business."¹⁴

The day after the unhappy fate of the Chesapeake and Delaware Canal Bill was decided, Senator Worthington from Ohio submitted a resolution directing the Secretary of the Treasury to report the best information he could get as to "the usefulness, the practicability, and probable expense" of the Chesapeake and Delaware Canal, "with his own opinion and reasons thereon."¹⁵ This resolution, in effect, resulted in the famed Gallatin Report on Roads and Canals. A few days later Worthington withdrew it to introduce one similar to Adams' calling for a thorough report on internal improvements. Worthington's motion passed March 2, 1807, by a twenty-two to three margin, and Secretary Gallatin went to work.¹⁶

Two of the most complete, reasoned, and informative replies to the questionnaire circulated by Gallatin as he gathered information for his report were submitted by Benjamin H. Latrobe and Joshua Gilpin on the Chesapeake and Delaware Canal. Both men had been intimately connected with the abortive attempt of the Chesapeake and Delaware Canal Company to construct its waterway; both were eager that its construction be resumed. Appended to Gallatin's report, these and similar replies made up nine-tenths of the bulk of his communication.

Gilpin's and Latrobe's letters thoroughly discussed the economic advantages of the waterway, and its unquestioned possibility as an engineering feat. Both answers were based on firsthand knowledge and detailed calculations. Latrobe summarized his findings based on the extensive surveys and one year of construction experience, while Gilpin analyzed the present carrying trade across the peninsula.¹⁷ Taken together, they were a weighty argument for the canal; added to the petitions and statements of the canal company they were forceful indeed.

A brief history of the activities of the canal company was provided by Gilpin, who discussed the cautious beginnings of the work, the construction of the feeder over difficult ground at the high cost of \$10,000 per mile, and the experience and materials acquired which would permit rapid completion of the main canal. The national rather than the local nature of the canal made the appeals to Congress necessary. Of the three states most closely involved, Gilpin explained,

the city of Philadelphia has zealously supported the canal and still remains highly interested in its progress, but the representatives of Pennsylvania have so many local objects of the kind in the interior counties, that these are constantly brought into competition with it, so as to prevent its obtaining any aid from thence. The State of Delaware is too feeble in its resources to grant supplies

for any work of the kind; and in the State of Maryland, although the interest of the counties contiguous to the Chesapeake are partial to the canal, the city of Baltimore and other parts of the State view it with no little jealousy.¹⁸

Latrobe furnished Gallatin with the technical reasons or justifications for the route selected. He reviewed the advantages and disadvantages of the New Castle and Christina routes, concluding that it was "an object of infinite importance . . . to avail themselves of both the eastern terminations." New Castle's deep harbor and easy communications with Philadelphia were its attractions, although the port was windswept and exposed, unsafe in war, and too far down the Delaware to be reached from Philadelphia in one tide. The Christina River's narrow and crooked course, the recently erected drawbridge across that stream at Wilmington, and the delays caused by unfavorable tides and winds were the drawbacks of the other possibility. Considerations of safety and protection, the interests of the Brandywine mills, which were "well worthy of attention," and the "large fixed capital of the town of Wilmington, far exceeding that of New Castle," which demanded "from the good policy as well as good will of the company or the nation, some consideration," led Latrobe to favor the double entrance to the canal.¹⁹

Gallatin's report was received in the Senate on April 6, 1808. The Chesapeake and Delaware Canal was strongly recommended in conjunction with three other canals across narrow necks of lands, all of which would permit uninterrupted inland navigation along the Atlantic coast. The length, progress to date, and estimated cost of each canal was given.²⁰ Twelve hundred copies of the report were printed and distributed, but the program outlined and recommended by the Secretary was not carried out.

In November of 1808, Gallatin's report and two petitions of the Chesapeake and Delaware Canal Company were referred to a Senate committee. The new second petition was ordered to be printed for circulation with the other relevant documents. Additional information in this memorial, printed January 24, 1809, though received January 10, 1807, was an estimate of the amount of money--\$400,000--needed to complete the canal. It was suggested that two hundred thousand acres of land, to be sold at two dollars per acre, would finance the construction.²¹

A bill authorizing the grant of land to the canal company was reported on January 27, 1809. A rider which conferred similar benefits to the Ohio Canal Company was added to the bill but later withdrawn, whereupon the original bill passed the Senate. The House of Representatives, however, refused to concur, again postponing the bill indefinitely.²²

The identical process was repeated the following year. The canal bill was reintroduced in the Senate on March 22, 1810, passing without recorded debate a week later. In the House the bill was but read and referred to a committee. A third time, in January, 1812, the Senate passed the bill, but on February 14, 1812, the House decided not even to "permit the Committee of the Whole to again consider the bill."²³ Later, reconsidering, the bill was discussed, only to be replaced by one designed to divide between the states according to population land for internal improvement purposes.²⁴ The House later resolved that "the State of public finances and resources, and the present embarrassed situation of the country, render it inexpedient . . . to make a donation in land or money [to the Chesapeake and Delaware Canal Company] at the present time."²⁵

Only action by Maryland and Pennsylvania legislatures kept the issue alive after the repeated frustrations suffered at the hands of the lower house of Congress. On December 18, 1812, the Maryland General Assembly, and on March 5, 1813, the Pennsylvania General Assembly passed conditional acts authorizing subscriptions to the Chesapeake and Delaware Canal Company if Delaware and the federal government would likewise subscribe. Pennsylvania was to purchase 375 shares of stock, and Maryland 350 shares if Delaware would subscribe to 100 shares, and the federal government 750 shares.²⁶ Copies of the Maryland and Pennsylvania acts were submitted to President Madison with the request that they be transmitted to Congress. Encouraged by the signs of support, the board of directors of the canal company submitted still another petition, praying for the long awaited aid. The amount of money now requested of the federal government was \$150,000, instead of \$400,000.²⁷ Leave to report a bill for bestowing the aid required was requested:

Your committee are informed that at this time the government is compelled to convey by land in the winter season, over the portage from the Chesapeake to the Delaware (a road rendered almost impassable for land carriage) the most bulky pieces of timber for the ship of the line building at Philadelphia, and that the expense of the conveyance over this short distance is enormous.²⁸

The bill subsequently introduced was tabled until the following year, when the House committee was discharged from further consideration of the canal bill.²⁹

In 1815, after the end of the war with Great Britain and the termination of trouble with the Barbary States, President Madison said it was the proper time "for recalling the attention of Congress to the great importance of establishing throughout our country the roads and canals which can best be executed under the national authority." The

President urged Congress to emulate the states in their internal improvement work by undertaking such projects that required "a national jurisdiction and national means," although he portentously intimated that he believed an amendment to the Constitution would be necessary to enable Congress to act.³⁰

"No objects within the circle of political economy," commented Madison upon roads and canals,

so richly repay the expence bestowed upon them; there are none the utility of which is more universally ascertained and acknowledged; none that do more honor to the governments whose wise and enlarged patriotism duly appreciates them. Nor is there any country which presents a field where nature invites more the act of man to complete her own work for his accommodation and benefit.³¹

Reporting on the internal improvements portion of Madison's speech, Senator Morrow, chairman of the Committee on Roads and Canals, suggested that immediate action should be taken, recommending "to the first attention of Congress" the Chesapeake and Delaware Canal.³² A separate report on the much discussed canal was submitted.

The need for the canal had been vividly demonstrated during the recent war. In one year troublesome and time-consuming wagonage across the peninsula had cost an estimated \$414,000, one-half of the canal's estimated expense. "So great was the carriage, during this period," reported the committee, "of goods, tobacco, flour, cotton, and other bulky articles across the peninsula, that it became necessary to use four distinct lines of transportation from different points of the Chesapeake to corresponding points of the Delaware."³³ The problem was not a new one. George Washington, during the Revolutionary War, often lamented the want of a Chesapeake and Delaware Canal. He was chagrined, reported Chairman Morrow, by the "dangerous and vexatious detention to which he was inevitably subjected, when he arrived at the isthmus on his march to the

south, for the want of wagons to transport his stores and heavy artillery from one bay to the other."³⁴

There was similarly a need for prompt action. The feeder was daily exposed to injury, falling into greater and greater ruin. A more ominous note was that the company, unable to comply with certain contracts for land and water, had had suits preferred and judgments obtained against it, "so that the lands and water rights so purchased [were] in danger of being sold."³⁵ Accordingly, a bill authorizing a subscription to the company was introduced.

True to form, after sensing the renewed interest, the alert canal directors dispatched another petition to Congress in 1817. It was the burden of this appeal that the complete and successful execution of at least one great waterway was necessary to lead on other similar projects, and that the Chesapeake and Delaware Canal was the logical choice to receive sufficient government patronage to complete the work. "Some precedence must be admitted for the benefit of all," they pleaded, fearing that if numerous works of internal improvements were pressed simultaneously, it would render all of them abortive.³⁶

A way to provide the necessary funds seemed to present itself in the chartering of the second Bank of the United States. Calhoun proposed that the government's bonus from the charter and its future income from the bank be used for internal improvements. "Those who understand the human heart," cried Calhoun in support of the Bonus Bill, "best know how powerfully distance tends to break the sympathies of our nature. Nothing--not even dissimilarity of language--tends more to estrange man from man. Let us, then, bind the republic together with a perfect system

of roads and canals. Let us conquer space."³⁷ But there were objections to the Bonus Bill. As introduced, Congress was to direct the expenditures of funds for improvements of national importance, but as amended and passed, funds were distributed to states in accordance to population. They were applied to the improvements by the concurrent direction of the state and federal legislatures.³⁸ The bill that Madison vetoed as introducing a wide "latitude of construction departing from the ordinary import of the terms" would not have provided for the type of national planning envisioned in Gallatin's Report.³⁹

With the failure of the Bonus Bill to provide funds for internal improvements, most of the Chesapeake and Delaware Canal Directors despaired of ever receiving aid from Congress. "I am now well convinced," wrote Joshua Gilpin in 1821, "that all expectations from Congress are vain, and that if any thing is done it will be only a survey ending in some towering project, which may never be begun."⁴⁰ Other sources were of necessity looked to, especially in the city of Philadelphia. The canal bill was repeatedly reintroduced after 1817 as before, but the likelihood of its passage grew dim. According to James Buchanan, the excessive cost of projects built at public expense, the National Road being specifically cited, caused the national government "to hesitate in making an investment in the Chesapeake and Delaware Canal until it became known that that enterprise was to be carried on by private endeavor."⁴¹ Delaware Senators McLane and Van Dyke fought for the canal bill, and the company submitted in 1820 its last petitions before the canal project was revived in Philadelphia.⁴²

From the time work was stopped on the canal in 1805 until its resumption in 1824, hardly a year passed in which the subject was not before

Congress. It was the outstanding example of the need for national support of internal improvements, an obvious yet a jealously thwarted work. A primary factor in calling forth the Gallatin Report and still the leading, most prominent internal improvement project in 1816, the canal was nevertheless forced to receive its impetus towards final completion from private individuals. Only true devotion to their plan enabled the directors of the canal company to retain its constitutional existence during the time when the country was unable, and the federal government was unwilling to support internal improvements.⁴³

PART III

SUCCESS, 1821-1829

CHAPTER X

THE COMPANY REVIVED

The execution of this work has long been a favourite object with the citizens of Philadelphia.--Anonymous, 1824¹

In the year 1821 the Chesapeake and Delaware Canal Company directors saw the first encouraging signs that interest in their canal had been renewed in Philadelphia. Mathew Carey, prominent publicist and economist, was one of the men most responsible for the awakened interest. Deeply concerned with the problem of internal improvements and fearful of the decline of Philadelphia's commercial life, Carey actively supported both the Union Canal and the Chesapeake and Delaware Canal as a means of capturing the ever-increasing trade of the Susquehanna for Philadelphia.² In 1822 the value of produce brought down the Susquehanna that season was \$1,168,944.³ Nine years later the total trade which descended to the tide-water of the Chesapeake was estimated at \$10,000,000.⁴ As Carey became more and more impressed with the need for waterway communications between Philadelphia and the Susquehanna, he "repeatedly in 1820 and 1821 urged several gentlemen of high standing to endeavor to arouse the public and try to get the work recommenced." At length the "respectable citizens" of Philadelphia were aroused to action. Meetings were held on successive days by the American Philosophical Society, which had supported the canal project fifty years earlier, and by a group of citizens, called by Carey, for the purpose of reviving the canal project. The Society immediately appointed a committee to "examine and explore the shortest and most practicable route" for the canal, an action deplored by Joshua Gilpin as "a very premature measure, and one that ought if possible to be avoided, as tending to engender party both here [in Delaware] and in the city."⁵

The citizens meeting followed a more prudent course, appointing a committee to gather information on the present status of the Chesapeake and Delaware Canal Company, the state of the work, and to confer with the canal directors.⁶ A general stockholders meeting was arranged to be held in Wilmington on January 28, 1822, which was controlled by three members of the citizens committee. The committee had obtained the proxies on 511 shares of the Philadelphia stockholders--only 824 shares had been purchased in Pennsylvania--before attending the meeting.⁷ A "board of managers," to serve in a semi-official capacity until the terms of the regularly elected directors expired in June, 1823, was appointed. Except for Kensey Johns, President of the Chesapeake and Delaware Canal Company, and Philadelphia-oriented Joshua Gilpin, all of the managers appointed were Philadelphia citizens.⁸ In addition to assuming leadership of the canal company, the Philadelphia committee adopted a proposal that the canal office and books be moved to Philadelphia.

Interest in the canal project had reached a high pitch. The meetings in September, 1821, the activities of the citizens committee in the following months, and the circulation of the proxy list had aroused public interest and had inflated hopes of the commercially minded people of Philadelphia. Joshua Gilpin's brief history of the canal, in which he demonstrated the need for immediate action by Pennsylvania, appeared in December, 1821.⁹ The moment, as Carey expressed it, was "highly auspicious" for raising the necessary money to complete the canal. The citizens committee, composed of such prominent Philadelphians as Mathew Carey, Thomas P. Cope, Stephen Girard, made a report of its findings on February 6, 1822.¹⁰

First, the group had collected the relevant laws passed in Pennsylvania, Delaware, and Maryland. Noting an objectionable provision in the Delaware law reserving a percentage of annual profits to the state, they had petitioned for its removal. A delegation sent to Dover found that the provision had been repealed in 1811, and were pleased to note "the best disposition existed among members [of the Delaware legislature], to promote the important work." The committee believed that no laws needed revision prior to recommencement of the work.¹¹

Much of the committee's information was gained from Joshua Gilpin's Memoir on the Chesapeake and Delaware Canal, although the committee said the author's opinions on the best, most practical route would "have their merits tested by future surveys." The remainder of their report concerned the financial condition of the company. A total of \$103,000 had been paid by the 730 holders of company stock.¹² However, the company expenditures in its two years of activity totalled \$122,000. The \$19,000 debt probably could have been liquidated by sale of all company property and franchises. There was \$255,400 due from the original subscriptions, of which the committee calculated \$200,000 could be realized. An additional subscription of \$600,000, according to the company's estimate, was required.¹³

Less than a week later a meeting of over five hundred Chesapeake and Delaware Canal Company stockholders was held in the Union Canal Company Office, with Mr. Carey in the chair. The board of directors was authorized to open new subscriptions to the amount of \$600,000, "agreeable to the acts of incorporation."¹⁴ Some weeks were required to arrange for the legal openings of the subscription books, finally done May 22, 1822. Carey deplored the delay, attributing to it the fact that the new subscriptions received in 1822 were negligible. Although two of the canal company

directors predicted the \$600,000 would be pledged within two weeks, but \$15,400 was pledged in fifteen months.

Without promise of assistance from state funds, the subscription drive proved fruitless. The Pennsylvania House of Representatives had adopted a resolution on February 14, 1822, designed to permit the state to subscribe immediately. An 1813 Pennsylvania law authorized the subscription to 375 shares whenever the United States, Maryland, and Delaware took eleven hundred shares, but in 1822 it was attempted to modify that law. No immediate action, however, was taken by the state. The canal project was but barely airborne.

Anticipating the receipt of the necessary subscriptions, the board of directors considered that a "new examination and survey of various parts of the peninsula [was] necessary" to prepare for the resumption of active operations. A Committee of Survey was appointed on March 20, 1822. William Strickland, a young architect and engineer, was employed to conduct the new surveys.¹⁵

There had been some developments since the route was originally selected in 1804 which deserved attention. Two major changes, both militating against the Christina route, had occurred. The navigation of the Christina River had been materially impeded by the Wilmington drawbridge, constructed in 1807, and the erection of Fort Delaware, on Pea Patch Island, made defense of the Delaware River's entrance possible. In addition, there was--as Delawareans hotly accused--no little jealousy of Wilmington on the part of some Philadelphians. Fearing that a canal passing through Wilmington would unduly benefit the growing industrial city, some of the citizenry of Philadelphia preferred to locate the canal

elsewhere. If an equally suitable canal line that by-passed Wilmington could be laid, it had the support of many Philadelphians. Moreover, landholders south of New Castle and the Christina River were interested in having the canal come through their property. It was these men, believed Joshua Gilpin, who had "ruined the business in Congress." Every one of them, stated Gilpin, "would make a noise about the canal to suit their own interests, though none of them would give it any aid."¹⁶

Joshua Gilpin advised against reviving local interests in reviewing the choice of the routes. Thinking that an upper route was certain, he advised that work be started on the feeder immediately. In the meantime, the eastern termination of the canal could be selected quietly and without furor. Such was not to be the case. Final determination of the canal line was not made until January, 1824. From mid-1822 until January, 1824, a bitter, acrimonious debate, similar to the one in 1803 and 1804, was carried on in the newspapers.

During the summer of 1822, William Strickland conducted his examinations of "the ground between the waters of the Delaware and Chesapeake." He reported to the Committee of Survey on May 13, 1822, on eligible plans for routes. The original route was surveyed and approved, although he recommended a lower summit level, "which would require about 20 or 25 feet cutting through the Dividing ridge" of the peninsula, so that the water supply could be more abundant. Two months later, Strickland submitted a survey of a "lower route" for the canal. He had noted in the May report that the soil composition and its retentive properties were well suited for a canal, and that at New Castle and Newbold's Landing, a few miles below the town, "the water is bold and the shores favorable for the mouth of a Canal--for at these two points the

channel of the river is close to the shore."¹⁷ He was therefore directed to locate a canal across the peninsula from Newbold's Landing to Back Creek. "In exploring this route," Strickland wrote, "I have been governed intirely with the hope of locating a line of Canal which should at once present the shortest distance between the navigable waters of the two bays." He believed that a fourteen-mile canal, requiring eight locks of eight feet lift at each end, was practicable, but he advised against a through cut or tidewater canal.¹⁸ Strickland estimated the cost of the sixteen-lock canal to be \$702,000, exclusive of purchasing land and water rights.

Nothing further could be done without additional funds. The campaign for new subscriptions in 1822 had proven disappointing. Mathew Carey was again moved to act. Realizing that state aid was necessary to encourage individual subscriptions, he prepared and circulated a memorial to the legislature on two separate occasions. One of the petitions, according to Carey, was signed by thirty-five hundred persons, the other by forty-four hundred persons. Meetings to consider these memorials had been called and were widely advertised by Carey. Response at the outset was very slight. Carey wrote in his diary for November 13, 1822, of such a meeting:

This day issued about 50 or 55 circular notices for a meeting to be held at Judd's Hotel, for the purpose of taking into consideration a memorial to the legislature praying aid in the completion of the Canal from the Delaware to the Chesapeake. The memorial was enclosed. These persons addressed were requested to bring a respectable friend or two Important as were the subjects, only five persons besides myself attended, Camac, Mease, Smith Cealdcleugh & Read.¹⁹

The official report of the meeting conceded that "it was deemed expedient that a more general expression of public sentiment on this highly interesting object should be had."²⁰

After promising beginnings, the year 1822 passed without the sanguine hopes of the canal supporters being realized. The company had officially been revived, a predominantly Philadelphia board of directors had been chosen, and a canal office had been opened in Philadelphia. The new board had decided to reinvestigate the subject of the route, and preliminary surveys had been made. There the matter rested. A call in July of 1822 for a five dollar payment on all shares previously subscribed, on threat of forfeiture, "to ascertain how far reliance may be placed on former subscriptions," had netted enough to open the office and finance the surveys.

In 1823, there was a decided change in the fortunes of the canal company. The exertions of the canal enthusiasts were rewarded that year. Subscriptions from the three state legislatures, and a great subscription drive in the city of Philadelphia, led by Mathew Carey, were received. United States Army engineers cooperated with canal company engineers in selecting the canal route, announced in January, 1824. In 1823 were laid the foundations upon which to build a great national work, attested to by the fact that in 1825 the United States government subscribed \$300,000 in the company.

Henry D. Gilpin, later to become Attorney General of the United States under Van Buren, was secretary-treasurer of the canal company. It was here that he received his introduction to the business world, owing "his place with a very small salary to his father's [Joshua Gilpin] connexion with the Canal Directors."²¹ Young Gilpin's letters to his father, residing in Delaware, mirror the activities of the company during that eventful year.

At first, attention was riveted on action in the legislature of Pennsylvania and Delaware. "I think the public opinion about our getting aid is rather in our favour," wrote Gilpin of Pennsylvania's disposition towards the canal, "but nobody can tell what those western members will do one hour to another."²² The western members in the legislature favored improvement of the Susquehanna River rather than the peninsular canal. They attached a rider, giving \$50,000 for the betterment of the Susquehanna, to the bill granting \$150,000 to the Chesapeake and Delaware Canal, but the bill was not passed. Gilpin wrote in February:

The bill about the Canal is not entirely thrown out--the section which contained the appropriation was indeed lost by a majority of 1--but as they [are] anxious to pass the Susquehanna section & cannot do it without the aid of the friends of the Canal who will not vote for one without the other there is still hope tho[ugh] I think not very great.²³

Further delay was experienced when the legislature, on a resolution introduced "by a senator from Lucerne named Conyngham [sic], a very shallow but meddling man," according to Gilpin, required a further statement from the board on the company affairs, routes that had been surveyed, and the engineers' reports. This was the occasion of the publication, Communication from the Chesapeake and Delaware Canal Company; and a Report and Estimate of William Strickland, to the President and Directors (Philadelphia, 1823), which was submitted.

The legislature was apparently satisfied by the report although only Strickland's report of his survey of the lower route was completed for inclusion in the publication. On March 28, 1823, an appropriation of \$100,000 to the canal company was included in the act rechartering the Philadelphia Bank.²⁴

A subscription of \$25,000 by the state of Delaware had been made the preceding month, on February 5, 1823. The money was to be paid by the trustee of the fund for establishing schools in five annual installments.²⁵ The method of payment adopted by Delaware caused consternation among the canal supporters, for Maryland did not immediately recognize this as fulfilling the requirements of the Maryland act authorizing a subscription to the company. In 1822 Maryland had altered the conditions necessary to permit a subscription by the state, requiring only that Delaware subscribe \$25,000, and that \$225,000 be obtained from other sources. A question arose whether Delaware had met the stipulation, or if the final installment first had to be paid. Despite an opinion to the contrary by the Maryland Attorney General, the state of Maryland subscribed to 250 shares of stock in the company in February, 1824.²⁶

Encouraged by the state subscriptions--two of them conditional--a campaign for private subscriptions was begun within the city of Philadelphia. Conducted without the active support of the board of directors, the concerted subscription drive was another idea conceived and carried into effect by Mathew Carey. He launched his program at a well attended meeting held April 10, 1823, at which no director was present. The purpose of the meeting was to consider the best way to raise funds for completing the canal. Carey had prepared and printed a long address for the meeting, which received unanimous approval at the gathering. Two thousand copies of the pamphlet, Address to the Citizens of Philadelphia, were ordered printed.

Carey outlined the financial situation of the company to date, showing that \$287,000, counting recent subscriptions, was relatively

certain to be received.²⁷ According to Strickland's estimate of \$700,000, \$417,500 was still needed. Carey did not even consider the possible aid available from Delaware and Maryland citizens, for he was certain the 120,000 people in Philadelphia were able to furnish the required money. By an ingenious calculation, Carey demonstrated that common laborers earning but \$6.00 or \$8.00 a week could afford to subscribe for one share. Over the three year period needed to complete the canal, payments of only \$1.25 weekly would be needed.²⁸

In the address, Carey also made a plea that disputes over the the location of the canal be discontinued. He was sorry to note that some men resolved to give no support to the canal unless their route be adopted, for he believed all routes would serve the interests of Philadelphia. Further controversy on the subject would only lead to more delay. The address closed by citing statistics on Philadelphia's declining export trade, demonstrating a need for resolute action.

The meeting to which Carey delivered his address appointed a committee of twenty-five prominent Philadelphians to circulate the published Address, to prepare subscription books, and to make the necessary arrangements with the board of directors for entering the expected subscriptions on the company books. The committee of twenty-five was further authorized "to appoint committees in the several wards of the City and liberties to procure subscriptions and to take other necessary measure to get subscriptions."²⁹

From the publicity given to the fund-raising campaign, and because of the importance of the canal to the commercial prosperity of Philadelphia, Carey hopefully expected \$50,000 to be subscribed in two days. Instead the response was so slow that Carey privately despaired of its success. He

confided to his diary on April 16, 1823:

This day produced a most remarkable instance of the apathy, torpor, and destitution of public spirit, which are so characteristic of Philada. Subscription Books for the Chesapeake and Delaware canal were sent to the U. S. Philada. Farmers Commercial, N. A. and Schuylkill Banks--and to five insurance companies, with a request that the presidents would exert themselves to procure subscriptions. But not one of them procured a single subscription--nor does it appear that they made the least exertion.--And though a genteel man was out all day with 48 Books, he procured but \$1000 of subscriptions, being five shares, from three persons. Yesterday, there were \$9000 worth of subscriptions recd.³⁰

Undaunted, Carey continued to work with increased vigor:

I abandoned everything for this grand object--devoted my whole mind to it from an early hour in the morning till late at night--wrote paragraphs and essays from day to day for such of the newspapers as were disposed to admit them--and for some time published the names of the subscribers, with the amount . . . , as is done in London in order to excite emulation.³¹

"No object," he claimed, "was ever pursued with more zeal and ardour."

Nor were the results unpleasing. Within five weeks \$360,000 had been pledged. Subscriptions were taken with the understanding that \$20.00 was to be paid as soon as fifteen hundred shares were subscribed, and the balance was to be paid in twelve quarterly installments of \$15.00 each. The agreement was to be in effect "if within five months from the 12th of April last fifteen hundred new shares shall be subscribed and not otherwise."³²

The progress of the drive can be followed in the pages of the Philadelphia Aurora & General Advertiser, where some of the larger subscribers were identified.³³ For instance, in the last week of April, the Insurance Company of North America, the Mutual Assurance Company, and the Chester County Bank each took twenty-five shares. The names of other subscribers--states, moneyed institutions, and individuals--can be found in the pages of the subscription books of the Chesapeake and Delaware Canal Company. The subscriptions obtained in Carey's drive were entered on the books after June 12, 1823.³⁴

Other cities noticed the "spirited exertions by our neighbors of Philadelphia." An article in the Baltimore American, reprinted in the Washington Daily National Intelligencer, stated:

We observe that some of the most intelligent and wealthy of her citizens are ardently engaged in promoting the subscriptions to this canal stock, and so successfully have their efforts been crowned, within the last 10 or 12 days, that upwards of one hundred and fifty thousand dollars have been subscribed.³⁵

While such prodigious activity outside the company occurred, the company officials continued their investigations to find the most suitable route. Engineers from New York's Erie Canal were employed to assist in the surveying.³⁶

CHAPTER XI

RELOCATION OF THE ROUTE

A populous town of manufactures is the surest support of a canal.
--Joshua Gilpin, 1821¹

There is no country to which a good system of military roads and
canals is more indispensable.--John C. Calhoun, 1819²

Benjamin Wright and John Randel, Jr., were two graduates of the Erie Canal engineering school hired by the Chesapeake and Delaware Canal Company in 1823. Wright had been in charge of construction on the middle section of the Erie Canal, but was later promoted to Chief Engineer of the New York State Canal. Coming to work on the Chesapeake and Delaware Canal in May, 1823, he became chief engineer in 1824, after final location of the canal route. Wright was the chief or consulting engineer of many other canals, including the Farmington Canal, the Blackstone Canal, the Chesapeake and Ohio Canal, and Canada's Welland Canal.³

Randel had been a surveyor on the Erie Canal before employed by the Chesapeake and Delaware Canal Company. He was later to become infamous in the history of the company as a result of his successful quarter-million dollar lawsuit for breach of contract against the company. Despite later differences, it was Randel's plan for the canal that was finally adopted by the company.

Randel arrived from New York to begin surveying in January of 1823. Already partially acquainted with the widely known canal, he came to Delaware "full of the thoroughcut," as Henry D. Gilpin expressed it.⁴ The engineer was aware of the potential commercial and military value of the canal, and it was his contention that a sea level canal would be

much more practical in the long run, and he discounted the obstacles other engineers, such as Latrobe and Strickland, had deemed insurmountable. Latrobe in 1803 had said that a tidewater canal, necessitating a cut through the eighty-foot dividing ridge was financially impossible. The expenses to cut one mile of the deep cut would exhaust the entire capital of the company.⁵

Strickland had similarly pronounced a "thorough cut" across the marshes impractical "in consequence of the infirm texture of the soil together with the exposure of its banks to the wash" as well as the cost. "On the contrary," continued Strickland, "by following the ridge or table land great expense will be saved by a lock navigation as the ground for the whole distance is very favorable affording good lockage with easy cutting and draining."⁶

Randel was unpersuaded by the reports of his predecessors, although he studied them closely. He made complete resurveys of the lower route, which confirmed his belief that a tidewater canal was indicated. His activities and beliefs became widely known--to the great consternation of people in Wilmington. James Canby, a Brandywine miller, inquired of Henry D. Gilpin "about Randel and Strickland's surveys below & wrote Mr. Hemphill that he intended publishing his sentiments" against the lower route. Gilpin explained to him "how it was that Randel came to be employed" and assured him that there was "no more inclination to a thoro' cut than there was before." When William Cooch, a former director of the canal company, also communicated with Strickland on the subject, Gilpin remarked that "the people about Wilmington seem to be stirring about the matter."⁷

Not until March 20, 1823, did Randel submit his report. "It is immensely long," Gilpin informed his father, "he enters very minutely into the thorough cut plan--and has a long examination of Latrobe's & Strickland's." Randel estimated that the cost would be \$1,200,000, which he believed was no more than other possible routes when feeder, harbor, and other expenses were included. This estimate, as Gilpin significantly remarked, was founded "on the idea that the soil is a gravelly loam throughout."⁸

Shortly after Randel submitted his report, the state of Pennsylvania finally subscribed to stock in the company. "Every body expects the board to do something immediately," stated Gilpin hopefully. Yet nothing decisive was done by the board. Instead, it was Mathew Carey who instigated the subscription drive that brought in the required money. To assist in the campaign, Carey's "city committee" contemplated issuing a new edition of Joshua Gilpin's Memoir on the Chesapeake and Delaware Canal, but the cost proved too great. There was also a flurry of activity in Wilmington during the April subscription drive. A general town meeting was held Saturday, April 26, 1823, for all citizens "desiring to see the canal finished." A good attendance was hoped for "as the future prosperity of the place may, and probably will, in a great measure depend upon a proper attention to the subject."⁹ The response was so great that it was decided to circulate subscription books immediately. The following Monday "upwards of \$30,000" was subscribed by the people of Wilmington.¹⁰

The meeting in Wilmington greatly interested the canal supporters in Philadelphia, although they resented any efforts to influence the choice of route. "I think if Canby or any of the people at Wilmington meddle with the route," wrote H. D. Gilpin, "they will stand no chance of being in the

direction."¹¹ There were further plans in Delaware to raise money for the canal by a lottery. The manager of the State Lottery Office was confident that "a properly managed lottery" would produce more income than "probably imagined." The editor of the Delaware Gazette endorsed the lottery plans, saying that if any lottery "be popular in this State, that certainly would."¹² Despite the activities of Randel on the lower route, the Wilmington citizens expected the canal to pass through their locale. They sought to assure this event by giving vigorous support to the canal company.

The debate on the route continued to rage. When the long awaited Benjamin Wright, "on whom principal reliance [was] placed for fixing the route of the canal," arrived to assume his duties, Henry D. Gilpin pointed out to him "the difficulties of opinion & prejudice he [would] have to encounter."¹³ Wright tended to favor the Christina River route at first. He came to Philadelphia on May 28, "and has been with me ever since," wrote Henry D. Gilpin, "here employed in studying Mr. Latrobe's documents very attentively [He] seems disposed to give full credit to Latrobe for his skill and accuracy." Rather than being biased against the upper route, Gilpin wrote his father that Wright was "evidently inclined to it, if he can get water which he looks upon as the great impediment."¹⁴

Because of the intense feelings on the subject, however, the board of directors felt reluctant to name the location of the route without aid. Application was made to the War Department for the help of the Army engineers in making a final decision on the route. In its request for assistance, the company told Secretary of War Calhoun that "the assistance of one or more of the distinguished engineers under the order of your

department would be greatly serviceable on this occasion not only in leading the Board to a right conclusion but in attracting to it public confidence and unanimity."¹⁵

Calhoun readily agreed to send the Army's Board of Engineers to consult with the company. Brigadier General Simon Bernard and Lieutenant Colonel Joseph G. Totten were instructed to "proceed without delay" and to provide the company full assistance. "The Secretary of War . . . takes a deep interest in the success of the undertaking," said the Engineer Department communiqué, "and he therefore wishes you to afford without reserve every aid in your power."¹⁶

Additional instructions provided by the Engineer Department may have proved decisive in the eventual location of the canal. "Your services," the letter continued, "will be particularly valuable in determining the nature, extent, and value of the military capabilities of the several routes that will attract attention, and may lead to the selection of that most advantageous to the government."¹⁷

Louis McLane told the House of Representatives in 1825 that it was "owing, in a great degree, to the decision of these United States' Engineers," who recommended the lower route, "that the cost of the work has exceeded the means of the individual subscription."¹⁸ The Army engineers Bernard and Totten arrived in Philadelphia in mid-June. Their first task, which occupied the rest of the month, was to determine a site for a breakwater in the Delaware Bay. The examination of the Chesapeake and Delaware Canal took place in July. While the Army engineers were conducting their surveys in Delaware, the annual meeting of the stockholders was held in Philadelphia.

The election of officers was to occur at the meeting, scheduled for July 15, 1823. Location of the route was the primary issue on which the election was based. Because there would be "very great intriguing about the election," Gilpin advised his father, Joshua Gilpin, to come to Philadelphia well before July 15 to combat any improper activities. "There are a great many men who want to get into the canal direction," he wrote.¹⁹ Soon after Gilpin repeated his request to his father: "Not much is said about the election but a great deal of intrigue is going on & they talk of putting in an entire Phila~~del~~phia board--so that I sh~~oul~~d like you to come up as soon as you can."²⁰

Joshua Gilpin wanted to see that the canal direction was kept in proper hands, and that the proper geographical distribution among the directors was maintained. He had written two years earlier:

The present board is now composed . . . of five members from the city which perhaps is as great a number, or at least if we could obtain one more, as we can ever expect to have with any satisfaction to Maryland and this state Delaware who can not have less than two each.²¹

In addition, several members of the board in 1823 had served from the birth of the company. Gilpin contended that some of these original board members, "on whose personal attention the conduct of the work, its accounts, lands, water-rights, &ca. have devolved are indispensable . . . to the prosecution of the work, and instruction of a future board."²² Gilpin's voice of counsel in the two weeks prior to the election went unheeded. As his son had predicted, an all-Philadelphia board, including Joshua Gilpin, was elected.²³

Gilpin was not the only man disappointed with the election results. Mathew Carey, who led the successful fund-raising campaign the previous April and May, had expected to be rewarded by a place on the board. He

had consented to accept a place on the ticket as jointly arranged by Philadelphia and Wilmington representatives. But on the morning of the election, an alternate ticket with Carey's name omitted was presented to the stockholders and adopted. Carey's bitter disappointment was aired in a private letter he circulated among a few friends, outlining his recent efforts on behalf of the canal company. His anger was but temporary, however, overcome by a sense of public good. Within a year he wrote a vigorous defense of the board's actions in selecting the location for the canal.

The contributions made by Carey towards the revival and eventual completion of the canal were not forgotten by the stockholders. At the annual meeting in 1824, the following resolution was adopted: "Resolved unanimously, that the thanks of the stockholders be presented to Mathew Carey, Esquire, for the zeal and ability with which he promoted a new subscription to the work in the year 1823."²⁴

After the intrigues of the 1823 board election had run their course, attention was again given to the selection of a canal route. The Army engineers concluded their personal examination on July 23, but for a lack of information to be supplied by the canal company, they were unable to give an authoritative opinion immediately. It was arranged for the engineers to return when sufficient information had been collected to make possible a determination of the route. The preliminary report made by the engineers listed several points on which accurate information was needed, and contained a few observations on the various routes previously laid down by the company engineers. The report stressed the need for adequate information on the nature of the soil, the exact volume of water in the different streams, and the cost of the land, mill seats, and water rights.

A comparison of the different routes was impossible until all of this information was assembled.²⁵

The board of engineers returned in November to give assistance in selecting the route. William Strickland's plans and estimates for an upper route canal were examined, but "a severe and protracted indisposition" prevented Randel from having his report and estimates for a lower route completed. When Bernard and Totten arrived,

the Civil Engineers, who had presented projects of this work, and those who had been called in, for advice, were found assembled; and in company with them, the president of the Company, and most of the Directors, the Board proceeded to reexamine the whole ground contemplated to be traversed by the several proposed Canals: Having finished this examination, the Board, in conjunction with Judge Wright, the Chief Engineer of the Western Canal of New York, and Mr. Canvass White, the Civil Engineer of the Union Canal of Pennsylvania, entered upon a critical examination of the several plans, with the object of expressing their opinions, as to which deserved the preference.²⁶

Because Randel's report was not completed, the meeting was adjourned until January 13, 1824, when the long awaited decision would be made.

While in Philadelphia, the Army engineers became aware of the "great excitement, which prevails in Philadelphia, & its neighborhood, on the subject of the various routes suggested for this Canal; the impatience which is manifested by all; and the injurious tendency, as to the funds of the Company, of any further procrastination."²⁷ The columns of the newspapers reflected the tenseness of the situation. Angry words were hurled at one another by the citizens of Philadelphia and Wilmington. The people of Wilmington wanted the canal to terminate in their city. They were apprehensive that if the canal reached the Delaware River without using the Christina River for its eastern débouché, the trade of their growing industrial city would be injured. Naturally, the difficulties of constructing a canal along that route were discounted. The Philadelphians,

on the other hand, seemed to favor any route other than one passing through Wilmington, for they zealously desired to reap for their city all the commercial advantages possible for the canal financed primarily in Philadelphia.

The editor of the Delaware Gazette commented on this "appearance of contractedness," which was "utterly unworthy of men of enlarged views and liberal feelings." He accused certain Philadelphia advocates of the canal of gross selfishness, of seeking to give "the city of Philadelphia a monopoly of the advantages arising from the canal." The editor pointed out that the legislatures of Maryland and Delaware did not incorporate the company for the exclusive benefit of Philadelphia. He also noted that the state of Delaware had led the way in subscribing to the stock of the company. "Unless the Canal is to be made to produce a general advantage to the different sections of the country near its location," concluded the editor, "we should not suppose it would be worth encouraging."²⁸

Delay in locating the canal held in suspense, among others, many peninsular landholders, both those who wished for or opposed the canal through their property. Some attempted to dissuade the company to pass the canal across their farms by asking exorbitant prices, but others hoped "to make a public work intended to benefit the community the means of enriching them/selves."²⁹ To prevent rank speculation, the final determination of the route was made in close confidence. Joshua Gilpin wrote in December, 1823:

Of the sentiments of the engineers or any of them nothing is known, and the board have enjoined entire secrecy among themselves till their decision is known: all therefore that is said abroad is vague conjecture and speculation which I am sure the best friends of the work will pay no attention to.³⁰

Speculation about the route was finally put to an end on January 26, 1824, when the company announced its decision. The four-man board of engineers, Benjamin Wright, Canvass White, Simon Bernard, and Joseph Totten, were "in session . . . from the 13th to the 20th," when they made their unanimous recommendation to the company officers.³¹ "The Directors intend keeping it a profound secret until monday morning," John R. Latimer disappointedly wrote his brother, "their reasons for so doing I cannot learn."³² Totten ascribed this secrecy to the fact that the company had "some negotiations pending which would be effected by the decision."³³

Announcement of the route selected was made by publishing the brief report of the examining engineers:

To the President and Directors of the Chesapeake and Delaware Canal Company.

Gentlemen--after a careful examination of all the circumstances, connected with the important question of the most eligible route for a canal across the Delaware Peninsula, we unanimously recommend the following project--viz. Beginning on the Delaware river near Newbold's landing, where an artificial harbour and a tide lock must be provided, the Canal should be cut through St. George's Meadow to St. George's mill dam; there to be lifted by a lock of eight feet;--thence through St. George's mill dam; through the dividing ridge of the peninsula, and through Turner's mill pond, to a lock of six feet at Turner's mill dam; and thence along Broad and Back Creeks to a tide lock near the mouth of Long Creek.

Benjamin Wright, Canvass White, Joseph G.
Totten, Bernard, Brig'r Gen'l.³⁴

The report had been unanimously adopted by the board on January 26, 1824, at which time Benjamin Wright was similarly elected to the position of Chief Engineer.

Latimer wrote his brother in New Castle County, across whose property the upper route had been staked out, to give him the news. "The deed is done," he wrote, "the Directors of the Canal Company have this day decided unanimously on locating the Canal on the lower rout You

now have your wishes gratified--your property will not be touched--whether this is cause of exultation time alone will show."³⁵

News of the selection stunned many Delawareans, especially those in Wilmington. Had not the canal been planned through Wilmington in 1804-1805? Had not Joshua Gilpin extolled the virtues of the upper route in his book? Did not the manufacturing and commercial interests of northern New Castle County deserve recognition? In fact, every precedent had pointed to the selection of the upper route, but precedent was not followed. The reaction was immediate. Many Delawareans--even the Bank of Delaware--refused to pay their subscriptions.³⁶ As Mathew Carey expressed it, when the route was located, "a very violent clamour was excited against it, partly by persons interested in the upper route--partly, however, by disinterested persons, who believed . . . that the lower route was impracticable. The malcontents were ardent and zealous, and were making a serious impression."³⁷

The editor of the Delaware Gazette, Samuel Harker, was especially vocal in condemning the board's action. "The lower route was fixed upon," he cried, "not because it would be more beneficial to Philadelphia than the upper one, but because it would prevent Wilmington profiting so much by the improvement." He demanded to know the other reasons--if there were any--which prompted selection of the lower route.³⁸ Harker, despite his Wilmington bias, sincerely believed that a canal over the lower route was impractical, and continually prophesied its ultimate failure.³⁹

He answered the statement that but "one opinion"--that of entire satisfaction with the board's decision--existed in Philadelphia by saying the "one opinion" in Delaware was the canal would never be accomplished.

The one opinion of the Philadelphians [he continued] does not prevail throughout the state, as a resolution has been introduced into their Legislature, requiring an explanation . . . of the grounds of the preference which has been given to the lower route [When] all circumstances are viewed, we trust that all scratching of backs and tickling of elbows will be properly condemned, that the one opinion will be found to have been incorrect, and that the Philadelphians will not be allowed to gouge as they please.⁴⁰

Delaware stockholders wrote to the editor expressing their great displeasure with the choice. The motives of the engineers, and of the board were questioned, and wonderment at the selection of the more costly route was expressed. Latrobe's opinion that one mile of a deep cut would exhaust the capital of the company was mentioned by "A Stockholder," who asked what had changed to now make a four and one-half-mile deep cut route the best. On the Erie Canal, the deepest cut had been twenty-five feet, which had cost forty-six cents per cubic yard. "What then will it be," asked the stockholder, "in going thro' the 'Dividing Ridge' $4\frac{1}{2}$ miles at an average of at least 40 feet, and one mile of which has to be cut nearly eighty feet in depth . . . ?"⁴¹ Randel had estimated an average cost of ten cents per cubic yard, although authorities, added Editor Harker, believed fifty cents more nearly correct.⁴²

Others questioned the legality of the alteration in route after "money has been paid on the shares, on the belief that it is to be completed over [the upper] route, and when the money of the public has been expended in preparatory measures for such completion."⁴³ Harker supported this view, hoping to see the canal company "compelled to observe some law and propriety, and prevented [from] cutting and carving the country, in vallies and ridges, to suit their own whims, without the probability that it will ever be productive of any advantage to the public."⁴⁴

Some of the dissent came from Philadelphia. Harker published a letter from "A Philadelphia Stockholder" charging the canal directors with improperly motivated action, and asking that the less expensive upper route canal be constructed. This letter had first appeared in Philadelphia in handbills, Harker charged, "because, it seems, the Editors of the papers, of that city have determined to publish nothing on the subject, which does not meet with the approbation of the [directors] of the Canal Company."⁴⁵ Another indication of Philadelphia's disapproval of the route may be seen in the results of a stock auction held in March at the Merchant's Coffee House in Philadelphia. Stock on which sixty to one hundred dollars per share had been paid was offered for sale, but "there could not be obtained a bid of a single dollar!"⁴⁶

A citizen of Philadelphia published a vitriolic pamphlet in 1824 questioning whether the canal as planned would serve the "great objects which the Philadelphia subscribers to it had in view."⁴⁷ He believed the canal would not secure the Susquehanna trade to Philadelphia because of the difficulties of navigation from Newbold's Landing to Philadelphia. "For it is a fact," the writer contended, "that for arks, rafts or deep loaded Derham [sic] boats, the navigation of the river, or rather bay, below New Castle, is entirely unsafe." More important than undesirable location, however, he believed the size and expense of the canal were adverse to the interests of Philadelphia. He strongly advocated construction of a smaller, less expensive, barge canal to pass from the vicinity of Christiana Bridge to the Elk River. The advantages of the upper route were many:

It [would] have a town near each end, with the necessary warehouses and an old established trade. The numerous mills and manufactories almost immediately connected with it, will contribute in no small degree to the trade on it The Brandywine mills form a very

interesting point of attraction for the wheat of the Susquehannah, and as they send their flour to Philadelphia, we presume no objections will be made to their grinding some of that wheat.⁴⁸

Philadelphia need not be jealous of Wilmington, asserted the pamphleteer: "She is but the hard working servant of Philadelphia, and would fully return, either to the stockholders or our city, every benefit she could receive."⁴⁹ He concluded by remarking that Philadelphia must be practical rather than patriotic in applying her capital to improvement schemes. A great canal to form a link in a chain of inland navigation "is very properly an object for the attention of the general government, and not of a single city."⁵⁰

Another Philadelphia writer, J. C. Sullivan, advanced similar ideas in a pamphlet, Suggestions on the Canal Policy in Pennsylvania, also published in 1824. Sullivan, a civil engineer, said that a commercial, not a "national accommodation" canal was called for by trade exigencies. He recommended that a small, inexpensive barge canal, "adequate to mercantile accommodations," be constructed along the upper route.⁵¹

Arguments against the route were equally commercial and technical and they went unanswered for months. Not until June, 1824, did the directors of the canal company announce their reasons--mostly technical--for choosing the lower route. The advantages of the selected route were the following:

entrance into deep water on Delaware, instead of debouching into a narrow, winding creek, and encountering the delays incident to opposing tides; the entire absence of aqueducts and tunnels; the shortness; the inconsiderable destruction of mill property--the small number of locks; the rapid despatch of passing craft; the facility with which it may, at any time, be converted into a ship navigation; . . . and above all, the consoling certainty of a never-failing supply of water.⁵²

When Harker first learned of the choice for the canal route, he made a dire prediction: "Hereafter if the company expects any thing from the State of Delaware, we will venture to say they will be disappointed. She has too much spirit to be the drudge of Philadelphia."⁵³ Events proved him a good prognosticator. Notice was given in February that old stock on which fifty dollars had not been paid would be sold at auction the following June. The names of Delawareans were prominent in the list of delinquent stockholders. Of the 316 persons to have their stock auctioned off that month, 208 were Delawareans.⁵⁴

The outcry against the route was so serious that a meeting of the stockholders was considered to force the board to rescind its resolution. To allay their fears and suspicions, Mathew Carey published a pamphlet designed to prove that the directors had taken the proper action in accepting the decision of the board of engineers. The publication, an Address to the Stockholders of the Chesapeake and Delaware Canal, on the Subject of the Route, signed by "A Pennsylvanian," praised the ability of the engineers, and stated there could be no doubt of the practicability of the canal after its feasibility was admitted by the engineers. Carey noted that Joshua Gilpin, who resided near Wilmington and who, "judging of the motives that usually actuate men in such cases, must have had a strong bias in favour of the upper route," did not dissent from the board's decision.⁵⁵ Carey later modestly claimed that his pamphlet "completely settled the question in the public mind."⁵⁶

CHAPTER XII

CONSTRUCTION DIFFICULTIES

In the deep cut, . . . more earth will be removed from the same extent of surface, than has ever been done in any part of the world.--Joseph Hemphill, 1825¹

Preparations for beginning the construction of the enlarged, relocated canal were in progress throughout the latter part of 1823 and into 1824. In October, 1823, five permanent committees were established by the board: Works, Accounts, Finance, Old Claims, and Correspondence. The Committee of Works, in charge of the most important aspect of the company's responsibility, was headed by Silas E. Weir, a shrewd, hard-working man who honorably served in that capacity until his death shortly before the canal was completed.²

Calls were made for installments to be paid on delinquent shares of old stocks. It was hoped to put all shares, both new and old, on an equal footing. Notice was given in September that all shares of old stock, "on which FIFTY dollars shall not have been paid on or before the 12th day of December next, will be exposed to public auction, or forfeited according to the provisions of the charters of incorporations."³ In December, it was announced that \$65.00 was required by April 1, 1824.

The calls received a good response--in Philadelphia--but enough shares had not been subscribed to cover the estimated expense of the lower route--\$1,200,000.⁴ It was nevertheless decided to begin construction at once, for further delay was deemed disastrous to the entire project. Signs were seen of an appropriation from Congress before the present funds were exhausted. Mathew Carey pointed out that there would be a new President

of the United States soon, and that all of the candidates were pledged to internal improvements.⁵

Most of the difficulties predicted by the opponents of the lower route, and many others, were encountered during the five and a half years of construction. The final cost of digging the canal was \$2,201,864, sixty-two per cent more than originally estimated. Cutting through the dividing ridge of the peninsula--the deep cut--was the most difficult and troublesome. The excavation, ninety feet deep in places, was regarded at the time as "one of the greatest works of human skill and ingenuity in the world."⁶ But the job had been tedious, expensive, and dangerous. With each land slip, when the banks of the deep cut would fall into the canal excavation, a cry was heard from the persons dissatisfied with the canal location.

The estimated expense of the canal, according to the board of engineers, was \$1,354,364.64; according to Randel, \$1,211,834.70. Subscriptions totalled only \$750,000 when the work began, but contracts for the entire line of the canal were made soon after the route was selected. The pay scale in the contracts was based on Randel's lower estimate. Randel himself contracted to dig the eastern half of the canal, and "several of the principal contractors on the Erie Canal" offered to build the remaining half on the same terms.⁷ Construction of the canal began April 15, 1824, "by the removal of the first sod, near Newbold's Landing, in the presense of the board" and others, although by March 27, the entire line of the canal had been cleared of trees and underbrush.⁸ By June, 1824, a work force of 850 men and 150 horses was actively employed.⁹

The length of the canal was to be thirteen and five-eighths miles, with two tide and two lift locks. The eastern mouth of the canal, at

Newbold's Landing, later Delaware City, was forty-six miles below Philadelphia. Its western termination was Back Creek, a tributary of the Elk River, itself an arm of the Chesapeake Bay. The canal was to be sixty-six feet wide at the water line, thirty-six feet wide at the bottom, and ten feet deep. Passing places were to be constructed every half mile, except within the deep cut area, where they would be one mile apart. A large semi-circular harbor was to be constructed in the Delaware River. The locks of the canal were one hundred feet long and twenty-two feet wide.

The line of the canal was divided into seven sections, beginning at the Delaware River. The first three sections, requiring an average cut of $7 \frac{1}{3}$ feet, were a total of $4 \frac{1}{4}$ miles long. Section four was $3 \frac{3}{8}$ miles long, and required an average cut of only two feet. The deep cut area, section five, was $3 \frac{3}{4}$ miles long, and reached a maximum elevation of seventy-seven feet. Approximately three million cubic yards of earth had to be removed from the deep cut. Sections six and seven were two and a quarter miles long, and relatively shallow cuts were necessary in this area. The canal was not to be a tidewater canal, although nearly so. The summit level of the waterway was but seventeen feet above sea level.¹⁰

Hundreds of workers were brought to the canal line soon after construction began. The first earth was removed in April; within two months 850 men were employed at the excavation. Carts and wagons, drawn by horses, were used to transport the earth from the excavation. Some of the earth was used to make the semi-circular arms of the Delaware harbor. Upland soil was used to fill low-lying areas of marshlands on the eastern half of the route, and to form the banks and towpaths through that region.

Wages of the canal workers were low, and living and working conditions were almost indescribably bad. Makeshift buildings to house the workers were erected along the canal route. Many of the canal workers were Irish immigrants, although some Negroes were employed. The work force was segregated at first, but later all of the men labored side by side. The Negroes were, however, fed and lodged in separate buildings. According to a contemporary observer,

the men were summoned to meals and work by a bell, which must be punctually obeyed or a forfeiture incurred. The workmen live in companies of fifteen or twenty in Shanties--frame buildings along the canal, provided with a cook, or board in more private houses erected for the purpose.¹¹

It is difficult to determine the exact wage of the canal laborer. The men were employed by the contractor rather than the canal company. Men working on the Pennsylvania canals averaged ten to twelve dollars per month in 1831, although in the winter months wages often fell to five dollars or less per month.¹² Hezekiah Niles stated the common laborer received sixty-five to seventy-five cents per day in 1823, although \$1.25 per day had been average in 1795.¹³

Most wage earners in the early nineteenth century received a whiskey ration as part of their pay, but such does not seem to be the case for workers on the Chesapeake and Delaware Canal. Randel advertised during the first months of 1825 for five hundred men, "not addicted to profanity or intemperance."¹⁴ The following year, the board of directors praised the

spirited, humane, and wise conduct of some of the contractors, in expelling from their borders the pest of tippling shops, which had infested the whole line These nuisances, by furnishing the pestiferous draught by day and by night, rendered the workmen not only unfit for labour, but the ready instrument for riot and disorder.

When drunk, they frequently fell, exposed for hours, unsheltered, to the rays of the sun, and evenings dews--fever, and death, were but too often the melancholy consequences.¹⁵

Besides occasional trouble from drunkenness, illness and injury to the workers caused considerable delay. Moreover, it led to a large burden on the county. Destitute canal workers, incapacitated by fevers, became wards of the county. "We have seen them," exclaimed Editor Harker, "brought up by the cart load [without resort but] to apply for admission into the poor house of the county."¹⁶ The taxpayers were unhappy with their additional burden. Delaware had a law, passed in 1739, requiring those who imported dependent nonresidents to give security for their support, but this law was evaded by first landing the workmen in Philadelphia before bringing them to Delaware. In 1826, after being aroused by Harker's protests, New Castle County indemnified itself against a continuance of the practice.¹⁷

Hopes for an early completion of the canal were high when as many as twenty-six hundred men were at work on the canal in July, 1826. Six hundred men were even employed during the winter of 1824 to 1825, and the following winter two thousand men were at work on the canal.¹⁸ The original contracts called for completion of the canal within four years, by the spring of 1828, but at one time the board expected to finish a year ahead of schedule. The board of directors maintained a continual watch on the progress of the work by means of visiting committees. The ten-man board was divided into five pairs, each pair forming one visiting committee. Conscientious in their work, the committees from time to time recommended alterations or improvements in the workmanship to be made.¹⁹

Work proceeded satisfactorily the first year. No more than the usual difficulties were experienced in construction. The spirits of the

management and owners of the canal were high at the annual meeting in June, 1825. The tide lock on the Delaware had been completed. The Chesapeake tide lock was expected to be finished before winter. Some disappointment was expressed that the excavations through the marshes had been less vigorously prosecuted than the other work, but Randel was instructed to attend to those sections at once. The workers "suffered by the usual autumnal fevers of the country," the board admitted, "but at no time has the work been suspended, or even materially interrupted."²⁰

Others described the Chesapeake and Delaware Canal as "a scene of great activity and diligence."²¹ Besides work at either end of the canal, digging had already begun in the deep cut area, where earth was to be obtained for making the towpath and the banks through the marshes. "The work proceeds regularly and constantly," reported one observer:

empty teams continually take the place of those which go off with their loads, and by means of copper tokens given to each driver as he takes away a load, the precise number is ascertained by the overseer It is difficult to understand the magnitude of the undertaking without personal inspection. The huge chasm at the Buck astonishes the spectator, although not one third of the intended depth has been dug.²²

A number of Philadelphia gentlemen, "full of zeal for the cause of internal improvements," planned an excursion to the Chesapeake and Delaware Canal works to honor DeWitt Clinton in 1825. A new steamboat, the Trenton, was hired to carry the party and its distinguished visitor to the canal line on June 4, 1825. Rough water prevented the group from proceeding beyond New Castle, but a banquet was held aboard the steamer to commemorate the progress on the Chesapeake and Delaware Canal.²³

That progress was interrupted briefly in the fall of 1825 when John Randel, Jr., was abruptly dismissed from his contract. Although new

contracts were readily let and work was quickly resumed, a controversy over the Randel episode continued for ten years and was a constant source of trouble for the company. Besides alienating many supporters by their action, the board of directors brought severe financial loss to the company.

Benjamin Wright, as the chief engineer, had been made sole umpire in cases of dispute over the amount of work done. Upon his written certification, given July 30, 1825, that Randel had unreasonably neglected his contract, the board dismissed the importunate contractor two months later. A brief hearing had been granted Randel, "whose explanation and excuses were unsatisfactory" to the board. A suit was instituted against Randel to recover money loaned to him.²⁴

In retaliation, Randel filed suit against Benjamin Wright personally and against the company for breach of contract. In a case fraught with technicalities, ambiguities, and complexities, one that took ten years to settle in the Delaware courts, Randel was eventually awarded judgment in the amount of \$226,385.84 against the company. His suit against Wright was dropped.²⁵

As the Randel case was before the courts until 1834, the most serious repercussions from Randel's dismissal occurred after that date. At the time he was dismissed there was but a brief interruption in the work. The board awarded the contracts for finishing Randel's portion to several individuals, rather than again relying on one man. Within a month, these new contractors were advertising for one thousand laborers, three hundred carts, and six hundred to nine hundred horses.²⁶

A great outcry arose against the board's treatment of Randel. Most outspoken of the critics was Mathew Carey, who published a strong

denunciation of the board and a defense of Randel in his Exhibit of the Shocking Oppression and Injustice Suffered for Sixteen Months by John Randel, Jr., Esq. Contractor for the Eastern Section of the Chesapeake and Delaware Canal, from Judge Wright, Engineer in Chief, and the Majority of the Board of Directors. This work appeared within two weeks of Randel's dismissal, protesting the assertion that Randel had "neglected" his contract. The young engineer, announced Carey, had spent \$13,369 of his own money on the canal, had worked nine months without pay, and had six hundred to seven hundred men on the job--as certified by Visiting Committee Number Three (Isaac C. Jones and George Gillespie)--when he was charged with failure to fulfill his contract. Moreover, Randel had completed forty-three per cent of the work in thirteen months, although he had a four year contract.²⁷

Carey attributed the trouble to personal animosity between Wright and Randel, both former Erie Canal engineers. In 1822 Randel had published a pamphlet, Description of a Direct Route for the Erie Canal, at Its Eastern Termination, With Estimates of Its Expense, and Comparative Advantages, which charged Wright, as chief engineer, with having unnecessarily extended the Erie Canal, thereby wasting about \$100,000.²⁸ Carey believed that Wright had carried a grudge against Randel ever since.

Within the board, too, disagreement existed on the merits and abilities of Randel. Paul Beck, Jr., who had been a leading factor in reviving the Chesapeake and Delaware Canal Company in 1822, resigned his seat in protest of Randel's treatment prior to his dismissal.²⁹ As Harker, editor of the Delaware Gazette expressed it, "there has been a perfect explosion among our Canal folk within a short time."³⁰ Carey had attempted to arouse public opinion against the board's actions. He was saddened to

think "such a villainous cause of conduct . . . should be viewed with so much apathy," although he was certain "the public sentiment is most decidedly against the board."³¹ A stockholders meeting to disapprove the board's conduct was planned by Carey but did not materialize.

Disaffection of some of the stockholders did not discourage the board. At the time of making the new contracts, the date of completion was advanced to March, 1827, a year early. By no outward sign did the board acknowledge their awareness of the criticism. They made no public statement, as demanded by Carey to justify their actions. A letter was sent to the governor of Pennsylvania, however, expressing confidence in an early completion of the canal, and stating that there was no foundation for the alarmist reports circulating to the prejudice of the company.³²

Despite the trouble with Randel, the year 1824 had proven productive. The company had not slackened in its attempts to get financial assistance from the federal government when the three states, private institutions, and individuals subscribed to the company. Indeed, these subscriptions renewed their efforts and buttressed the arguments of the canal supporters. Two petitions in 1822, after it became known a revival was underway, proved fruitless. But a petition to Congress in December, 1823, to which a progress report was added in March, 1824, led to the introduction of a bill granting aid to the company. Reported April 1, 1824, the bill was tabled indefinitely on May 21, 1824. Revived the following session, the bill was the subject of lengthy debate. Joseph Hemphill, a representative from Pennsylvania, spoke at length upon the history of the canal, the previous attempts for congressional aid, and the progress of the work to date. Despite the strength of his report, the bill barely passed to a third reading, eighty-six to eighty-three.³³

The major debate occurred on the final consideration of the bill. Hamilton of South Carolina opposed the appropriation to the company on the grounds that the military importance of the canal was overrated, and because private enterprise would eventually complete the work anyway.³⁴ He was effectively opposed by Louis McLane of Delaware, who made a powerful argument for the canal.

McLane's speech was reprinted in the Delaware Gazette because, said the editor, it contained all the arguments for the bill and was the best statement he had seen upon the subject. McLane opposed further delay while new surveys were being made, as proposed by some, because more than enough information was already available to justify the appropriation. He believed that the work would not be completed by individual enterprise alone, because the canal was "more a national than an individual work." Neither of the three states most intimately concerned could build the canal alone. In Delaware and Maryland support of the project was confined to a small area, and Pennsylvania had committed itself to a program of improvements within the state. Because of the peculiar state of things, and the conflicting interests, McLane believed the government should aid individual spirit and complete a work which would otherwise be abandoned. But \$700,000 of an estimated \$1,300,000 cost had been subscribed. An immediate need for the government subscription existed.³⁵

Samuel Breck of Pennsylvania supported McLane's position. He believed the project would fail without government aid. Citizens of Philadelphia currently held a total of \$4,000,000 in unproductive stocks; Breck was sure no more aid could be obtained from that quarter.³⁶

Arguments based on the military advantages of the canal, its national character, and the enterprise and zeal of individuals to date

were enlisted to combat opponents who held constitutional objections or maintained the Chesapeake and Delaware Canal was a local project. Representatives from New York, New Jersey, and South Carolina spoke against the bill, but opposition in those states was not unanimous. The bill in the House passed by a comfortable margin, 113 to 74. In the Senate, after a brief discussion in which Senator Tazewell of Virginia vainly attempted to add a rider to the bill calling for a subscription to the Dismal Swamp Canal, the Chesapeake and Delaware Canal bill, authorizing a subscription for fifteen hundred shares, or \$300,000, was passed. Signed by President Monroe on his last day in office, the bill became law March 3, 1825. The Chesapeake and Delaware Canal was the first project of those recommended by Gallatin to receive an appropriation.³⁷

News of the appropriation, not altogether unexpected, was received with great joy among the canal enthusiasts. Despite the unpleasant Randel episode, the year 1825 had been one of great activity and productivity. An ever increasing number of workers were brought to the canal line to join the hundreds already laboring to dig the canal, construct the locks, and build the harbors. By December, fifteen hundred men were at work, later increased to two thousand. The entire group worked throughout the mild winter.

The sanguine hopes for an early completion of the canal were not realized. Difficulties in construction, a misunderstanding with a second contractor, and financial problems contributed to the delay. Criticism and adverse publicity about the progress of the work continued to plague the directors.

Excavating the deep cut was a difficult task, regarded at the time as "one of the greatest works of human skill and ingenuity in the world,"

but equally vexing problems faced the canal personnel in the eastern marshes. It was necessary to bring in firm upland soil to form the canal banks and to build the towpath. The marshes had to be filled, sometimes to a depth of forty or sixty feet, before suitable banks were formed. At one spot, while attempting to fill a bog, "for 17 successive mornings, no trace of the labours of the preceding day was visible; everything had been swallowed up."³⁸

While the engineers were battling the forces of nature in the marsh areas, elsewhere parts of the canal were being completed. During the first week in October, 1826, Summit Bridge, a 247-foot span across the deep cut of the canal was completed.³⁹ Towns were laid out at both ends of the canal line, in anticipation of future greatness as commercial centers. At the Delaware terminus, the site of hopefully labelled Delaware City, public confidence in the canal venture was so great that a large lot within the village sold at the rate of \$4,356 per acre.⁴⁰ Warehouses and dwellings were built, and even a post office was established there in 1826.

As the work continued, it became increasingly evident that the subscriptions to the canal company stock would not build the canal. Unfortunately for the stockholders who had hoped for dividends within a reasonable number of years, the company was forced to borrow money in 1826. The company obtained a loan of \$350,000 from the Bank of the United States in July, and in January, 1827, the company borrowed an additional \$200,000.⁴¹ As a result of the loans and other financial difficulties met by the company after the canal was completed, no dividends to the stockholders were paid until 1856, thirty-three or in some cases fifty-three years after the subscribers had pledged their money.

Appeals to Congress were again made, but for three years the petitions went unheeded. The company was forced to sink deeper and deeper into debt during the final years of construction. Harker caustically asked the canal management if they had not reached the bottom of the treasury before the bottom of the canal was reached. The company's difficulties caused the market value of its stock to drop alarmingly. In June, 1826, stock on which \$185 a share had been paid brought \$115, but four months later, stock with a par value of \$200 per share was quoted at \$60.00 to \$65.00.⁴²

Hopes again sagged when difficulties with contractor J. F. Clement resulted in an injunction against the company which suspended operations on the eastern half of the canal for four months. Clement was a partner in Clement, Blackstock, and Van Slyke, a firm which had contracted to build a portion of the canal. The men were dismissed from their contract in the fall of 1826 for financial misrepresentations, according to the company, for reasons of personal difficulties with assistant engineer Henry Wright, according to Clement. Clement filed suit against the company for breach of contract, which resulted in an injunction while measurements of the work performed by Clement and his partners were made. If the company had assisted in the measurements, charged Clement, the injunction could have been removed within three weeks. As it happened, work was arrested from December 11, 1826, until the first of April, 1827.⁴³

In spite of suspension of the work at a crucial period, the board of directors were able to make an optimistic report to their stockholders in June, 1827. Passing over their error in estimating the time as well as the cost of executing the work, the board reported in detail on the progress. Sections one and two, six and seven, the Delaware harbor, the eastern tide lock, and both western locks were completed. Work on the

middle sections, comprising the marsh and deep cut areas, were delayed by the injunction, but a large number of men were currently at work.⁴⁴

Causes assigned for the increased expenses were alterations in the original plans and the failure of contractors. The Delaware harbor and the size of the locks were made larger than originally planned. Another expense not included in the original estimate was the cost of stoning the walls of the canal in the summit area. This was done to prevent the banks from being washed away. Most important, however, was the additional expenses incurred at the marshes, already amounting to \$200,000, in 1827.⁴⁵ The directors consoled their stockholders with a report on the descending trade of the Susquehanna River. In 1826 the value of this trade, much of which was expected to use the Chesapeake and Delaware Canal when completed, had "amounted to upwards of 5,000,000 dollars."⁴⁶

The board visited the canal en masse just previous to the stockholders meeting in 1827, and at that time, were able to pass in a sloop along the canal to St. Georges. A year later the eastern section of the canal was opened to traffic. The company was pleased to report in June, 1828, that the canal was in use from the Delaware River to the Summit Bridge: "Sloops, heavily laden, are continually flying between these two points; and the Lady Clinton Packet Boat runs daily on the same route."⁴⁷ Philadelphia steamboats began making regular calls to the company's harbor at Delaware City. Excursion trips to the canal works to view the work in progress were customary events in the summers of 1828 and 1829. In 1829, when the excursion steamboats arrived in Delaware City, canal boats were used to transport the touring group through the canal to Summit Bridge.⁴⁸ Delawareans frequently journeyed to the canal line to see the magnitude of

the undertaking, and one of the attractions of spending a recuperative week at Brandywine Springs in New Castle County, Delaware, was a ride to the canal area.⁴⁹ The most impressive sight was at the summit level, where a wedge of earth 230 feet wide at top, 36 feet wide at the bottom, and 80 feet deep had been sliced from the ridge. The gaping hole was spanned by a wooden covered bridge in a single arch. A vista worthy of true admiration in the 1820's had been created.

CHAPTER XIII

COMPLETION

The great and important work . . . which by many was considered a desperate and hopeless enterprise, has, by six years of anxious toil and steady perservance, been completed.--Chesapeake and Delaware Canal Company, 1830¹

The last remaining obstruction to the canal was near the Summit Bridge. This slight barrier of earth was removed on July 4, 1829, when water was admitted along the entire length of the canal. The occasion was one of great moment for the canal directors and their supporters, but the small celebration was ill-favored by the weather. "The torrents of rain that descended during the whole of the day," reported Hezekiah Niles, "prevented the performance of certain ceremonies which were intended, and rendered it exceedingly uncomfortable to the military who attended from Baltimore to assist therein."² An official party, consisting of the board of directors and secretary of the company, the mayor of Philadelphia, the Superintendent of the Works, the canal engineers, and other citizens of Delaware, Maryland and Pennsylvania passed through the canal in a barge to mark the festive, though dampened, occasion. The barge used was one of several large, elegant "specimens of the naval architecture of Baltimore."³ The barges, ninety feet long and twenty-one feet wide, were in striking contrast to the customary canal boat of the day, which was less than half as wide.

The editors of the Philadelphia National Gazette, in reporting on the day's activity at the canal, remarked on the magnitude of the undertaking:

To those who have not before seen the works, the vast excavation of the deep cut, the length and heighth [sic] of the stone walls by which it is lined, the width and loftiness of the summit bridge,

the broad sheet of water, and the large scale on which all parts have been executed, could not fail to occasion much surprise and admiration.⁴

Work on the canal was not completely finished by July 4, 1829. Repairs were needed at the Delaware tide lock, and at various places along the canal line. It was expected to be finally completed within three weeks. While the finishing touches were being made, plans were taking shape for an official opening of the canal. Various people formerly connected with the canal company in an official capacity, such as directors or engineers, as well as dignitaries in the United States were invited to attend the opening celebration, set for October 17, 1829. Benjamin Wright, who had become chief engineer of the Chesapeake and Ohio Canal in 1828, was unable to accept, but Joshua Gilpin, who had served as a director of the company for twenty-one years, accepted the invitation to join in celebrating the long awaited event. Gilpin, who more than anyone else had kept alive the hopes of the company, was invited "as one of the earliest, most efficient, and most constant friend of this great work."⁵ Among those to send regrets were such varied personages as President Andrew Jackson and the Consul General of Sardinia, M. Cararadofsky de Thaet.⁶

Preparations for the event at the canal line were left in charge of Caleb Newbold, Jr., superintendent of the works. A large slide occurred in the deep cut area a few days before the opening, but the canal was clear for the official opening day procession through the canal. Large vessels were prudently barred from the procession, for "a small mistake would ground one & do much harm."⁷ Arrangements were made with the garrison of Fort Delaware for the firing of three full salutes of twenty-four guns each, and countless other details were looked to by Newbold

in preparation to receive the crowd. "If the day proves fine you will see people enough," he assured company director William Platt, "& I wish with all my heart it was over."⁸

The day proved fine indeed, and hundreds of distinguished visitors, company officials, and other excursionists, citizens of Philadelphia, Wilmington, and the surrounding country, including two Philadelphia military companies, were present. Three steamboats were necessary to carry the Philadelphia party alone. The Fort Delaware salutes were answered by vessels lying near St. Georges and the Summit Bridge.⁹

The group assembled at Summit Bridge, where Robert M. Lewis, chairman of the Committee of Works, announced the completion of the work to the president of the company, James C. Fisher. Lewis gave a brief resumé of the history of the canal, and spoke of the difficulties encountered in construction. The canal banks in the marshes appeared fifteen feet high, he observed, but actually they were twenty to sixty, in places even a hundred feet high. It had taken the continual labor of two hundred men for almost three years, and several hundred thousand dollars, to make the canal through the marshes. Fisher made a brief reply to Lewis' remarks before the official party returned to their steamboat, the William Penn, where a dinner was served. Nicholas Biddle gave another of his internal improvement addresses following the meal.¹⁰

As a permanent memorial of the event, at the next annual stockholders meeting, it was decided to erect "a suitable tablet, as a memorial of the date of the commencement of the work, and of its completion," on the canal line.¹¹ According to the tablet duly erected at the Summit Bridge, the total cost of the canal was \$2,250,000. The average cost

per mile was thus over \$165,000. By comparison with the per mile costs of other canals, the figure was extraordinarily high. The cost per mile of the Erie Canal was \$19,255.49; of the Pennsylvania state canals, \$22,113.44; of all New England canals, \$12,838.71.¹²

Tolls were first received by the company in June, 1829. On June 8, G. W. Rodgers commenced his labors as lockkeeper at Delaware City, receiving \$2.00 per day from the company. Beginning in October, however, the company appointed two toll collectors, bonded at \$5,000, who were to pay the lockkeepers. The toll collectors were paid \$750 per year. Bridge keepers, where no tolls were to be collected, were employed by the company at \$20.00 per month. The bridge tender at St. Georges, who also looked after the lift lock there, received an extra \$5.00 monthly.¹³

Barges owned by the Citizen's Line, which operated steamboats on the Chesapeake and Delaware Bays, began passing through the canal. The trip took two hours, and made complete an all-water communication between Philadelphia and Baltimore. Four or five horses, hooked in tandem, were used to draw the passenger boats through the canal at six or seven miles per hour. A southern traveler passed through the canal two months after it opened. He entered the canal at Chesapeake City on December 24, 1824:

Passed through it (distance 16 miles) in 2 $\frac{1}{4}$ hours. There are four locks & several Bridges made to turn out of the way of the Canal Barge. The weather became clear & extremely mild . . . & enabled us to have a fine view of its whole extent. At the Summit level there is a fine bridge 70 feet above the water, spanning the whole extent of the Cut, which must be at least 150 feet (of frame, covered & neatly painted). It springs from Rock abutments & has no arch. Near the Summit level there have been large slides or slips of the Bank of the Canal owing to the springs & marshy nature of the ground. These have been overcome by thatching the Banks with Coarse Straw or Grass.¹⁴

Traffic through the canal was heavy from the beginning. One traveler counted ten vessels through the locks at Chesapeake City between two in the afternoon and dusk.¹⁵ Niles reported in November that tolls were averaging \$100 per day.¹⁶ That average was almost maintained until the canal was closed by ice on January 29, 1830. During the period October 17, 1829, to January 29, 1830, 798 vessels passed through the canal, paying \$8,552.59 in tolls. The canal was reopened February 23, 1830, and from that date until June 1, 1830, 1,634 passages brought in \$18,613.20.¹⁷ Niles noted that more than eighteen thousand bushels of flour, in addition to large amounts of whiskey, wheat, and iron, were transported through the canal during the first three weeks after reopening. In one week, 102 vessels, counting two daily lines of passenger boats, proceeded through the canal. "Products from Lancaster have reached Philadelphia, by water," announced Niles, "and it is thought that flour may be transported from one city to the other for 25 cents per barrel." He further declared that Philadelphia was reached from Baltimore in about fifteen hours via the canal.¹⁸

It was with great pride that the company directors announced the completion of the canal to the stockholders in June, 1830. The project "which by many was considered a desperate and hopeless enterprise" then exhibited "a bright prospect of usefulness to the community and reserve to its proprietors."¹⁹ The directors, encouraged by the amount of trade already given to the canal, saw signs that the trade would soon be materially increased, particularly by traffic from other internal improvements such as the Dismal Swamp Canal, the Chesapeake and Ohio Canal, and the Delaware and Raritan Canal.²⁰ In addition, the board expected that freight formerly sent by sea could use the canal. Insurance rates, freight rates, and the hazards of navigation all would be reduced by use of the canal.

CHAPTER XIV

INITIAL OPERATIONS

The Chesapeake and Delaware Canal continues to do a good and increasing business.--Samuel Hazard, 1830¹

The operation of the canal for the first five years was relatively troublefree and lucrative, but beginning in 1835 a series of misfortunes struck the canal company. The company never recovered from the financial disasters of its first decade of operation. Until the company franchises and property were purchased by the federal government in 1919, the canal company was continually in debt.

At first it had appeared that the canal would fulfill the expectations of its most hopeful supporters. During 1830, the first full year of operation, the total revenue was \$50,663.76, and in the following year it had increased to \$68,102.62. Freight arrived in Philadelphia from all parts of central Pennsylvania by way of the Susquehanna River, Chesapeake Bay, the Chesapeake and Delaware Canal, Delaware Bay, and the Delaware River.² Baltimore merchants noticed an immediate decrease in their trade from the Susquehanna River. One Baltimore firm expressed fear that the diverting influence of the canal on the Susquehanna trade would "be disastrous to the interests of the city."³

Most of the canal tonnage was eastbound, but the company permitted empty vessels which had paid a toll on their cargoes to pass through the canal on their return within thirty days free of charge. An itemized list of "tolls to be paid and regulations to be observed" by users of the canal was printed by the company. Tolls on articles varied from one cent to four hundred cents per item, empty vessels being charged the latter

price of four dollars. The rules, twenty-one of them, governing the use of the canal were customary ones for the period. For example, a speed limit of three miles per hour was placed on all vessels except passenger boats, which traveled at six to seven miles per hour. The passenger boats were given the inside lane when meeting or passing other barges. No animals other than those employed for towing were permitted on the towpath, and lamps were to be displayed at night on all vessels.⁴

Regularly scheduled vessels began using the canal almost from its inception. The Citizen's Line began running two barges on the canal the day of its opening. Packet boats operating between Philadelphia and Baltimore, Alexandria, Fredericksburg, Petersburg, Norfolk, and Richmond made frequent use of the canal. A new packet line from Philadelphia to Port Deposit was established in 1830. In addition, "a variety of transient vessels [were] trading to the several towns on the Eastern shore. During the week . . . 102 vessels passed through the locks, and . . . the spring trade is only commencing."⁵

Traffic on the canal continued to be heavy. The tolls averaged nearly \$60,000 a year for the first four years. The revenue of the canal was expected to reach \$90,000 in 1832, but an early winter, the completion of the New Castle Railroad, and--most importantly--poor navigation on the Susquehanna River caused a decline in traffic.⁶ In fact, the fluctuations in the navigability of the Susquehanna River continued to have a marked effect on the Chesapeake and Delaware Canal Company's income. During the years 1830 to 1860, between one quarter and one-half of the revenue of the canal company came from the Susquehanna traffic.

The company was able to make final settlements in 1832 with all but one of the contractors that had been employed in constructing the

canal, locks, bridges, and walls.⁷ In addition, all claims for damages against the company for temporary occupancy of ground by flooding or otherwise were adjusted and liquidated. Minor repairs had to be made to the canal in the early 1830's, but nothing occurred to dampen the hopes of the canal board for a prosperous business. A large waste weir was constructed in 1831 to prevent flooding at the summit level. The next year a culvert under the canal near Delaware City had to be built. The canal embankments had stopped up the normal drainage ditches, causing the marsh to overflow.

A few attempts to defraud the company were made during the first years of operation. Ship masters resorted to false declarations of cargo to escape the toll, safe in the realization that the company was powerless to punish an offender if caught. The company applied to the legislature of Pennsylvania, Maryland and Delaware for laws to prevent the dishonesty, which were duly passed. One of the toll collectors, to lend authority to his demands for examining cargoes, was appointed a government customs inspector.⁸

After five years of moderately successful operation, the canal company fortunes suddenly took a turn for the worse. In December, 1833, a storm severely damaged the banks of the canal, stopping navigation for ten days. The following spring, a large mass of earth in the deep cut, one thousand feet long and two hundred feet from the canal, showed signs of slipping into the waterway. The immediate hiring of a large group of men to remove the sliding earth avoided that major disaster, but minor slips occurred in other places along the canal line. While the company's dredging machine was clearing the bottom of the canal where slips had occurred, a more serious mishap occurred.

The trouble was caused by a break in the canal embankment at the point where the canal crossed the former bed of Broad Creek. The breach was 150 feet wide, through which the water in the upper level of the canal rapidly escaped. Three and one-half feet of water along the seven-mile length of the upper level was lost before a dam could be thrown across the canal above the break. Working rapidly, the company had the canal open for limited use within thirty days. Vessels drawing six feet of water or less could then be accommodated. Besides the embankment, a bridge abutment and the towpath required extensive repairs.

The most serious consequences of the troubles during the spring of 1834 was the loss of water from the summit level. The reservoirs were drained to replenish the water in the canal, leaving no source of supply during the dry summer months. The canal could offer only limited accommodation for the remainder of the year. The company officials attempted to be philosophic about their troubles, recognizing that the fortunes of all internal improvements fluctuated. "The past year," they said, "may emphatically be called the gloomy period of this company."⁹ As it happened, however, that judgment was premature.

In January, 1834, John Randel, Jr., was awarded damages in his suit against the Chesapeake and Delaware Canal Company in the amount of \$226,385.84.¹⁰ As the company admitted to its stockholders, "the questions that arose in the course of the trial, in relation to the construction of the contract between Mr. Randal and the Company, were very generally, in all material points, decided against the Company."¹¹ The company was financially unable to pay the complete damages (it had even been forced to borrow more money in 1834 to maintain and repair the canal), but apparently no effort was made to make a settlement with Randel or even

to honor his judgment. Randel took matters into his own hands by attempting to collect tolls from vessels which passed through the canal.

The engineer would have had no chance of success had not he received the support of the Delaware and Maryland legislatures and courts. The courts sustained his practice "of having attachments served on the captains of vessels passing through the canal, and holding them to bail, to answer as garnishees of the Canal Company for the amounts of toll payable on the respective vessels or cargoes."¹² Randel's activities were vividly described to the Governor of Pennsylvania by Nathan Bunker, a Philadelphian:

The locks of the co [sic] are in [Maryland], as in all such cases tolls are cash: they are & must be paid before the vessels could enter the canal, so soon as they reach the limits of Del. State Randall [sic] arrests them & garnishees them as debtors to the canal co. & they are compelled to give a Bail bond in double the amt of toll (paid only a few hours previous) . . . in default of obtaining it are dragged 17 miles to NewCastle prison & then incarcerated [sic] untill some humane friend, hearing their situation bails them out.¹³

Rather than expose themselves to the attachment proceedings, many ship captains avoided the canal. Randel's efforts to collect the tolls "caused embarrassments and delays of so serious a character as almost to have driven the trade from [the canal]."¹⁴

The company resisted Randel's claim to payment by all the legal means possible. A Delaware law, passed in 1829, had specifically provided for attaching the canal tolls if a judgment obtained against the company was not satisfied within sixty days. Under protection of this law, Randel had followed his unpopular course of collecting the canal tolls. Still the company contested the legality of Randel's action. But in November of 1835, when the Delaware Court of Error and Appeals decided against the

company and the Delaware Supreme Court dismissed a further appeal, Randel's victory was complete. He published a notice of the court's action, in which he gloated: "The co. now stands . . . convicted of the charge of compelling Captains of Vessels to pay double toll;--the very charge they endeavored to make against me, when they themselves were the extortioners!"¹⁵

At last the board decided to end the controversy which had proven so harmful to the company. The disputants agreed on a method of payment. A special meeting of the stockholders of the canal company was held May 23, 1836, to get their approval of the arrangements. Acts by the legislatures of Delaware and Maryland were required to make the agreement final. Special sessions of both legislatures were called in June to pass the necessary legislation. The company issued certificates for the amount of Randel's claim in a funded and preferred debt, payable in five years. The other debts of the company were funded, and certificates were issued to the various creditors. The loan certificates were convertible into stock at the will of the holder. If Randel's debt was not redeemed within five years, the Delaware law provided that it was lawful for "the holder of any portion thereof . . . to sell the said canal and any property belonging to the said company."¹⁶

The revenues of the company suffered during the period of the Randel dispute. Large expenditures were required to maintain the canal in usable condition, for leaks, breaks, and slips were all too common. After the settlement with Randel was made, however, the directors of the company expected an upturn in the business of the canal.

CHAPTER XV

SUBSEQUENT DEVELOPMENTS

Only those of us who have watched the business of the Company in recent years realize how much the Canal has benefited our fellow-countrymen One cannot help having the utmost optimism in regarding the future business of the Company even with the present facilities offered.--Chesapeake and Delaware Canal Company, 1912¹

Misfortunes continued to plague the canal company throughout most of the years of its existence. In 1844 the right of the canal company to charge a toll on its passengers was challenged by the Philadelphia, Wilmington, and Baltimore Railroad Company. The canal company ceased to demand payment from canal passengers until its charter could be altered to give "a specific right to thus charge toll."² But the Delaware legislature refused to enact a bill granting this right. Opposed by the railroad and later by the Philadelphia and Baltimore Steam Navigation Company (the Ericsson Line), the canal company was never again able to collect a passenger toll. The canal was toll free to passengers seventy-five years before it became toll free to vessels in 1919.

Not until 1846 did the revenue of the canal exceed \$100,000 annually. In that year the company was able to make the first interest payment on its debts, although it was never able to substantially reduce them. In 1856 all debts of the company were consolidated in a new issue of bonds amounting to \$2,800,000. The canal property and franchises were mortgaged as security for the loan, which was payable in thirty years. It is possible that the company had hopes of meeting the mortgage payments to fall due in 1886. Those hopes received a final blow in that year, when it was discovered that there had been an over-issue of bonds in the amount

of \$615,200 by the secretary-treasurer of the company who had absconded. It was necessary to refinance a \$2,603,905 loan in 1886.³

The intrinsic value of the canal was vividly seen during the Civil War. On it were transported troops, ordnance, supplies, and prisoners; "hospital boats carried back to the North wounded men who could have been moved in no other way."⁴ The canal also played a dramatic role in the early days of the war. In April, 1861, following the Baltimore riots when rail communications to the north were severed and Confederate troops were threatening Washington, northern reinforcements were rushed to the scene by steamboats from Philadelphia which passed through the Chesapeake and Delaware Canal and on down the Chesapeake Bay.⁵

During the war the revenue of the company increased materially, but its most prosperous period was immediately following the Civil War. The tonnage of the lock canal reached its peak in 1872, when 1,318,772 tons were carried. In the last year of the war, the canal company had collected a record \$414,312.59 in tolls, but its top net earnings occurred in 1870 and 1871, when over \$160,000 was cleared each year.

Because of its increased earnings after 1846, when tolls first exceeded \$100,000, the company was able to make its first dividend payment upon its stock in 1854. A second dividend was declared in 1867, and thereafter, until 1873, semi-annual dividends were paid. Single dividend payments were made in 1874, 1876 and 1877, after which no further dividends were paid. In all, seventeen dividends, both of stock and of cash, were declared during the 116-year existence of the canal company.⁶

After 1877, the date of the last dividend payment, the trade of the canal gradually declined. In 1880, it was less than half what it had

been fifteen years earlier. By 1906 it had decreased by another twenty-five per cent. The limited accommodations of the canal were seen as its chief drawback.

The growing movement for a larger, ship canal between the two bays was seen as a remedy for the declining fortunes of the canal company. The movement for a spacious, lock free, sea level canal began in 1871 when a commercial convention in Baltimore memorialized Congress on the subject. Various commissions were appointed and surveys were made intermittently during the next thirty-five years. In 1906, the Agaus Commission was appointed to go over the matter again, and to make definite recommendations regarding a ship canal. The following year the commission recommended that the government should purchase the Chesapeake and Delaware Canal property and enlarge the existing canal. The company holdings were appraised at \$2,514,298.70; the total estimated cost of the conversion was set at \$20,621,323.70.⁷

The canal was purchased in 1919 for the recommended \$2,514,000. The United States Army Corps of Engineers enlarged the canal to a sea level, toll free, lock free, waterway twelve feet deep and ninety feet wide in 1922 to 1927. The work was carried on with as little interruption as possible to the traffic of the canal, which then consisted of thirty to fifty vessels a day. A new entrance to the canal was built south of the old entrance at Delaware City, one railroad and four highway bridges were built, and the locks were removed.⁸

In 1935 to 1938, the canal was again enlarged, this time to its present dimensions. The canal is 250 feet wide and has a channel 27 feet deep. Since it has been enlarged, the canal traffic has substantially increased.

During the period of transition from a barge canal to a ship canal the number of vessels transiting the waterway increased from 9,034 in 1935 to 14,154 in 1940, an increase of 57 per cent. In this same period the net registered tonnage of vessels increased from 1,622,027 to 6,818,657, a 320 per cent increase. The principal commodities transported by these vessels through the canal are petroleum products, pyrites cinders, fertilizer, coal tar, chemicals, gum logs, lumber, wood-pulp, iron and steel products, refined sugar, canned goods, sea food and miscellaneous manufactured products. In the same period cargo tonnage increased 2,640,000 tons or 248 per cent.⁹

Tonnage in 1957 reached nearly ten million, an amount carried only once before, during World War II. Plans for a further enlargement of the canal have been approved by Congress and await the necessary appropriation of \$101,000,000.¹⁰

CHAPTER XVI

DELAWARE AND ITS CANAL

The route . . . was not established in accordance either with the interest or the wishes of a majority of the people of Delaware. The citizens both of Wilmington and of Newcastle were opposed to its present location.--James Buchanan, 1825¹

The Chesapeake and Delaware Canal was constructed under the aegis of Philadelphia. Major support of the canal was not located in the states through which it ran. Delawareans can be said to have tolerated rather than encouraged the original attempts to construct a waterway across their state. At first hesitant for fear it would harm those engaged in the carrying trade across the peninsula, the Delaware legislature at length chartered the canal company in 1801 in return for concessions from Pennsylvania. Merchants and industrialists, in northern New Castle County, particularly the Brandywine millers, were in favor of the canal, and their support proved decisive.²

When the Chesapeake and Delaware Canal Company was organized in 1803, Joseph Tatnall, a Brandywine miller, was the first president of the company. Wilmingtonians and other residents in northern New Castle County subscribed to almost as many shares of stock as did Pennsylvanians. After the first attempts to build the canal proved abortive in 1805, Delawareans continually agitated for the recommencement of the work. Although the Delaware legislature did not make an appropriation to the canal company, neither did the Maryland or the Pennsylvania assemblies until the War of 1812 proved the wisdom of the canal supporters. Senators Bayard and White of Delaware led the fight in Congress for federal aid to the canal, even thrice securing the passage of canal bills later lost in the House of Representatives.

Joshua Gilpin, a Delaware resident after 1815, was a leading authority on inland navigation in general and the Chesapeake and Delaware Canal in particular. More than anyone else he kept alive the corporate existence of the canal company during its many years of inactivity. Although the impetus for the revival of the company came from Philadelphia in 1821, Gilpin and other Delawareans applauded their enterprise. E. I. du Pont, a Brandywine manufacturer, was a member of an American Philosophical Society committee to re-examine the canal route in 1821. Two years later du Pont was instrumental in obtaining \$30,000 from Wilmington investors in new subscriptions to the canal company's stock. A state lottery to raise additional money for the canal was contemplated in 1823.

As enthusiasm for the canal grew in 1823, the state of Delaware unconditionally subscribed \$25,000 towards the canal effort, anticipating both Pennsylvania and Maryland in this respect. The substantial support given the canal company, even after the canal offices and books were moved to Philadelphia and surveys of different routes made, was based on the expectation that the canal would lie in the vicinity of Wilmington or New Castle. All previous events, from the first engineering reports in 1803 to Gilpin's Memoir on the Chesapeake and Delaware Canal in 1821, indicated such an expectation was logical. Statistics of the anticipated canal traffic were compiled with a Wilmington terminal in mind; congressional debates were conducted within that frame of reference; travelers in Delaware were told the canal entrance would be near New Castle.

There was a reversal in Delaware's attitude toward the canal after the route was relocated to the south. Never popular among the people of Delaware living south of the Christina River and New Castle, the canal company alienated its supporters in northern New Castle County when the

route was changed. The state honored its subscription to the company, but in 1830 sold the unproductive stock to the New Castle and Frenchtown Railroad Company. Thereafter the state sanctioned actions detrimental to the company fortunes. John Randel, Jr., was awarded \$226,385.84 by a Delaware court in his lawsuit against the company, and the legislature upheld Randel's unorthodox course of action to enforce payment of his claim. Less than ten years later, at the instance of the railroad company in Delaware, the state passed laws prejudicial to the canal company, forbidding it to charge tolls on passengers.

Many private subscribers refused to make payments on their subscriptions. They were unwilling to throw their money away on the lower route, selected as many believed through the "mean jealousy" of Philadelphia. Delawareans often preferred to forfeit their stock, with the amounts already paid upon it, rather than support what they considered a hopeless cause.

It is unlikely that the Chesapeake and Delaware Canal would have been constructed during the nineteenth century if Philadelphia had had easy access to central Pennsylvania. If a river paralleling the Pennsylvania Turnpike of today had existed, Philadelphia's commercial necessity for the Chesapeake and Delaware Canal would have been relieved. The canal was considerably less important to Delaware and Maryland than to Pennsylvania. Had not Philadelphia determined to effect a water communication with the interior of Pennsylvania, it is probable that the canal could have awaited the development of the intracoastal waterway system.

At present, Delaware has little interest in the canal as a carrier of freight. The waterway is of "considerable importance to the ports of Baltimore, Philadelphia, and New York," but only in a "lesser degree"

to Wilmington.³ As reported by Delaware's congressmen in 1954, the state's chief interest in the canal is centered upon "the bridges across the canal, the protection of the ground water supply in the vicinity of the canal-- and reduction of the shipping hazards in the canal."⁴

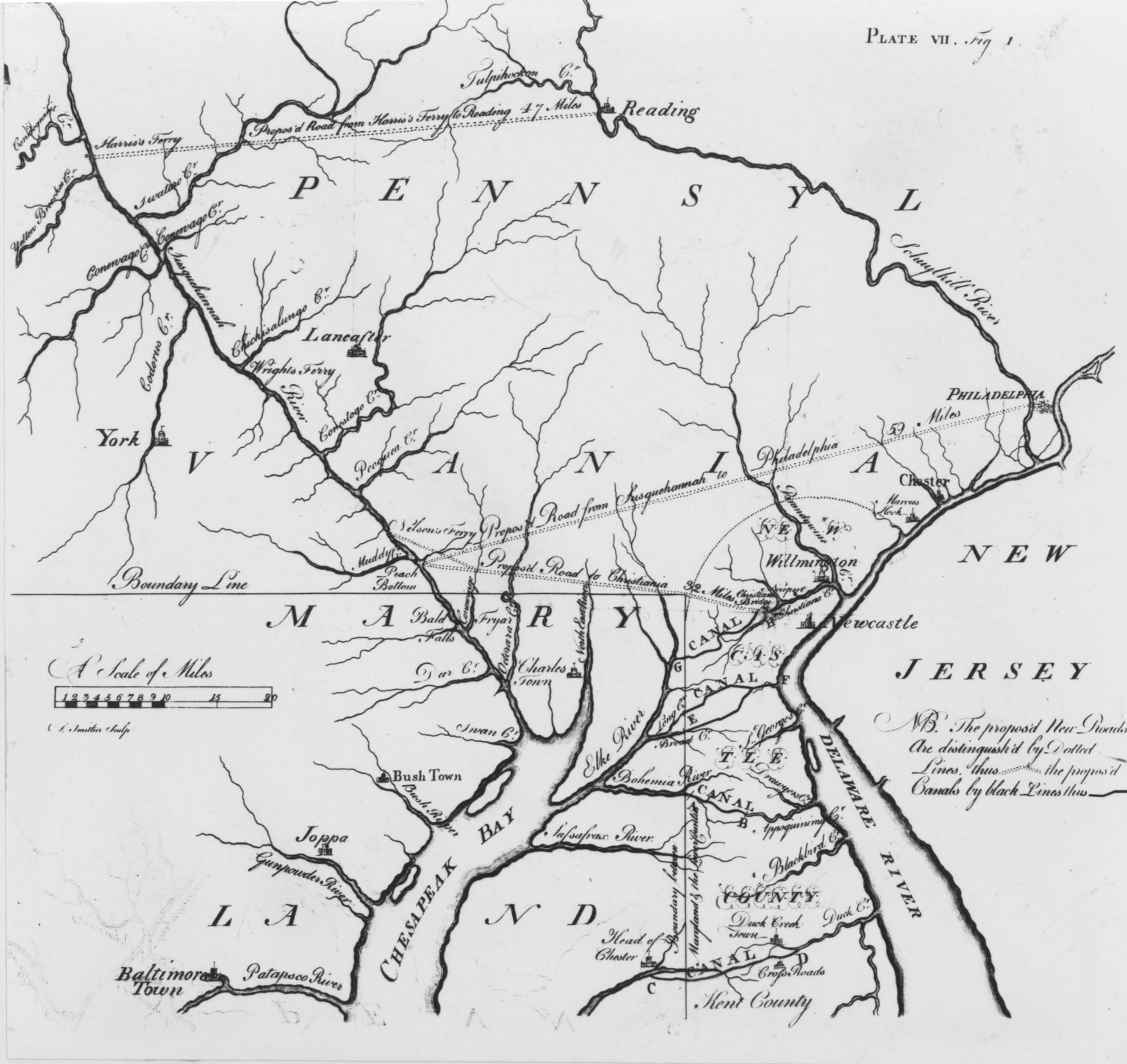
Two hundred years after a canal between the two bays was dreamed of, and sixty years after the first surveys of the route were made, the Chesapeake and Delaware Canal was completed. A definite need for the canal had existed since at least 1697, when Dr. Benjamin Bullivant described the movement of goods--even ships--across the narrow neck of the Delaware peninsula:

about 8 myles below n^{ew} Castle is a Creeke, by wch you may come to a neck of Land 12 myles over Crosse wch are drawn goods to & from Mary Land & Sloopes also of 30 tunns are carryed over land in this place on certaine sleds drawn by Oxen, & launched again into the water on ye other Side.⁵

That need increased with each passing decade as the population and the commerce of the country increased. A series of misfortunes prevented the canal company from being a financial success, but the continuing importance of the canal to America's commercial life cannot be doubted. The fondest dreams of the first canal sponsors at length were realized, but the potential usefulness of the canal is yet to be attained.

ILLUSTRATIONS

Proposed Canal Routes, 1770, from Transactions of the American Philosophical Society, I (1771), facing 293. Courtesy of the American Philosophical Society.



R E M A R K S.

THE common rates of land-carriage for a loaded waggon is nearly about 12d. per mile; a load is on good roads 14 barrels, or 3000 weight, on middling, 12 barrels, or 2500 weight, on bad, less. This is allowed for 4 horses double, or 5 single, to travel with on a journey, short carriages may take more.

From Philadelphia to Lancaster is		62 miles,	worth,	£.	3	2	0
If the roads are made good, 14 barrels may be carried at these rates, or 3000 weight.	Ferriage over Schuylkill,		-	-	0	5	0
	To Wright's,		12	-	0	12	0
	To York,		13	-	0	13	0
			87	-	-	-	-
To Hanover,		18	-	-	4	12	0
			-	-	0	18	0
			-	-	£.	5	10 0

The freights from Philadelphia to Christiana Bridge and Newport, is 6d. per barrel, which, for the above load is equal to 7 miles land carriage, at which rate it may be fixt as it can be, and is done at that rate.

Therefore, from Philadelphia to Christiana,		7 miles.	£.	0	7	0
to Susquehanna,		32	-	1	12	0
to York,		30	-	1	10	0
		69	-	-	-	-
Philadelphia to York-town,			-	3	9	0
			-	0	10	0
			-	£.	3	19 0

Hanover is in the part of the country where the trade is most in danger, and the carriage of goods or produce from that part, can be brought to this city for 79s. which is less than by way of Lancaster, 31s. per load of 14 barrels, or 3000 weight, and as the Susquehanna river will accommodate all the western and northern inhabitants of this province, and enable them to make use of the same channel.---This seems to be the most natural and most immediately worthy of notice with respect to preserving the trade, for even the town of Lancaster and all the mills around, do find their advantage in making use of this way to convey their heavy goods from thence to Philadelphia, which will appear by the following estimate on the expence of carriage. viz.

From Lancaster to Philadelphia,	62 miles,	-	-	-	-	£.	3	2	0
From Lancaster to Newport,	42	-	-	-	-	-	2	2	0
For the same load from Newport to Philadelphia,	equal to 7 miles,	-	-	-	-	-	0	7	0
by way of Christiana,		-	-	-	-	-	2	9	0
Saved per load of 3000wt. or 14 barrels,		-	-	-	-	-	0	13	0
To Ferrage over Schuylkill,		-	-	-	-	-	0	5	0
In favour of coming by way of Christiana,		-	-	-	-	£.	0	18	0

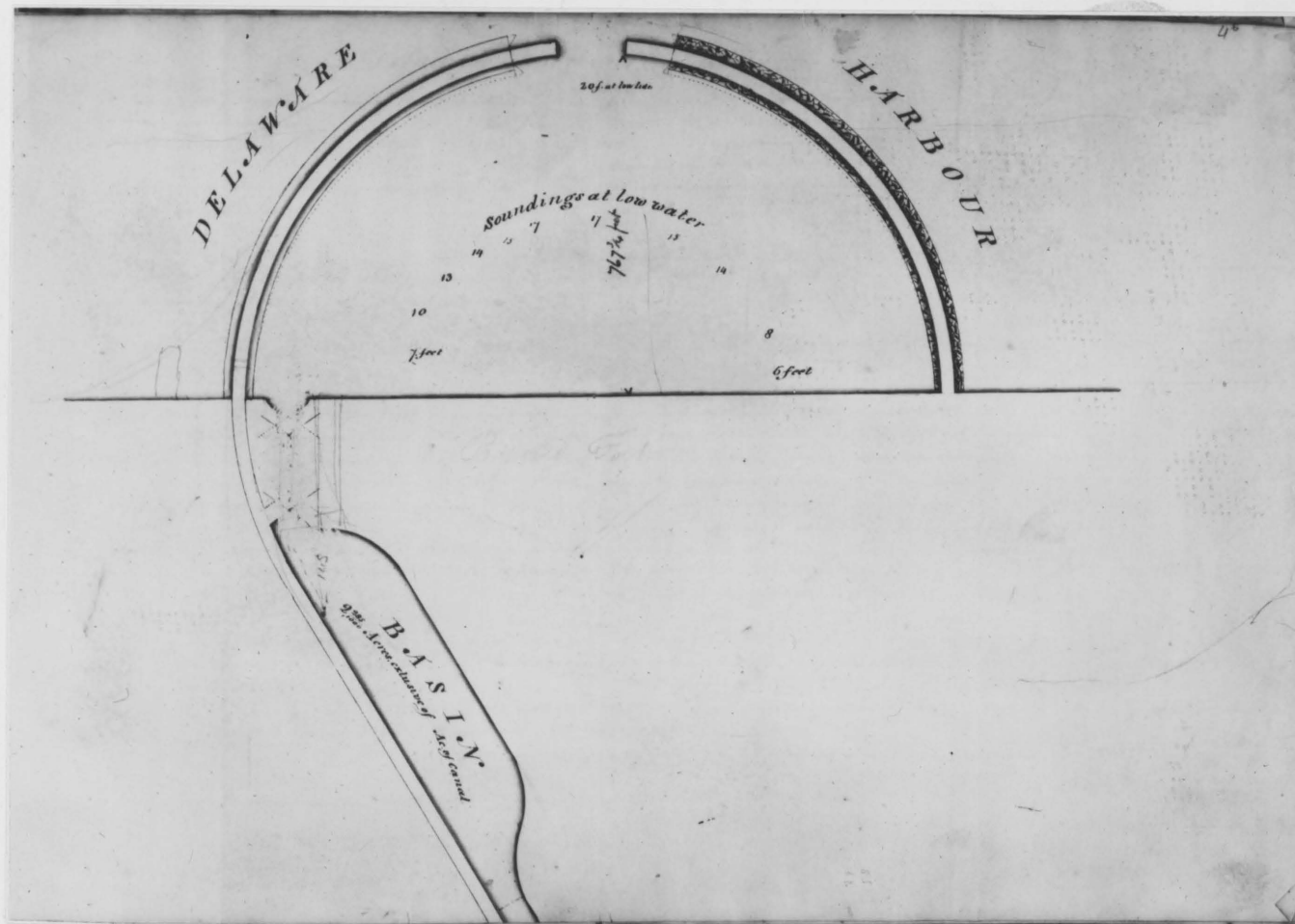
This is so considerable, that no turnpike can turn the carriage from this natural channel, ~~the road will bear improvement that way equal to any other.~~

If a canal or intire water communication can be accomplished, it will greatly exceed any other, as the proportionable deduction is found on experiments, even from the best land carriage, is near 4-5ths, but say 3-4ths saved, it would sooner pay the expence of improving, with the interest, than any other.

The red line is nearly where a channel may be had, and perhaps by the necessary meanders, may be 100 miles, which may be done for about 40s. per rod on an average, which is three times what some part may cost, this is £. 64,000. But as the making a canal will require considerable time, and the present cause calls for immediate relief.

Perhaps it may be thought best to make use of the natural channel already done for about 45 miles on the direct way, and only add to that natural advantage (Christiana,) the expence of a good road which will ever be useful, and a free Ferry over Susquehanna, which will so lessen the expence of carriage from the parts in danger, as to leave but nine shillings per waggon load in favour of going to Baltimore, which the superiority of Philadelphia market will greatly over-balance. As to the thoughts of a turnpike road from York by Lancaster was it ever so good; the distance to go all the way by land is so great, that the odds cannot be less than 32s. between going to Baltimore or Philadelphia market, therefore there seems but little hopes of a remedy except by taking the advantage of what nature has done, which will reduce the odds to about nine shillings; and the very inhabitants of Lancaster now save 18s. in every waggon load of produce, by making use of this natural conveyance to this market.

Philadelphia, January 20, 1772.



Sketch of Proposed Delaware Harbor, 1823, by William Strickland from Strickland's Field Book, Chesapeake and Delaware Canal Company Papers (Historical Society of Delaware).

Topographical View of the Canal, 1824, from Fifth General Report of the Chesapeake and Delaware Canal Company.

TOPOGRAPHICAL VIEW.

The map illustrates the Delaware River and its tributaries, including the Elk River, Back Creek, Broad Creek, and St. Georges Creek. Key locations and features marked include:

- Settlements and Landmarks:** Fort Delaware, Newbold's Landing, Harbour, Newbold, A. Newbold, W. Guier, A. Dickl, St. Georges Creek, St. Georges Mill Pond, St. Georges Cr., Secors Run, Back Cr., North Point, L. Newbold, Dragon Marsh, Illhagins, Road, Cox's Neck, A. Higgins, Canal, S. Georges, To Red Lion, To Red Lion, Raccoon Run, B. Bouldin, Chrystal Run, Ivy Run, Lum's Mill, Canal, Buck Run, S. Bouldin, Road, Turners Mill, Mill Pond, Beacons Wharf, Freeman's Mill, Mill Pond, Ford's Landing, Long Creek, Back Creek, Broad Creek, Sand Point, Court House Point, Welch Point, Elk River.
- Infrastructure:** Roads, Canals, and various bridges.

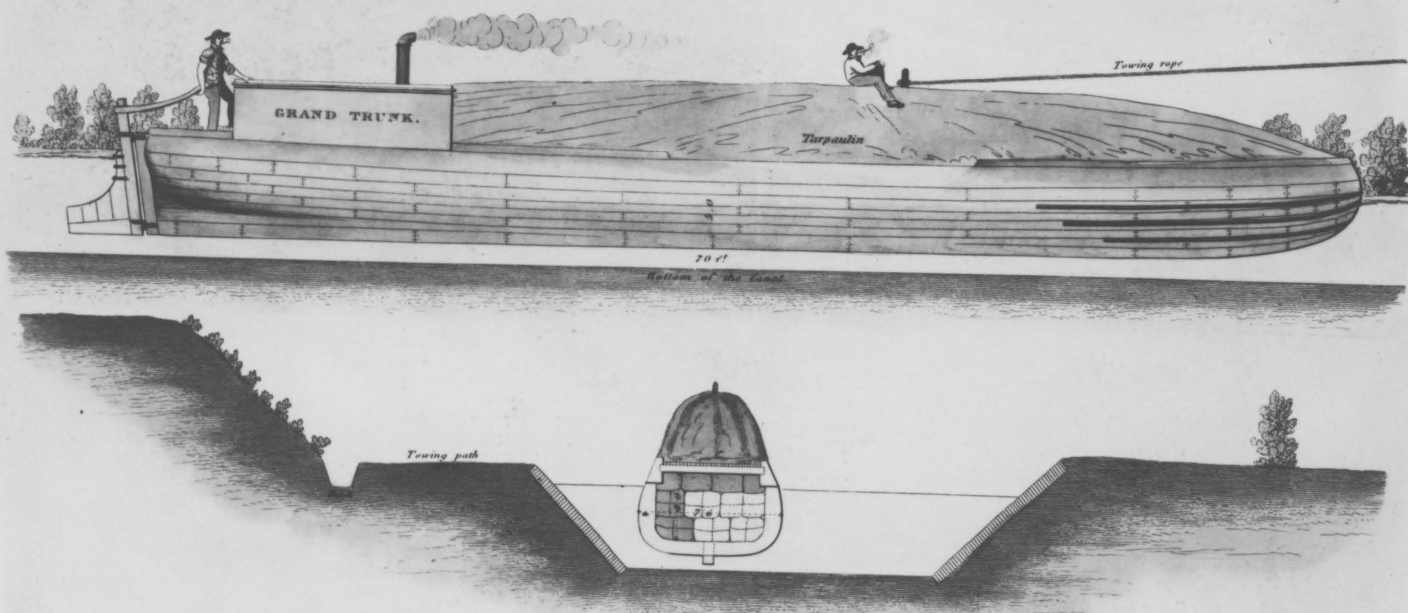
A horizontal number line is shown with tick marks at intervals of $\frac{1}{4}$. The labels $\frac{1}{4}$, $\frac{1}{2}$, 1, 2, 3, 4, and 5 are placed below the line. The segment between 1 and 2 is shaded gray.

Drawn & Engraved by H. S. Tanner

Topographical View of the Canal, 1824, from Fifth General Report of the Chesapeake and Delaware Canal Company.

BOAT USED ON THE GRAND TRUNK, AND BIRMINGHAM CANALS.

Nº 29.



SECTION THROUGH THE CENTRE OF THE BOAT.

Scale 1/16 of an inch to the foot.

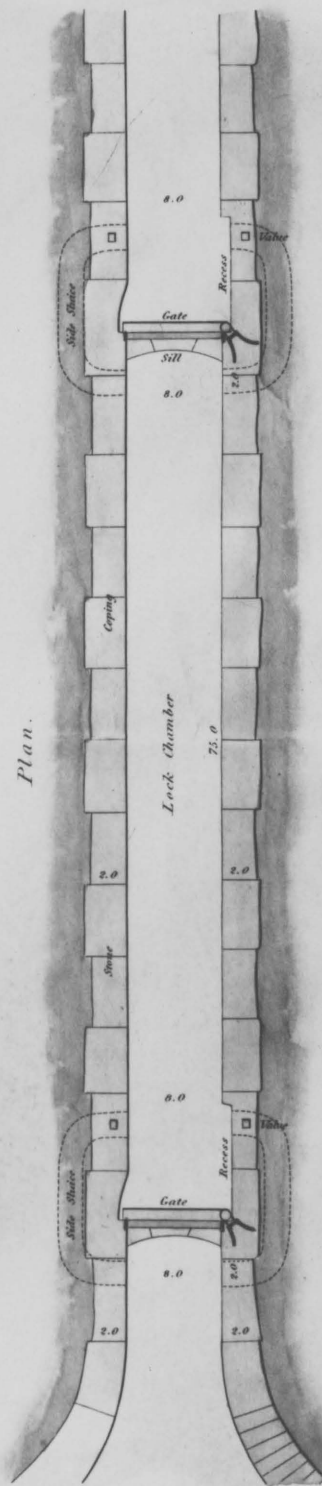
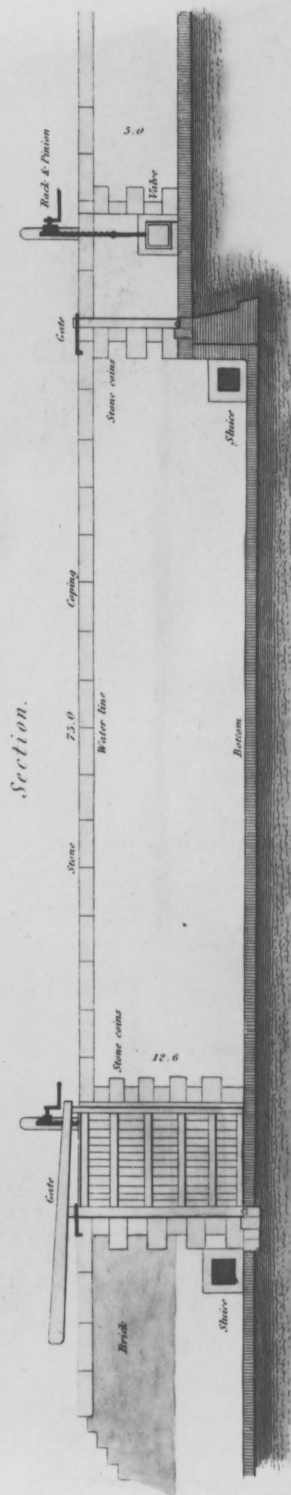
J. Draxton Sc.

Wm. Strickland Eng'r.

English Canal Boat, 1826, from William Strickland, Report on Canals, Railways, and Roads, plate 29.

N^o 15.

BIRMINGHAM & LIVERPOOL CANAL.



Wm. Strickland Arch't & Eng'r.

Drapers St.

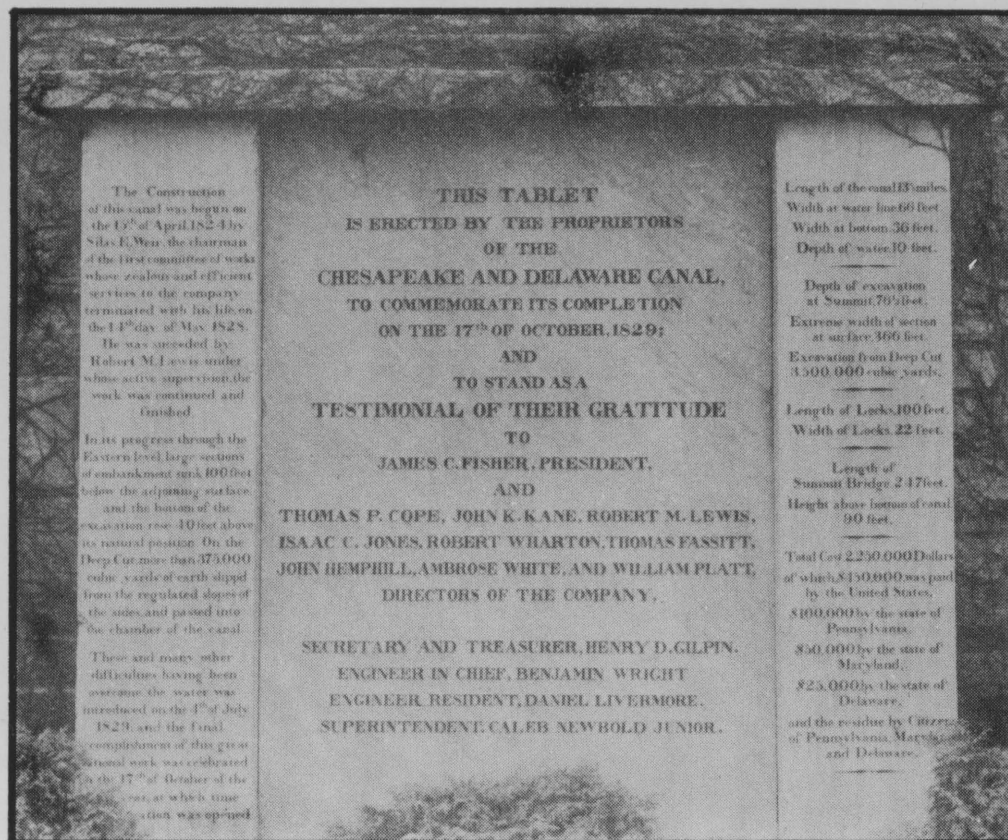
Scale 3/8" = 1' in the cut.

English Canal Lock, 1826, from William Strickland, Reports on Canals, Railways, and Roads, plate 15.



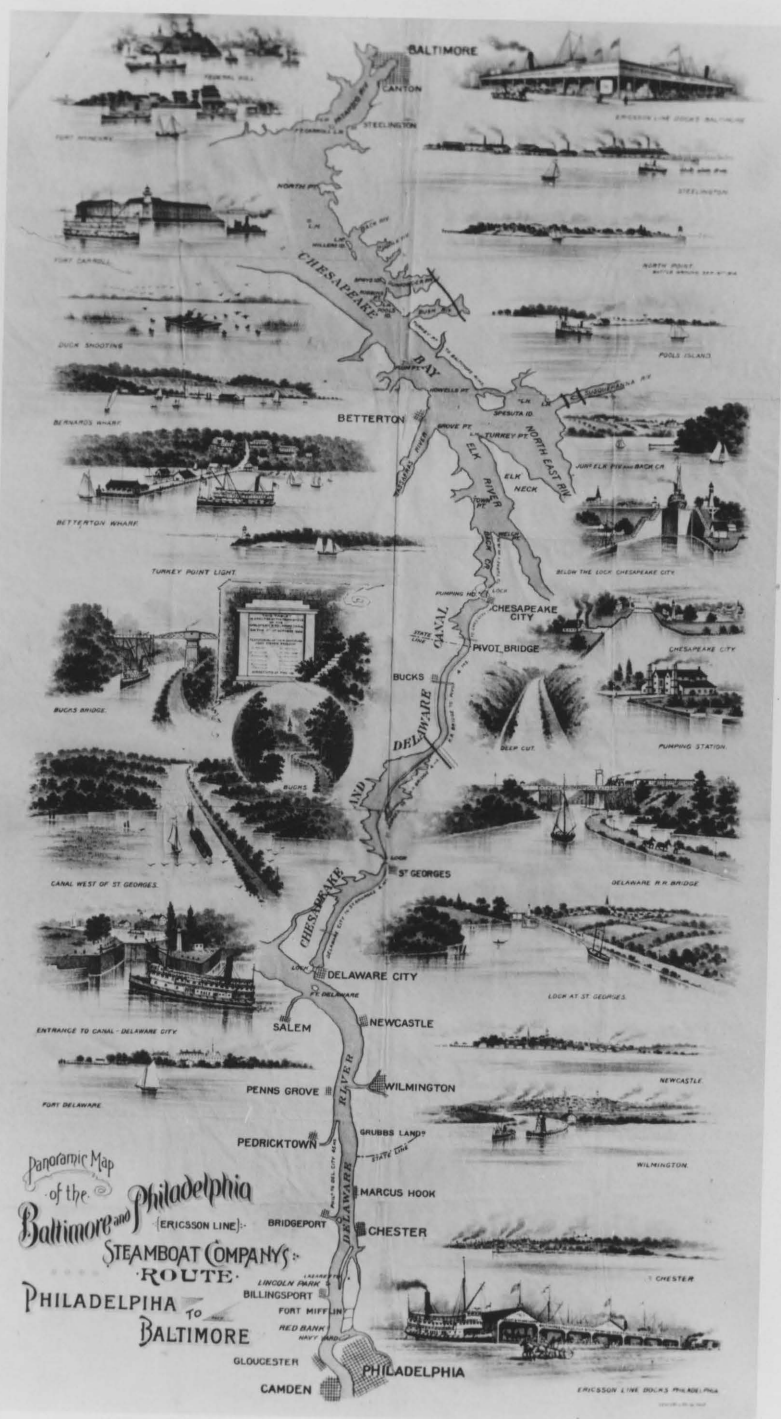
Erie Canal Lock at Lockport from the picture file at the Hagley Museum Library.

Completion Marker, 1836, from Corps of Engineers, United States Army, The Chesapeake and Delaware Canal, Frontispiece.

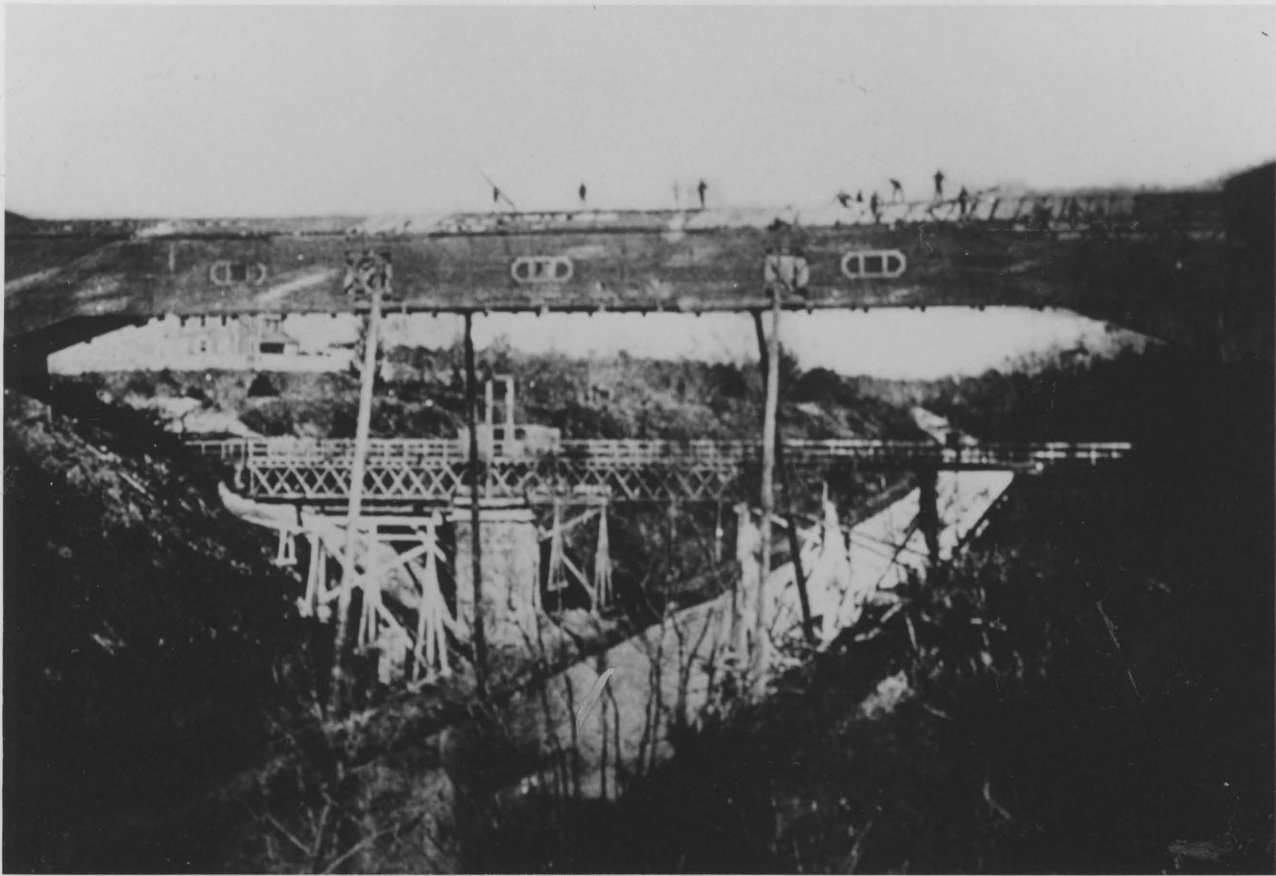


Completion Marker, 1830, from Corps of Engineers, United States Army, The Chesapeake and Delaware Canal, frontispiece.

Panoramic Map, Philadelphia to Baltimore, from the Map Collection (Historical Society of Delaware).



Panoramic Map, Philadelphia to Baltimore, from the Map Collection
(Historical Society of Delaware).



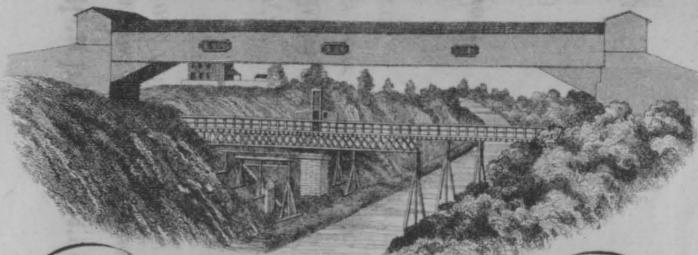
Summit Bridge, c. 1870, Photograph courtesy of Dr. Allan G. Schiek,
Claymont, Delaware.



View of the Canal, c. 1870, from the Corps of Engineers, United States Army, The Chesapeake and Delaware Canal, p. 20.

Canal Stock Certificate from the Chesapeake and Delaware Canal Company Papers (Historical Society of Delaware).

THE CHESAPEAKE & DELAWARE CANAL CO.



Number 176

10 Shares

CAPITAL STOCK

This Certifies that Charles Parker
entitled to Ten Shares of the Capital Stock of
THE CHESAPEAKE & DELAWARE CANAL COMPANY
Transferable only on the Books of the Company in Person or by Attorney on
the surrender of this Certificate. The original Buck Bridge Dup. Cert.
In Witness whereof We have hereunto affixed our Hands
and the Seal of the said Company at Philadelphia 1867
this 14th day of June 1867

Amos W. Lister

Treas.

A. W. Lister

Pres.

T. Sinclair's Lith.

SHARES

\$50 EACH



The Canal Today. Photograph courtesy of Mr. C. B. Brown, Resident Engineer at the Chesapeake and Delaware Canal.

APPENDIX

TABLE I
CANAL COMPANIES CHARTERED, 1783-1800¹

<u>1783-1790</u>										
<u>STATES</u>	1783	1784	1785	1786	1787	1788	1789	1790		
Maryland	1	1	-	-	-	-	-	-		
Virginia	-	-	2	-	1	3	1	-		
N. Carolina	-	-	-	-	-	1	-	2		
S. Carolina	-	-	-	1	2	1	-	-		
<u>1791-1800</u>										
<u>STATES</u>	1791	1792	1793	1794	1795	1796	1797	1798	1799	1800
Maine ²	1	1	-	-	2	1	2	-	-	-
N. Hampshire	-	2	-	-	-	2	-	1	-	-
Vermont	1	1	-	1	1	-	1	-	-	-
Massachusetts	-	3	1	1	-	-	-	-	-	-
Rhode Island	-	-	-	-	-	1	-	-	-	-
Connecticut	-	-	-	-	1	-	-	-	-	1
New York	-	2	-	-	-	-	-	1	-	-
New Jersey	-	-	-	-	1	1	1	-	-	1
Pennsylvania	1	1	2	-	-	-	-	1	-	-
Delaware	-	-	1	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	1	-	-	1	-
Virginia	-	-	1	-	3	1	-	1	-	1
N. Carolina	-	1	-	-	1	5	-	1	-	-
S. Carolina	-	-	-	-	-	-	1	-	1	-
Georgia	-	-	-	-	-	-	-	-	1	-

1. Source: Joseph Stancliffe Davis, Essays in the Earlier History of American Corporations (Cambridge, 1917), II, 118.

2. This refers to charters granted by the Massachusetts legislature in the district of Maine.

TABLE II
SUBSCRIPTIONS IN THE CHESAPEAKE AND DELAWARE CANAL
COMPANY, 1803-1806¹

<u>STATE</u>	<u>SHARES</u>	<u>SUBSCRIBERS</u>	<u>AMOUNT PAID</u> ²	<u>AMOUNT DUE</u>
Pennsylvania	824	429	\$73,400.00	\$ 9,000.00
Delaware	712	247	11,300.00	59,900.00
Maryland	<u>256</u>	<u>54</u>	<u>18,300.00</u>	<u>7,300.00</u>
<u>Total</u>	1792	730	\$103,000.00	\$76,200.00

DELAWARE SUBSCRIPTIONS

<u>LOCATION</u>	<u>SHARES</u>	<u>SUBSCRIBERS</u>
Wilmington	351	166
New Castle	126	14
Cantwell's Bridge	125	35
Pencader Hundred	24	10
Port Penn	35	12
Middletown	30	4
Duck Creek	11	2
Concord	<u>10</u>	<u>4</u>
<u>Total</u>	712	247

1. Source: Joshua Gilpin, Memoir on the Chesapeake and Delaware Canal (Wilmington, 1821), pp. 44-45.
2. Only \$100 per share had been called for by the time of the suspension of work.

TABLE III
CHESAPEAKE AND DELAWARE CANAL COMPANY
FINANCES, 1803-1806

<u>YEAR ENDS</u> <u>JUNE 1</u>	<u>AMOUNT PAID ON</u> <u>SUBSCRIPTIONS</u>	<u>EXPENDITURES</u>	<u>BALANCE</u>
1803-1804	\$24,265.00	\$ 9,510.23	\$14,754.77
1804-1805	81,548.00	76,404.85	19,897.92
1805-1806	--	<u>36,254.19</u>	<u>19,012.97</u> (Deficit)
<u>Total</u>	\$103,156.30 ¹	\$122,169.27	\$19,012.97 (Deficit)

ANALYSIS OF EXPENDITURES

<u>YEAR ENDS</u> <u>JUNE 1</u>	<u>SURVEYS</u>	<u>LAND AND WATER</u> <u>PURCHASES</u>	<u>SECRETARIAL</u> ³	<u>CONSTRUCTION</u>
1803-1804	\$4,097.47	\$ 3,556.56	\$1,128.70	\$ 727.50
1804-1805	569.57	14,520.91	2,854.47	58,461.90
1805-1806	<u>.16</u>	<u>2,251.99</u>	<u>2,212.39</u>	<u>31,787.63</u>
<u>Total</u>	\$4,667.22	\$20,329.46	\$6,195.56	\$90,977.03

1. Source: The first three General Reports of the President and Directors of the Chesapeake and Delaware Canal Company (Philadelphia, 1804-1806).
2. This is the corrected total, counting interest less unredeemable notes.
3. Besides customary items, this includes court and lobbying expenses.

TABLE IV

CHESAPEAKE AND DELAWARE CANAL COMPANY

OFFICERS, 1803-1829¹

<u>YEARS</u>	<u>PRESIDENT</u>	<u>DIRECTORS</u>
1803-1804	Joseph Tatnall, Delaware	Delaware: James A. Bayard, Kensey Johns Maryland: John Adlum, Samuel Chew, George Gale Pennsylvania: James C. Fisher, George Fox, Joshua Gilpin, William Tilghman
1804-1805	Tatnall	Delaware: William Cooch, Johns Maryland: Adlum, Gale, William Hemsley Pennsylvania: Fisher, Fox, Gilpin, George Roberts
1805-1806	Tatnall ²	Delaware: Cooch, Johns Maryland: Hemsley, John Gilpin Pennsylvania: Fisher, Fox, Gilpin, Robert H. Goldsborough, Roberts
1823-1824	James C. Fisher, Pennsylvania	Delaware and Maryland: none Pennsylvania: Paul Beck, Jr., Thomas P. Cope, George Gillespie, Joshua Gilpin, ³ Isaac C. Jones, John K. Kane, Robert M. Lewis, Caleb Newbold, Jr., Silas E. Weir
1824-1825	Fisher	Pennsylvania: Beck, Cope, Gillespie, Jones, Kane, Lewis, Newbold, Weir, Robert Wharton
1825-1826	Fisher	Pennsylvania: Cope, Thomas Fassitt, Gillespie, Jones, Kane, Lewis, Newbold, Weir, Wharton
1826-1827	Fisher	Pennsylvania: Cope, Fassitt, John Hemphill, Jones, Kane, Lewis, Newbold, Weir, Wharton
1827-1828	Fisher	Pennsylvania: Cope, Fassitt, Hemphill, Jones, Kane, Lewis, Newbold, Wharton, Ambrose White
1828-1829	Fisher	Pennsylvania: Cope, Fassitt, Hemphill, Jones, Kane, Lewis, William Platt, Wharton, White

1. Source: General Reports of the President and Directors of the Chesapeake and Delaware Canal Company; Henry Dilworth Gilpin Papers (Historical Society of Delaware); Carey Collection (Library Company of Philadelphia).
2. Between 1806 and 1823, the presidency remained in Delaware. Tatnall died in 1813 and he was succeeded, not immediately, by Kensey Johns of New Castle, Delaware. The office was vacant for a few years.
3. Gilpin resided in Delaware after 1815, but he continued to consider himself a Philadelphian.

TABLE V
TOLLS AND TONNAGE OF THE
CHESAPEAKE AND DELAWARE CANAL, 1830-1850¹

<u>YEAR ENDS</u> <u>JUNE 1</u>	<u>TOLLS RECEIVED</u>	<u>PASSAGES</u>	<u>TOTAL TONNAGE</u>
1830	\$24,658	2,379	61,500
1831	61,223	5,280	153,400
1832	63,075	5,633	154,000
1833	61,160	6,790	160,490
1834	54,092	5,438	105,470
1835	47,511	4,889	91,600
1836	35,572	2,467	114,680
1837	56,482	5,433	100,000
1838	67,495	6,568	131,700
1839	67,518	6,034	120,260
1840	54,113	4,363	112,430
1841	69,415	6,384	125,980
1842	78,008	7,528	139,520
1843	66,018	5,973	127,200
1844	98,014	8,413	188,410
1845	97,559	8,778	195,040
1846	101,208	9,684	291,380
1847	167,510	12,054	341,580
1848	186,285	12,810	338,800
1849	173,030	11,802	351,550
1850	198,364	12,912	361,640

1. Source: J. W. Livingood, The Philadelphia-Baltimore Trade Rivalry (Harrisburg, 1947), p. 98; Chesapeake and Delaware Canal Company Papers (Historical Society of Delaware).

TABLE VI

ANALYSIS OF THE CHESAPEAKE AND DELAWARE
CANAL TRADE, 1830-1850¹
(in thousands)

<u>YEAR ENDS</u> <u>JUNE 1</u>	<u>COAL</u> tons	<u>LUMBER</u> sq. ft.	<u>TIMBER</u> cu. ft.	<u>GRAIN</u> bu.	<u>FLOUR</u> bbls.	<u>GROC.</u> lbs.	<u>DRY GOODS</u> lbs.
1830	-	-	-	-	-	-	-
1831	-	7,119	-	289	101	-	-
1832	-	6,058	-	316	48	-	-
1833	-	11,237	-	299	20	-	-
1834	-	8,594	-	223	13	-	-
1835	-	18,143	-	131	13	-	-
1836	-	9,143	-	60	3	-	-
1837	20	24,424	1,200	40	11	-	-
1838	21	9,189	1,066	468	21	1,412	-
1839	21	13,921	928	416	15	1,094	-
1840	13	11,336	1,454	316	22	624	-
1841	14	9,381	1,012	482	41	6,193	1,022
1842	13	13,128	1,226	463	54	10,904	2,861
1843	11	11,448	773	597	62	9,917	3,541
1844	13	25,926	1,012	889	78	15,456	13,298
1845	18	21,886	1,125	958	62	16,578	15,569
1846	18	25,097	571	1,536	84	19,587	20,037
1847	29	38,617	2,026	1,982	155	25,440	21,322
1848	36	49,374	1,641	1,141	116	28,578	24,489
1849	39	42,548	1,944	1,667	92	27,919	21,521
1850	54	44,795	2,145	1,826	144	32,103	23,645

1. Source: J. W. Livingood, The Philadelphia-Baltimore Trade Rivalry (Harrisburg, 1947), p. 99.

NOTES TO CHAPTERS

NOTES TO CHAPTER I

THE CHESAPEAKE AND DELAWARE CANAL

1. Latrobe to Albert Gallatin, Washington, March 16, 1808, Letters to the Honorable Albert Gallatin, Secretary of the Treasury of the United States: and Other Papers Relative to the Chesapeake and Delaware Canal (Philadelphia, /1808/), p. 46.

2. Corps of Engineers, United States Army, The Intracoastal Waterway. Part I: Atlantic Section (Washington, 1951), p. 1.

3. Chesapeake and Delaware Canal Company, Facts and Observations Respecting the Chesapeak and Delaware Canal and Its Extension Into Pennsylvania /1805/, reprinted in United States Senate, Select Committee on Roads and Canals, Separate Report Concerning the Chesapeake and Delaware Canal (Washington, 1816), p. 26. Joshua Gilpin was the chief drafter of this document, which was widely circulated. It was originally drawn up to accompany memorials of the Chesapeake and Delaware Canal Company to the Pennsylvania General Assembly and to Congress in 1805.

4. Ibid.

5. "The Chesapeake and Delaware Canal," typescript, Chesapeake and Delaware Canal Company Papers (Historical Society of Delaware, Wilmington). Hereafter this collection will be cited C & D Papers (HSD).

6. It is impossible to state which man, or which white man, first became aware of the possibilities and advantages of a canal across the peninsula. The plan was not foreign to the seventeenth century, although it is doubtful that John Smith, as some have claimed, was the originator of it. See the "Memoir of Thomas Gilpin," Pennsylvania Magazine of History and Biography, XLIX (1925), 297. Subsequently this journal will be cited PMHB.

John F. Watson, in Annals of Philadelphia and Pennsylvania, has ascribed to Sir Samuel Argall of England the honor of predicting the canal as early as 1613. Watson also recorded that the 1763 edition of Modern Universal History mentioned a project to join by canal the Delaware River and Bay trade artery and Chesapeake Bay. Opposed by the people of Virginia and Maryland, the project "came to nothing." Annals of Philadelphia and Pennsylvania (Philadelphia, 1857), II, 466.

Johan Rising, last governor of New Sweden, 1654 to 1655, has similarly been credited with proposing a waterway across the peninsula, but the evidence is not conclusive. The "passage" which Rising favored constructing was probably a road, not a canal. See Albert Cook Myers, ed., Narratives of Early Pennsylvania, West New Jersey, and Delaware (New York, 1912), pp. 139-140; and C. A. Weslager, Delaware's Forgotten River: The Story of the Christina (Wilmington, 1947), p. 127.

Augustine Herman, Lord Baltimore's surveyor and proprietor of Bohemia Manor, was one of the first men to make explicit his views concerning a Chesapeake and Delaware canal. In 1661, writing to Vice-Director Beekman, an official of the Dutch settlements on the Delaware, Herman predicted the waterway: "The Minguaskil and the aforesaid Bohemia River run there within a league from each other, from where we shall in time have communication with each other by water, which may serve as encouragement to the inhabitants of New-Netherland." Federal Writers' Project, Delaware: A Guide to the First State (rev. ed., New York, 1955), pp. 335-336. Herman's dream of a canal went unfulfilled until 1829, but an alternative transportation route--a cart road--was opened at the instigation of Herman between his manor and New Castle, Delaware, in 1661.

7. Bartlett Burlaigh James and J. Franklin Jameson, eds., Journal of Jasper Danckaerts, 1679-1680 (New York, 1913), p. 128.

NOTES TO CHAPTER II

FIRST SURVEYS

1. "Extracts from the Letter-Books of Lieutenant Enos Reeves . . . ,"
PMHB, XXI (1896), 240.
2. Carl and Jessica Bridenbaugh, Rebels and Gentlemen: Philadelphia in the Age of Franklin (New York, 1942), pp. 346-347; "Memoir of Thomas Gilpin," PMHB, p. 298.
3. James Weston Livingood, The Philadelphia-Baltimore Trade Rivalry, 1780-1860 (Harrisburg, 1947), p. 16.
4. Bridenbaugh, Rebels and Gentlemen, p. 347.
5. Joshua Gilpin, A Memoir on the Rise, Progress, and Present State of the Chesapeake and Delaware Canal, Accompanied with Original Documents and Maps (Wilmington, 1821), p. 3; Henry Simpson, The Lives of Eminent Philadelphians, Now Deceased (Philadelphia, 1859), p. 393.
6. Minutes of the American Philosophical Society, held at Philadelphia for Promoting Useful Knowledge (United Society) First Minutes from Jan 2, 1769 to Dec 30 1774 (MS in American Philosophical Society Library, Philadelphia, Pennsylvania).
7. Ibid., April 21, 1769.
8. Ibid.
9. The American Philosophical Society appointed John Lukens, John Sellers, Matthew Clarkson, Thomas Gilpin, and Marylander William Rumsey. The merchants named Joseph Ellicott, Richard Sittiforth, William Killen, and John Stapler. Ibid., May 3, 1769, May 19, 1769; "An Abstract of sundry Papers and Proposals for Improving the Inland Navigation of Pennsylvania and Maryland, by opening a Communication between the Tide-Waters of Delaware and Susquehannah, or Chesopeak-Bay; with a Scheme for an easy and short Land-Communication between the waters of Susquehannah and Christiana-Creek, a Branch of Delaware; to which are annexed some Estimates of Expence, &c.," Transactions of the American Philosophical Society, I (1771), 293.
10. Gilpin, Memoir on Canal, p. 4.
11. "An Abstract of sundry Papers," p. 294.
12. Gilpin, Memoir on Canal, Appendix, pp. 1-6.
13. Ibid., Appendix, pp. 1-2; "An Abstract of sundry Papers," pp. 294-295. Gilpin's itemized estimate of expenses on the lesser canal listed £7,550 for excavation, dams, bridges, terminals and warehouses. Housing and equipment expenses for the men included a £100 liquor entry.

14. "An Abstract of sundry Papers," p. 295. The italics are supplied.
15. Minutes of the American Philosophical Society, June 30, 1769.
16. "An Abstract of sundry Papers," p. 295.
17. Minutes of the American Philosophical Society, December 15, 1769.
18. "An Abstract of sundry Papers," p. 296.
19. Gilpin, Memoir on Canal, p. 4.
20. "An Abstract of sundry Papers," p. 298.
21. Ibid.

22. Altogether there were surveys of five possible routes made, with two sets of plans and estimates for each one. On a series of water color maps, Gilpin plotted each route, giving the number and types of locks and the estimated expense, which ranged from £8,050 to £70,000. The maps reveal Gilpin had considerable ability as an engineer and insight into the basic problems of inland transportation. Bridenbaugh, Rebels and Gentlemen, p. 348. These maps are printed in the appendix of Gilpin's Memoir on the Chesapeake and Delaware Canal.

Corresponding with Benjamin Franklin in London, Gilpin reported on the activities of the surveying committee. Franklin answered that the letter contained "some good Remarks on the Advantages of Canals for internal Navigation in our Country, which I heartily wish Success: what you tell me of the Practicability of Navigating down the Susquehanna pleases me extremely as hitherto I had understood it to be impossible." March 18, 1770, Gilpin Letter Book (MS in Alderman Library, University of Virginia, Charlottesville).

23. In March, 1770, having surveyed and reported on various means to enable the large and increasing number of frontier settlers to bring their produce to market--in Philadelphia--cheaply and easily, a committee was appointed to collect all the survey papers and draft a report. Samuel Rhoads, John Lukens, Matthew Clarkson, Thomas Gilpin, and Thomas Fisher, who drew the map showing all the proposed canals and roads, were appointed with four others to abridge the papers for publication by the society. The total cost of the surveys had amounted to £128.11s.5d. The remainder of the subscription fund was to defray the expense of this publication, the merchants willing. Minutes of the American Philosophical Society, March 2, March 16, May 4, May 18, 1770.

The abridgement, "An Abstract of sundry Papers," appeared in the Transactions of American Philosophical Society, I (1771), beginning on page 293. The map preceded the article in this edition. See Plate II, p. 152, for a reproduction of this map, described in the minutes as "a map of part of Pennsylvania & Maryland, intended to show, at one view, the several places proposed for opening a Communication between the waters of Delaware & Chesapeak Bays which the Society request may be kept among their Papers for such future Use as they may appoint. In this map is also delineated the different Roads proposed to be opened for Land Carriage

from Susquehannah." Quoted in St. George L. Sioussat, "Dr. William Smith, David Rittenhouse, and the Canal Plate, September 7, 1777," American Philosophical Society, Proceedings, XCV (1951), 225.

During the Revolution, it was believed that the canal plate, still in the possession of the printer, "as it is the theatre of War at present, had been made Use of by Mr. Brooks without the Knowledge of the Society, & in a Way that may give offense." See ibid., pp. 223-231.

A similar map, prepared by Thomas Gilpin and labeled by him, "A Map drawn for the American Philosophical Society shewing the courses of the several canals proposed to be formed between the Chesapeake and Delaware, and the roads from the Susquehannah to Philadelphia and Christiana Bridge with the plan of a canal from the Susquehannah to the Schuylkill: The whole intended to elucidate and explain the surveys made by the Committee of the Society in the years 1769 and 1770," was printed in Bridenbaugh, Rebels and Gentlemen, facing p. 343, over the title, "The Genesis of Internal Improvements."

24. Dugald C. Jackson, "Engineering in Our Early History: The American Philosophical Society and Engineering from 1768 to 1870," American Philosophical Society, Proceedings, LXXXVI (1942), 49.

25. Quoted in Caroline E. MacGill, et al., History of Transportation in the United States Before 1860 (Washington, 1917), p. 212.

26. Ibid.

27. "To the Merchants and Other Inhabitants of Pennsylvania," December 13, 1771. A copy of this broadside is in the Library Company of Philadelphia, Pennsylvania.

28. "To the Public," January 15, 1772. A copy of this broadside is in the Library Company of Philadelphia.

29. Gilpin, Memoir on Canal, Appendix, pp. 12-14. The Christiana Bridge route was but nine shillings more expensive than the route to Baltimore, according to Gilpin, "which the superiority of the Philadelphia market will greatly overbalance." On the other hand, "as to the idea of a turnpike road from York by Lancaster, was it ever so good, the distance to go all the way by land is so great, that the difference can not be less than 32s. in favor of the Baltimore over the Philadelphia market." Ibid., p. 14. See Plate III, p. 153, for a copy of the broadside issued by Thomas Gilpin in 1772 with these calculations.

30. Ibid., p. 11.

31. Ibid., pp. 11-12. The comments were written under the heading, "Some Brief Observations offered to the intended meeting, to consider of the best mode of saving the trade of this province, which is going from its metropolis to Baltimore."

32. Quoted in Bridenbaugh, Rebels and Gentlemen, pp. 348-349.

NOTES TO CHAPTER III

POST-REVOLUTIONARY AGITATION

1. To James Madison, Mount Vernon, November 30, 1785, The Writings of George Washington from the Original Manuscript Sources, 1745-1799, ed. John C. Fitzpatrick (Washington, 1938) XXVIII, 337.
2. United States Senate, "Report of the Committee on Roads and Canals," February 6, 1816, in American State Papers: Documents, Legislative and Executive (Washington, 1834), ed. Walter Lowrie and Walter S. Franklin, XXI, 286.
3. Joseph Stancliffe Davis, Essays in the Earlier History of American Corporations (Cambridge, 1917), II, 116-117.
4. Ibid., p. 26. See Table I, p. 151, for the year and incorporating state of various inland navigation companies.
5. Letter Book of the Secretary of the Executive Council, November 26, 1785 (MS in Pennsylvania Historical and Museum Commission, Division of Public Records, Harrisburg, Pennsylvania). Subsequently this letter book will be cited L.B. (PHMC).
6. Ibid. An unofficial source indicates that a committee met in Wilmington in July, 1783, to discuss plans for a canal between the Bohemia and "Apoquinimy" rivers. Representatives from all those states concerned attended the meeting. A map, an "Elevation of the ground between the Tide-Waters in Bohemia and Apoquinimy Rivers," and a detailed engineering report, in French, by a Frenchman named only as "Henry," dated July 25, 1792, is in the Canal Papers (Historical Society of Delaware, Wilmington). This repository will subsequently be cited as HSD.
7. May 25, 1786, Fitzpatrick, The Writings of George Washington, XXVI, 439-440.
8. January 16, 1786, Chesapeake and Delaware Canal Papers (MSS in Delaware State Archives, Dover). This repository will subsequently be referred to as DSA.
9. Ibid., June 16, 1786. Robert Armstrong, Gunning Bedford, John Jones, Eleazer McComb, and William Killen were the commissioners.
10. John Fiske, The Critical Period of American History, 1783-1789 (Boston, 1888), p. 216.
11. Quoted in Davis, Corporations, II, 136.
12. "Observations on the advantages of the proposed canal from the Chesapeake to the Delaware," American Museum, XI (January, 1792), 30.

13. Ibid.

14. Peter C. Welsh, "Merchants, Millers, and Ocean Ships: The Components of an Early American Industrial Town," Delaware History, VII (September, 1957), 328.

15. "Observations on the proposed canal," pp. 31-32.

16. Reflections on the Proposition to Communicate by a Navigable Canal the Waters of the Chesapeake with those of Delaware Bay, addressed to the Citizens of Maryland (Annapolis, 1797), quoted in Livingood, Trade Rivalry, pp. 84-85.

17. To Governor Thomas Mifflin, New Castle County, November 22, 1791, Chesapeake and Delaware Canal Papers (PHMC).

18. Livingood, Trade Rivalry, pp. 41-42.

19. In January, 1793, Governor Thomas Mifflin expressed delight in the prospect of an effectual improvement in the navigation of the Susquehanna and a Chesapeake and Delaware canal, communicated to him informally by a Maryland citizen. But, he added, "I should be happy to receive some authoritative overture, from the States of Maryland and Delaware, on the subject, for which, indeed, no period could be more favorable than the present." To Nathaniel Ramsey, Philadelphia, January 31, 1793, L.B. (PHMC).

20. An undated, unaddressed copy of the letter inviting Delaware citizens to participate in the meeting to be held in Wilmington on the third Monday in June is in the William Irvine Papers, XI, 90 (MSS in the Historical Society of Pennsylvania, Philadelphia). Subsequently this repository will be cited HSP.

A reply to the letter, accepting the invitation, was written by Richard Bassett, James Tilton, Nicholas Ridgely, and Andrew Barrett to William Irvine on May 16, 1793. Ibid., XI, 100.

21. Ibid., p. 72.

22. The Pennsylvania committee of correspondence members were General William Irvine, General William Stewart, Levi Hollingsworth, Tench Coxe, Dr. William Smith, Miers Fisher, and Azariah Horton; the Maryland members were Nathaniel Ramsey, Samuel Hughes, John O. Donald, George Gale, and Henry Hollingsworth; the Delaware members were Dr. Nicholas Way, Dr. James Tilton, Dr. Nicholas Ridgeley, Joseph Miller, William H. Wells, and William Perry. June 18, 1793, Chesapeake and Delaware Canal Papers (PHMC).

23. New York Magazine, IV (September, 1792) 575, quoted in Davis, Corporations, II, 137.

NOTES TO CHAPTER IV

LEGISLATIVE BATTLES

1. Legislative Petitions, Transportation (DSA).
2. Loc. cit., Legislative Petitions, Miscellaneous, January, 1800.
3. Elkton, December 10, 1799, Chesapeake and Delaware Canal Papers (PHMC).
4. Joshua Gilpin to Paul Beck, Jr., Kentmere, September 24, 1821, Correspondence on Internal Improvements, Carey Collection (Library Company of Philadelphia). Hereafter this repository will be cited LCP.
5. February 2, 1796, Chesapeake and Delaware Canal Papers (DSA).
6. Journal of the House of Representatives of the State of Delaware (New Castle, 1800), p. 13.
7. Legislative Petitions, Transportation, January, 1800 (DSA). Among the petitioners were several Brandywine millers and other New Castle County residents. Such men as Samuel Canby, James Lea, William Poole, John Vaughan, Eli Mendenhall, James, Thomas and William Robinson, Christopher and John Hollingsworth, John Warner, Jacob Broom, Edward and Vincent Gilpin, Peter Bauduy, and Hezekiah Niles signed the petition.
8. Ridgely and Emerson's resolution read as follows: "Whereas the cutting a canal from the Delaware Bay to the Chesapeake, will be detrimental as well to the agricultural as to the commercial interest of this State; and will in an especial manner affect the carrying trade of the State, and thereby injure the property of individuals, and diminish the wealth of the State; therefore, Resolved, that this Committee will not agree to the cutting the said canal." Delaware House Journal, 1800, p. 28.
9. Ibid., p. 67.
10. Journal of the Senate of the State of Delaware (New Castle, 1800), p. 43.
11. Delaware House Journal, 1800, pp. 67-69.
12. Ibid., pp. 74-76.
13. John A. Munroe, Federalist Delaware, 1775-1815 (New Brunswick, 1954), p. 244.
14. Delaware House Journal, 1801, pp. 14-15.
15. Quoted in Munroe, Federalist Delaware, p. 244.

16. Delaware House Journal, 1801, pp. 36-38.
17. Quoted in Munroe, Federalist Delaware, p. 244.
18. Pennsylvania Archives. Ninth Series (Harrisburg, 1931), III, 1707.
19. Delaware House Journal, 1801, pp. 62-64.
20. Ibid., pp. 64-68.
21. See Laws of the State of Delaware, III (Wilmington, 1816), 170-188. As it happened, the questions over the payments to the state proved academic. Great dissatisfaction with the Delaware stipulations in regards to the company finances was expressed. In 1802, the canal bill was amended to permit a lowering of the tolls by one-fourth without legislative permission. Nine years later, the sections of the charter reserving a percentage of the tolls to the state, and the 1802 amendment, were repealed. It was believed that these requirements would have prevented the company "from raising funds adequate to the purpose of accomplishing the great design." Ibid., 246-249; IV, 348-349.
22. Ibid., III, 187-188. As a result of the former conditions, a total of 1,656 land records were transferred to Delaware by 1808. Richard S. Rodney to Henry C. Conrad, Wilmington, February 21, 1928, C & D Papers (HSD). In 1946, an additional sixty-eight newly discovered documents relating to Delaware were given to the state under the terms of the 1801 law. Wilmington Morning News (Delaware), February 21, 1946.
23. "Report of the Commissioners appointed to confer with the Legislature relative to the projected canal," Philadelphia, February 3, 1801, Chesapeake and Delaware Canal Papers (PHMC).
24. Samuel White, the agent appointed by the Governor of Delaware to procure the Delaware land records, reported that the land office "has been freely opened to him, and leave granted to procure the papers . . . or transcripts thereof . . . , and that he has received every liberal aid from the officers of the State of Pennsylvania." Laws of Delaware, III, 247.
25. Delaware House Journal, 1802, p. 9.
26. McKean to Governor James Sykes, Lancaster, January 27, 1802, L.B. (PHMC).
27. Governor's Register, State of Delaware, Appointments and Other Transactions by Executives of the State from 1674 to 1851 (Wilmington, 1926), p. 41.

NOTES TO CHAPTER V

ORGANIZATION AND PREPARATION

1. To Paul Beck, Jr., Kentmere, September 10, 1821, Carey Collection (LCP).
2. Laws of Delaware, III, 171.
3. Pennsylvania Archives. Ninth Series, III, 1903-1904. Cf. James Bach McMaster, History of the People of the United States, from the Revolution to the Civil War (New York, 1895), III, 471.
4. Federal Gazette & Baltimore Daily Advertiser. The paid notice had been inserted by the Maryland subscription committee: Tobias Rudolph, William Alexander, Richard Tilghman, IV, James Earle, Jr., and others.
5. Mirror of the Times & General Advertiser (Wilmington, Delaware), June 8, 1803. The other officers were James A. Bayard of Delaware, John Adlum of Maryland, and George Fox, William Tilghman, and James C. Fisher of Pennsylvania. Some secondary sources indicate that William Tilghman, Chief Justice of the Supreme Court of Pennsylvania, was the first president of the canal company. This is erroneous, arising perhaps from the fact that Tilghman was the chairman of the organizational meeting.
6. June 6, 1803, Committee of Survey Minutes, C & D Papers (HSD).
7. McKean to the governors of Delaware and Maryland, July 8, 1803, Pennsylvania Archives. Ninth Series, III, 1951.
8. Governor Robert Bowie to Governor McKean, Annapolis, July 28, 1803, Maryland Council Letter Book, 1796-1818 (Hall of Records, Annapolis, Maryland).
9. Gilpin, Memoir on Canal, p. 10.
10. October 18, 1803, quoted in Talbot Hamlin, Benjamin Henry Latrobe (New York, 1955), p. 203.
11. Quoted in ibid., p. 205.
12. Ibid., p. 209.
13. Ibid., pp. 209-210.
14. September 19, 1803, Committee of Survey Minutes, C & D Papers (HSD).
15. Ibid., April 7, 1804.

NOTES TO CHAPTER VI

FIXING THE LOCATION

1. Gilpin, Memoir on Canal, p. 20.
2. Committee of Survey Minutes, C & D Papers (HSD).
3. Ibid., July 9, 1803.
4. Gilpin, Memoir on Canal, p. 8.
5. Ibid., p. 4.
6. Gilpin to Paul Beck, Jr., Kentmere, September 10, 1821, Carey Collection (LCP).
7. Delaware Gazette (Wilmington), January 26, 1793.
8. "Wilmington, Delaware and Its Vicinity," Niles' Weekly Register, IX (1815-1816), 95-96.
9. Gilpin, Memoir on Canal, p. 8.
10. Ibid., p. 9.
11. Latrobe to John Lenthall, New Castle, November 1, 1803, Latrobe Papers (HSD, typescript copies of the originals in the Library of Congress).
12. Mirror of the Times, February 1, 1804. These articles were reprinted from the Aurora.
13. Ibid. Joshua Gilpin confirmed Duane's judgment when he wrote in 1821 that the board was "perfectly unanimous in the course from the Chesapeake to the Bear--a diverging point whence it might go either to New Castle, or Christiana." Any consideration of a lower route, he added, "was put out of the question by many important circumstances." To Paul Beck, Jr., Kentmere, September 10, 1821, Carey Collection (LCP).
14. Mirror of the Times, February 1, 1804.
15. Ibid.
16. Gilpin, Memoir on Canal, pp. 28-29.
17. Mirror of the Times, February 1, 1804.
18. Ibid.
19. Ibid., February 8, 1804.

20. Ibid.
21. Ibid., February 15, 1804.
22. Ibid., March 31, 1804.
23. Gilpin, Memoir on Canal, p. 21.
24. Ibid., pp. 22-23.
25. Ibid., p. 20.
26. Gilpin to Paul Beck, Jr., Kentmere, September 10, 1821, Carey Collection (LCP).
27. According to engineer Benjamin H. Latrobe, the three Maryland directors and Kensey Johns favored the New Castle terminal. Tatnall, Bayard, and the four Pennsylvania directors favored Wilmington.

NOTES TO CHAPTER VII

ABORTIVE CONSTRUCTION EFFORTS

1. Memorial of the directors of the Chesapeake and Delaware Canal Company (Washington, 1817), p. 2.
2. One man in each state's representation was unseated. William Cooch, of New Castle County, Delaware, replaced James A. Bayard; William Hemsley, of Maryland, replaced Samuel Chew; George Roberts, of Pennsylvania, replaced William Tilghman.
3. First General Report of the President and Directors of the Chesapeake and Delaware Canal Company (Philadelphia, 1804), p. 8.
4. Gilpin, Memoir on Canal, pp. 30-31.
5. April 7, 1804, Committee of Surveys Minutes, C & D Papers (HSD).
6. Ibid.
7. C & D Papers (HSD).
8. Ibid.
9. May 10, 1804, Committee of Survey Minutes, C & D Papers (HSD).
10. George Johnson, History of Cecil County, Maryland. . . . (Elkton, 1881), p. 387.
11. Ibid. The biographer of Latrobe, Talbot Hamlin, reports that but one person was killed and thirty wounded. Latrobe, p. 307. Latrobe afterwards wrote to Gilpin that he possessed evidence "which will redound to the honor of our people, as to the disgrace of the gentlemen jockies and gamblers of the neighborhood." Quoted in ibid.
12. Second General Report (1805), p. 8.
13. First General Report, p. 18. Expenditures included the wages and operating expenses of the engineers and surveyors, the cost of their instruments, the expense of the secretary's office, and the beginning costs of purchasing land, buying materials, and paying workmen.

Of the \$24,000 collected, Joshua Gilpin, the Philadelphia representative, received \$15,885. The two Maryland collectors received \$6,170, but the two Delaware collectors gathered only \$2,210. Ibid., p. 19.
14. Second General Report, p. 13.
15. Ibid., p. 12.
16. Legislative Petitions, Transportation, January, 1805 (DSA). The italics are supplied.

17. February 1, 1805, quoted in MacGill, History of Transportation, p. 218.

18. Johnson, Cecil County, p. 386. In 1881 Johnson noted that some of the arches constructed by Latrobe's workers across the smaller streams were still standing, as was a larger one over a road. When a factory was built near one of the arches, it was found easier to quarry new stone than to raze the arch and use that stone for the building. Ibid. The librarian of the Historical Society of Delaware wrote in 1944 that several people had mentioned that the arches Latrobe built for the feeder canal "were found to be practically indestructible." Gertrude Brincklé to David C. Mearns, Wilmington, November 22, 1944, Latrobe Papers (HSD).

19. Second General Report, p. 9.

20. Ibid., p. 8.

21. Ibid., pp. 10-11.

22. Gilpin, Memoir on Canal, Appendix, p. 44.

23. Ibid., p. 47.

24. Quoted in Hamlin, Latrobe, p. 211n.

25. Ibid.

26. April 26, 1806, Ledger Book, C & D Papers (HSD). The last entry in the book was dated May 31, 1806.

27. American State Papers, XXI, 286-291. The essay was dated December 1, 1805.

28. Ibid., XX, 452.

29. Ibid.

30. Quoted in Hamlin, Latrobe, pp. 211-212.

31. The untitled publication was presented to various libraries in the country. The author has seen the copy presented to the American Philosophical Society. Contained in the book were the following documents: the first three General Reports; the company's memorial to Congress, dated December 1, 1805; three memorials presented to the Pennsylvania General Assembly dated February 1, 1805, January 1, 1806, and December 24, 1806; Facts and Observations Respecting the Chesapeake and Delaware Canal; and Letters to the Honorable Albert Gallatin.

32. Among the documents printed were some of Thomas Gilpin's papers, including his maps and estimates of possible canals made in 1769, and the engineering reports of Benjamin H. Latrobe made during the first three years of company activity.

NOTES TO CHAPTER VIII

NATIONAL DEVELOPMENTS

1. Delaware Gazette (Wilmington), June 24, 1825.

2. No two sources agree on the order in which canals in America came into being. In 1783 the Maryland General Assembly authorized "the Proprietors of the Susquehanna Canal" to improve the navigation of the lower Susquehanna, a project not completed until 1803. Virginia chartered two canal companies in 1785, one to improve the James River navigation, another the Potomac River. A short canal around the rapids in the Potomac was completed in 1802, but not until 1850, when the Chesapeake and Ohio Canal Company finished construction, was the original goal realized. The James River Canal was opened in 1840 by the third company to attempt it.

The first canal to be completed in the United States was in western Massachusetts, at South Hadley. The two-mile canal, opened in 1794, was built around the Hadley Falls in the Connecticut River. In Pennsylvania a canal one and one-quarter miles long was built around the Conewago Falls in the Susquehanna River in 1797. The Dismal Swamp Canal Company, chartered in 1787, had limited navigation for flatboats in 1805. By 1826 it was enlarged to a shoal draft ship canal.

Other canals, such as the Middlesex Canal in Massachusetts or the Union Canal in Pennsylvania, were begun in the 1790's but were abandoned before completed. Until 1800, "waterway improvements were confined to short lock-canals around falls and rapids in otherwise navigable rivers." Victor S. Clark, History of Manufactures in the United States, 1607-1928 (New York, 1929), I, 335. See also Alexander C. Brown, "The Dismal Swamp Canal," American Neptune, V (1945), 217-221; Livingood, Trade Rivalry, pp. 33-36; Stevenson Whitcomb Fletcher, Pennsylvania Agriculture and Country Life, 1640-1840 (Harrisburg, 1950), p. 264; James M. Swank, Progressive Pennsylvania: A Record of the Remarkable Industrial Development of the Keystone State, with Some Account of Its Early and Its Later Transportation Systems, Its Early Settlers, and Its Prominent Men (Philadelphia, 1908), p. 135.

3. MacGill, History of Transportation, p. 135.

4. McMaster, History of the United States, III, 473.

5. See Gallatin's Report on Roads and Canals, dated April 6, 1808, in American State Papers, I, 724-921. See also MacGill, History of Transportation, pp. 135-136, and McMaster, History of the United States, III, 473-475.

6. Livingood, Trade Rivalry, p. 54.

7. McMaster, History of the United States, IV, 397.

8. MacGill, History of Transportation, p. 552.

9. George Rogers Taylor, The Transportation Revolution, 1815-1860 (New York, 1951), p. 339.
10. Quoted in ibid., p. 56.
11. Edward C. Kirkland, A History of American Economic Life (3rd ed., New York, 1951), p. 231.

NOTES TO CHAPTER IX

DELAY AND DEBATE

1. American State Papers, XXI, 284.

2. Facts and Observations, in American State Papers, XXI, 287.

Concerning the passage from Philadelphia to Baltimore, the company stated the journey by sea required seven to ten days, that "indeed the inconvenience is so great, that it is rarely attempted." Use of the canal, however, would reduce the time of the passage to twenty-six hours. Ibid., p. 288.

3. Livingood, Trade Rivalry, p. 88.

4. The petition stated in part: "It is a fact well known, that, during the late revolutionary war, no circumstance was so injurious to our defence, or so much assisted our enemies, as the difficult and tedious communication between the Eastern and Southern states; since the advantages possessed by the enemy at sea . . . formed every difficulty and the source of every danger we experienced." American State Papers, XX, 455-456.

5. Ibid., p. 452.

6. McMaster, History of the United States, III, 472-473.

7. Ten years later, and in a similar debate, Clay recalled the speeches made by Bayard in 1807, thus substantiating the accuracy of Bayard's statements: "Several years ago, an honorable friend of mine (Mr. Bayard), whose premature death I shall ever deplore, . . . did, in supporting a subscription which he proposed the United States bank should make to the stock of the Delaware and Chesapeake canal company, earnestly recommend the measure as connected with our operations in war. I listened to my friend with some incredulity, and thought he pushed his argument too far. I had, soon after, a practical evidence of its justness. For, in travelling from Philadelphia, in the fall of 1813, I saw transporting, by government, from Elk river to the Delaware, large quantities of massy timbers for the construction of the guerriere or the Franklin, or both; and, judging from the number of wagons and horses, and the number of days employed, I believe the additional expense of that operation would have gone very far to complete that canal, whose cause was espoused with so much eloquence in the senate." Daniel Mallory, ed., The Life and Speeches of the Honorable Henry Clay (New York, 1843), I, 310.

8. Bernard Mayo, Henry Clay: Spokesman of the New West (Boston, 1937), p. 277. Jefferson wrote du Pont de Nemours in 1811 that once the public debt had been discharged, and its "surplus applied to canals, roads, schools, &c.," the former would "see his government supported, his children educated, & the face of his country made a paradise by the contributions of the rich alone." Dumas Malone, ed., Correspondence between Thomas Jefferson and Pierre Samuel du Pont de Nemours, 1798-1817 (Boston, 1930), p. 133.

9. Speech by James A. Bayard, Annals of Congress, 9th Congress, 2nd Session, p. 56.

10. Everett Somerville Brown, ed., William Plumer's Memorandum of Proceedings in the United States Senate, 1803-1807 (New York, 1923), p. 628.

11. Ibid.

12. Charles Francis Adams, ed., Memoirs of John Quincy Adams, Comprising Portions of his Diary from 1795 to 1848 (Philadelphia, 1874), I, 460.

13. Ibid.

14. Brown, Plumer's Memorandum, p. 629.

15. February 25, 1807, Annals of Congress, 9th Congress, 2nd Session, p. 88.

16. The resolution read as follows: "Resolved, that the Secretary of the Treasury be directed to prepare and report to the Senate, at their next session, a plan for the application of such means as are within the power of Congress, to the purposes of opening roads and making canals; together with a statement of the undertakings of that nature which, as objects of public improvement, may require and deserve the aid of Government; and, also, a statement of works of the nature mentioned which have been commenced, the progress which has been made in them, and the means and prospect of their being completed; and all such information as, in the opinion of the Secretary, shall be material, in relation to the objects of this resolution." Ibid., February 28, 1807, p. 95.

17. Gilpin discovered that the annual carriage from Newport, Delaware, to Philadelphia was 45,000 barrels of flour; from Christiana Bridge it included 20,000 barrels of flour, 1,000 hogsheads of meal, and 150 tons of iron, plus return carriage. Across the peninsula, between New Castle and the Elk River, there were two separate stage companies, each having "one packet arriving and departing each day for six days in every week, except when prevented by ice, and both passengers and goods are conveyed directly across by land, the one in land stages, and the other in waggons." The lines were in operation from 200 to 250 days a year, the packets making at least 800 passages annually. The stage lines, each with five to eight wagons in use, carried a minimum of 9,600 tons in a year.

The traffic across the peninsula was calculated as sufficient to support the canal, although additional freight unable to pay overland charges was expected to use the canal. In the first place, on bulk items "such as coal, iron and other mineral productions, lumber, and heavy merchandize, canals, in a great degree, create their own revenue, by conveying them where they were partially or not at all carried before." Gilpin further pointed out that when canals open a "passage from sea to sea for the conveyance of large vessels, they are wholly independent of any

comparison with land carriage, but must be compared with the time, expense, and danger of coasting navigation." The canal authority computed that only one-twelfth of all the vessels employed on the two bays were necessary for the trade of the canal in order to gain the necessary income. Letters to Gallatin, pp. 24-27.

18. American State Papers, XX, 754.

19. Ibid., p. 915.

20. Ibid., pp. 725-727. The entire Gallatin Report was printed in the American State Papers, XX, 724-921. The first fifteen pages were Gallatin's summary of his findings; the body of the report contained communications sent in answer to his circulated questionnaire.

21. The Memorial and Petition of the President and Directors of the Chesapeake and Delaware Canal Company (Washington, 1809), n.p.

22. Annals of Congress, 10th Congress, 2nd Session, pp. 138, 330, 336, 338, 340-341, 455, 1559.

23. Ibid., 11th Congress, 1st Session, p. 965.

24. Ibid., p. 966.

25. American State Papers, XXI, 179.

26. Livingood, Trade Rivalry, p. 88.

27. Report of the Committee to Whom was Referred the Memorial of the President and Directors of the Chesapeake and Delaware Canal Company (Washington, 1813), n.p.

28. Quoted in Livingood, Trade Rivalry, pp. 88-89.

29. Annals of Congress, 13th Congress, 1st Session, p. 2015.

30. James D. Richardson, ed., A Compilation of the Messages and Papers of the Presidents, 1789-1897 (Washington, 1907), II, 552-553.

31. Ibid., p. 552.

32. Among the projects for consideration were canals for inland navigation along the Atlantic coast, turnpikes running north and south, turnpikes running east and west, military roads joining frontier posts, and a canal around the Ohio falls. After due consideration, primacy was given to the Chesapeake and Delaware Canal project. It was "of the first importance" and required "the aid of the General Government. It forms the central link in that great chain of inland navigation along the seacoast, proposed to be opened." Annals of Congress, 14th Congress, 1st Session, p. 110.

33. Ibid., p. 113.

34. American State Papers, XXI, pp. 283-286.

35. Ibid., p. 286. Besides ample elucidation of the canal company problems in the special committee reports, Facts and Observations Respecting the Chesapeake and Delaware Canal were reprinted in Annals of Congress, 14th Congress, 1st Session, pp. 114-123.

36. Memorial of the Chesapeake and Delaware Canal Company (1817), n.p.

37. Quoted in Charles M. Wiltse, John C. Calhoun: Nationalist, 1789-1828 (Indianapolis, 1944), p. 134.

38. Carter Goodrich, "National Planning of Internal Improvements," Political Science Quarterly, LXIII (March, 1948), p. 33. For an analysis of the voting on the Bonus Bill, showing that the American System was a product of the commercial and industrial interests of New York and Pennsylvania, see Wiltse, Calhoun, pp. 135-136.

39. Messages and Papers, II, 569; Goodrich, "National Planning," p. 33.

40. To Paul Beck, Jr., September 10, 1821, Carey Collection (LCP).

41. Richard I. Shelling, "Philadelphia and the Agitation in 1825 for the Pennsylvania Canal," PMHB, LXII (1938), p. 196.

42. Petitions were submitted on February 1, and December 14, 1820.

43. Livingood, Trade Rivalry, p. 89.

NOTES TO CHAPTER X

THE COMPANY REVIVED

1. Philadelphia in 1824 (Philadelphia, 1824), p. 158.
2. Kenneth Wyer Rowe, Mathew Carey: A Study in American Economic Development (Baltimore, 1933), pp. 107-108.
3. Aurora & General Advertiser, October 12, 1822.
4. MacGill, History of Transportation, p. 211. The Susquehanna had always presented vast trade possibilities. As MacGill commented, "it connected the Atlantic with the Ohio to the West and with the Great Lakes to the north through its numerous branches and tributaries. Along its borders there was a vast amount of exceeding valuable timber; large quantities of flour and grain sought an outlet to the seaboard cities; and, as years went on, the value of its iron and coal fields were impressed upon the minds of enterprising individuals." Ibid., p. 210.
5. Joshua Gilpin to Paul Beck, Jr., September 19, 1821, Carey Collection (LCP). E. I. du Pont was one of the nine men appointed to the survey committee led by William Strickland. William Strickland to E. I. du Pont, Philadelphia, September 24, 1821, Henry B. du Pont Collection (Longwood MSS in Longwood Library, Kennett Square, Pennsylvania).
6. John K. Kane, a young Philadelphia lawyer in 1821, recalled the events of that day in his autobiography: "Mr. Carey had imagined a scheme for recalling the [Chesapeake and Delaware] project to favour, and called a meeting at one of the hotels to begin his operations. But though he could write and print with a rapidity that before the days of locomotives and electric telegraphs defied all parallel, he could never speak six words without boggling. . . . Mr. Carey, who never had room in his mind for two ideas at once, broached his Canal meeting, and insisted that I should take charge of it. It was in vain that I protested ignorance, total and hopeless: it was afternoon, and the meeting was to be in three hours after. But there was no getting off without a quarrel: indeed our whole colloquy might have been well mistaken for one. Carey crammed me with documents: I made the speech; electrified an assemblage of mercantile grannies with my overflowing knowledge of Engineering, topography, and statistics, was placed on the Committee of Five, and became the leading member of the new board of Directors, and what was more important to my finances, its lawyer." [John K. Kane,] Autobiography of the Honorable John K. Kane, 1795-1858 (Philadelphia, 1949), pp. 21-22.

The correspondence between the committee and Joshua Gilpin, and Kensey Johns, the two leading canal company officials reveals much of the story of the revival of the Chesapeake and Delaware Canal Company. See the correspondence on internal improvements in the Carey Collection (LCP).

7. The proxy list was prefaced by these remarks: "The Subscribers, stockholders in the Delaware and Chesapeake /sic/ canal company, recommend to those stockholders who do not mean to attend the meeting to be held at Wilmington on the 28th instant, to transfer their premises to James Cowles Fisher, or William Meredith, or Matthew Carey. Philadelphia Jan'y 15, 1822. /Signed/ Paul Beck, Jr., Edw. Burd, Benj. K. Morgan, Jos. Reed, W. Rawls, Robt. Ralston." The extended list of signatures was certified by Robert Wharton, mayor of Philadelphia and later a director of the canal company. Subscription Book, January 26, 1822, C & D Papers (HSD).

8. The eight Quaker City men appointed were James C. Fisher, Dr. George Gillespie, Paul Beck, Jr., Simon Gratz, Thomas P. Cope, George Roberts, William Meredith, and Benjamin Tilghman. Mathew Carey, Letter to a Few Friends (Philadelphia, 1825), pp. 2-3.

9. The history, entitled A Memoir on the Rise, Progress, and Present State of the Chesapeake and Delaware Canal, was addressed to the "Citizens of Philadelphia, and particularly to the Committees of the Philosophical Society and of the City," whose zeal he hoped would raise the canal project from its depressed state. He wisely cautioned the committees to maintain a "spirit of conciliation towards the citizens of the two adjoining States, whose interests are particularly united with those of Philadelphia--sensible, that as it is upon the area of their soil, under the protection of their laws, and in a great degree by their people, that this work must be executed." Ibid., p. 1.

10. Other members of the committee were Samuel Breck, James C. Fisher, Paul Beck, Jr., William Meredith, Samuel Archer, William Lehman, and Simon Gratz.

11. This information is contained in an undated newspaper clipping from the National Gazette (Philadelphia) which is attached to the Historical Society of Pennsylvania's copy of Gilpin, Memoir on Canal. See also Laws of Delaware, IV, 348-349.

12. Of the 1,792 shares of stock on which payments were made, Pennsylvanians took 824 shares, Delawareans 712, and Marylanders 256. See Table II, p. 152. Most of the support in Pennsylvania and Delaware came from the Philadelphia and Wilmington areas, but the Maryland support was centered on the Eastern Shore. Not a single share of stock was purchased in Baltimore.

13. Clipping from the National Gazette in the HSP. These estimates coincided with Gilpin's calculations made in 1821. Memoir on Canal, p. 41.

14. Delaware Gazette, February 22, 1822.

15. Committee of Survey Minutes, March 20, 1822, C & D Papers (HSD).

16. To Mathew Carey, Kentmere, November 3, 1821, Carey Collection (LCP).

17. Committee of Survey Minutes, May 13, 1822, C & D Papers (HSD).

18. Report of William Strickland to the Board of Directors of the Chesapeake and Delaware Canal Company, July 22, 1822, Carey Collection (LCP). Latrobe had similarly advised against a through cut for financial reasons.

19. The diary is in the University of Pennsylvania Library.

20. Delaware Gazette, November 19, 1822.

21. Kane, Autobiography, p. 66.

22. Henry D. Gilpin to Joshua Gilpin, Philadelphia, January 16, 1823, Henry D. Gilpin Papers (HSD).

23. Ibid., February 17, 1823.

24. The terms of the new charter required the bank directors to subscribe for five hundred shares of canal stock.

25. Laws of Delaware, VI, 310-312.

26. Thomas B. Dorsey to Benjamin Harwood (Treasurer of the Western Shore of Maryland), Annapolis, July 23, 1823, in Correspondence of the Treasurer of the Western Shore and H. D. Gilpin, Relative to the Chesapeake and Delaware Canal (Annapolis, n.d.), pp. 17-20; Subscription Book, March 11, 1824, C & D Papers (HSD).

27. Carey said that 700 shares of the original subscription were paid up to date, including the recently requested \$5.00 payment. The balance of \$95.00 per share, or \$66,500, was secure. Two-thirds of the balance due on 306 shares on which \$100 per share had been paid was expected, making \$20,000. Half of the amount due on 181 shares on which \$30 to \$60 per share had been paid, or \$14,000, was counted on. A negligible amount was expected from the 344 shares with payments of \$5.00 to \$15.00 having been made on them. (Two hundred and sixty-one of the original 1,792 shares were unaccounted for.) New subscriptions from the three states--Carey evidently considered Maryland's subscription assured--and those received in 1822 from individuals amounted to \$187,000. The total amount of money from these sources was \$287,500. Mathew Carey, Address to the Citizens of Philadelphia (Philadelphia, 1823), pp. 3-4.

28. Ibid., p. 5. Carey believed that this calculation "procured a very considerable addition to the subscription for one or two shares." Mathew Carey, Autobiography of Mathew Carey (New York, 1942), p. 118.

29. Carey, Address to the Citizens, pp. 1-2.

30. This diary is in the University of Pennsylvania Library.

31. Carey, Letter to a Few Friends, p. 4.

32. Subscription Book, June 12, 1823, C & D Papers (HSD).

33. See the newspaper for April 12, 14, 19, 24, 26, and May 1, 1823.

34. Other institutions to subscribe in the company were the Hand in Hand Insurance Company, the Commercial Bank of Pennsylvania, the Germantown Bank, and the Schuylkill Bank. Many of the large individual subscribers were canal directors. President James C. Fisher subscribed for fifty shares. The largest private benefactor of the company, however, was Stephen Girard, who purchased one hundred shares at a cost of \$20,000.

35. April 30, 1823. The Baltimore writer continued: "It is conclusively evident that the people of Philadelphia estimate the formation of this canal as an object of vital importance to the prosperity of their city. We see them unceasingly engaged in promoting it, with a perseverance which leaves no doubt in our minds of the ultimate consummation of their wishes and endeavors. And precisely in the same degree that this canal will be important and advantageous to Philadelphia, so must it take from the trade of Baltimore--for the anticipated benefits must be drawn from the trade of the Susquehannah River and Chesapeake Bay, which Baltimore now engrosses exclusively.

"We would not be understood by these remarks as being unfriendly to this or any other internal improvement, because it has for its object the benefit of a neighboring city. The trade between the Atlantic and the interior country is a subject of fair and praiseworthy competition among the maritime cities; and the canal is an additional bond of strength to the Union. Philadelphia's spirit is to be commended and emulated.

36. It was common practice to get experienced men from other canal projects in America and abroad. As Michel Chevalier noted in 1830, "the greatest difficulty which the Americans encountered in the execution of their public works . . . was to find men capable of directing operations." Quoted in Forest G. Hill, Roads, Rails & Waterways: The Army Engineers and Early Transportation (Norman, 1957), p. 4. One of the objectives in the establishment of West Point in 1802 had been the creation of a corps of trained engineers, but still "there was no engineering profession in the early decades of the century." The training school of the "builders of turnpikes, bridges, canals and engines . . . was the series of engineering projects undertaken to meet the needs of a rapidly growing country." John Allen Krout and Dixon Ryan Fox, The Completion of Independence, 1790-1830 (New York, 1944), p. 330.

Benjamin Franklin had commented on the problem of procuring trained engineers in 1772. Writing from London to Mayor Rhoads of Philadelphia, he professed belief in the economy of hiring at "a handsome Salary an Engineer from here who has been accustomed to such Business, . . . a single Mistake thro' Inexperience in such important Works, may cost much more than the Expense of Salary to an ingenious young Man already well acquainted with both Principles and Practice." Quoted in Davis, Corporations, II, 129.

NOTES TO CHAPTER XI

RELOCATION OF THE ROUTE

1. To Paul Beck, Jr., Kentmere, September 10, 1821, Carey Collection (LCP).

2. "Report by the Secretary of War on Roads and Canals," January 14, 1819, American State Papers, XXI, 534.

3. Noble E. Whitford, History of the Canal System of the State of New York together with Brief Histories of the Canals of the United States and Canada (Albany, 1906), II, 1172; Walter S. Sanderlin, The Great National Project: A History of the Chesapeake and Ohio Canal (Baltimore, 1946), p. 58; Hugh G. J. Aitken, The Welland Canal Company: A Study in Canadian Enterprise (Cambridge, 1954), p. 100. Aitken called Wright "without doubt the most experienced canal engineer on the North American continent."

4. To Joshua Gilpin, January 20, 1823, Henry D. Gilpin Papers (HSD).

5. At the highest point of the canal line, extending at least one mile, a cut 205 feet wide was required. This called for the removal of 1,760,000 cubic yards of earth. A total of \$850,000, at the rate of fifty cents per cubic yard, would be needed, according to Latrobe, on that most difficult mile. Engineering Report, October 21, 1803, printed in Gilpin, Memoir on Canal, Appendix, pp. 20-21.

6. July 22, 1822, Carey Collection (LCP). This report was printed in Communication from the Chesapeake and Delaware Canal Company; and a Report and Estimate of William Strickland, to the President and Directors (Philadelphia, 1823).

7. Henry D. Gilpin to Joshua Gilpin, February 17, 1823, Henry D. Gilpin Papers (HSD).

8. Ibid., March 20, 1823.

9. Delaware Gazette, April 22, 1823.

10. Daily National Intelligencer, May 3, 1823.

11. To Joshua Gilpin, April 28, 1823, Henry D. Gilpin Papers (HSD).

12. Delaware Gazette, April 22, 1823.

13. Gilpin to Joshua Gilpin, May 28, 1823, Henry D. Gilpin (HSD).

14. Ibid.

15. William Meredith to John C. Calhoun, Philadelphia, May 19, 1823, quoted in Hill, Roads, Rails & Waterways, p. 30n.

16. J. L. Smith to Bernard and Totten, Washington, June 3, 1823, Letters to Officers of Engineers, Engineer Department (MSS in War Records Division, National Archives, Washington, D. C.). In subsequent citations Engineer Department records will be cited E. D.

17. Ibid.

18. Delaware Gazette, January 28, 1825.

19. Henry D. Gilpin to Joshua Gilpin, June 21, 1823, Henry D. Gilpin Papers (HSD).

20. Ibid., n.d. The letter was written between June 21 and June 30, 1823.

21. To Paul Beck, Jr., Kentmere, September 19, 1821, Carey Collection (LCP).

22. Gilpin, Memoir on Canal, p. 48.

23. Although Joshua Gilpin resided in Delaware after 1815, he considered himself "no other than as the guardian of the city's interest upon the spot." To Paul Beck, Jr., Kentmere, September 19, 1821, Carey Collection (LCP). See Table IV, p. 154, for the other members of the board who were elected July 15, 1823.

24. Carey, Letter to a Few Friends, p. 8.

25. Brigadier General Simon Bernard and Lieutenant Colonel Joseph G. Totten to the President and Directors of the Chesapeake and Delaware Canal Company, July 25, 1823, (Totten's) Official Reports, E. D.

26. Totten to General Macomb, Philadelphia, December 6, 1823, in ibid.

27. Totten to the President and Directors of the Chesapeake and Delaware Canal Company, Philadelphia, December 3, 1823, in ibid.

28. Delaware Gazette, December 12, 1823. The editor stated that a contributor to the Philadelphia Aurora objected to the upper route because it might "give to Wilmington a portion of the benefits which he would have confined to Phila/delphia/. He notice/d/ the advantageous situation of Wilmington for trade, and conclude/d/ that to bring the Canal near to it, could insure it an increase of prosperity; but as New Castle /did/ not possess so many advantages; the bringing of the Canal near to that place would not be likely to prevent all the advantages resulting to Philadelphia." Ibid.

29. John R. Latimer to Henry Latimer, Philadelphia, November 6, 1823, Latimer Papers (University of Delaware Memorial Library, Newark).

30. To Victor du Pont, December 2, 1823, Charles I. du Pont Collection (MSS in Old Stone Office Records, Woolen, Hagley Museum, Wilmington, Delaware).

31. Totten to General Macomb, New York, January 26, 1824, (Totten's) Official Reports, 1824, E. D.

32. John R. Latimer to Henry Latimer, Philadelphia, January 22, 1824, Latimer Papers (University of Delaware Library).

33. Ibid.

34. Delaware Gazette, January 31, 1824.

35. John R. Latimer to Henry Latimer, Philadelphia, January 26, 1824, Latimer Papers (University of Delaware Library).

36. Ibid.

37. Carey, Letter to a Few Friends, p. 6.

38. Delaware Gazette, March 16, 1824.

39. Ibid., January 30, 1824. See also the following issues.

40. Ibid., February 6, 1829.

41. Ibid., February 17, 1824.

42. Ibid.

43. Ibid., April 27, 1824.

44. Ibid.

45. Ibid., May 30, 1823.

46. Delaware Gazette, April 2, 1824.

47. Views Respecting the Chesapeak and Delaware Canal. By a Citizen of Philadelphia (Philadelphia, 1824), pp. 2-3. The writer said he would not attempt "to investigate the correctness of the estimated cost of the canal, or to call in question its practicability. Nor will we examine whether an artificial harbour on the Delaware, or a ditch through St. George's Marshes, can be so constructed and secured as to prevent both from filling up every two or three years; or what sum must be annually expended in clearing the Canal where it passes the ridge by a deep cut of 4 or 5 miles in length, of the washings of hills of loose earth of forty to seventy feet high on both sides

"We did not attempt to rend the veil," he continued, "which covers from view the machinery by which the directors have been precipitated unanimously from the summit level of Latrobe, into the big ditch of Randall & Co. All these inquiries, insinuations, suggestions and what not, we will leave to . . . that great rival of our city, the borough of Wilmington, whose interests are so completely adverse to ours, that we ought not to be surprised at their exhibiting some symptoms of oppugnation on finding that the Canal is not to go near them: or perhaps these points may be left with equal propriety for the investigations of the law-givers of that renowned sea-port New Castle." Ibid., pp. 1-2.

48. Ibid., p. 16.

49. Ibid.
50. Ibid., p. 17.
51. Ibid., pp. 11-12.
52. Fifth General Report (1824), p. 12.
53. Delaware Gazette, January 30, 1824.
54. Ibid., March 12, 1824.
55. [Mathew Carey,] Address to the Stockholders of the Chesapeake and Delaware Canal, on the Subject of the Route Recommended By the Board of Engineers and Adopted by the Board of Directors of that Canal. By a Pennsylvanian (Philadelphia, 1824), p. 3.
56. Letter to a Few Friends, p. 7.

NOTES TO CHAPTER XII

CONSTRUCTION DIFFICULTIES

1. Register of Debates in Congress, 1824-1837 (Washington, 1825-1837), I, 219.
2. Henry D. Gilpin to Joshua Gilpin, October 9, 1823, Henry D. Gilpin Papers (HSD).
3. Delaware Gazette, September 23, 1823.
4. Carey later said that all of the canal's support had come from Pennsylvania, excepting that received from the state and national governments. Pennsylvania and its citizens, Carey claimed, contributed \$1,676,284 for the Chesapeake and Delaware Canal. Brief View of the System of Internal Improvement of the State of Pennsylvania (Philadelphia, 1831), p. 28.
5. Address to the Stockholders, p. 8. Carey made a study of the stockholders of the company in 1824, classifying them according to the amounts of their subscriptions. The larger stockholders were banks, insurance companies, and owners of real estate in Philadelphia, while the "smaller ones [were] generally in trade." Carey believed that most of the stockholders expected the increased benefits of the canal trade to business in general would justify their investments.

Five stockholders each subscribed for \$10,000 or more, eleven subscribed for \$5,000 to \$10,000, two for \$4,000, two for \$3,000, nineteen for \$2,000; ninety-one for \$1,000, and 617 for less than \$1,000. Ibid., p. 5.

Carey himself subscribed for twenty shares in the canal company. He rarely refused "a turnpike or canal subscription on application," but he never "subscribed for a single share with a view to profit." Carey, Letter to a Few Friends, p. 8.
6. Livingood, Trade Rivalry, p. 92.
7. Thomas P. Cope to Joseph Hemphill, Philadelphia, March 29, 1824, in "Report of Mr. Van Dyke from the Select Committee on Roads and Canals to Whom was Referred the Memorial of the President and Directors of Chesapeake and Delaware Canal Company," 18th Congress, 1st Session, Senate Document No. 70 (April 24, 1824), Appendix A, p. 2.
8. Ibid., p. 1.
9. Fifth General Report, p. 13.
10. Article by John Randel, Jr., from the Albany Daily Advertiser, reprinted in the Delaware Gazette, March 23, 1824. Randel estimated the total cost at \$2,000,000, surprisingly near the actual cost. His article accompanied an advertisement in the Albany newspaper for contractors and

workers. "It seems to be the determination of the managers of the business of the canal," growled Harker of Delaware, "that the people of Delaware shall have nothing to do with it but to pay their money, for the purpose of giving employment to the citizens of other states, to make a great frog pond to perpetuate the remembrance of their ill nature, and the astonishing genius of Mr. Randel." Ibid., March 30, 1824.

11. American Watchman, and Delaware Republican (Wilmington), May 17, 1825.

12. Mathew Carey, Address to the Wealthy of the Land (Philadelphia, 1831), p. 9. Carey pointed out that most canal laborers could not support a wife and two children at even a subsistence level, even if the wife made fifty cents a week.

13. Quoted in William A. Sullivan, The Industrial Worker in Pennsylvania, 1800-1840 (Harrisburg, 1955), p. 73.

14. Delaware Gazette, February 11, 1825.

15. Seventh General Report (1826), p. 16.

16. Delaware Gazette, October 21, 1825.

17. Elizabeth Howell Goggin, "Public Welfare in Delaware, 1638-1930," Delaware: A History of the First State, ed. H. Clay Reed (New York, 1947), II, 795-798.

18. Similar numbers were employed by other canal companies. In 1818 the Erie Canal had 3,000 men at work upon it; in 1829 the Chesapeake and Ohio Canal employed 3,100 men but was advertising for 10,000. In 1826 there were 1,200 men at work on the Delaware and Hudson Canal, and in 1828 there were 5,000 men employed on the Pennsylvania canals. Alvin F. Harlow, Old Towpaths: The Story of the American Canal Era (New York, 1926), p. 73.

19. C & D Papers (HSD).

20. Sixth General Report (1825), p. 7.

21. American Watchman, and Delaware Republican, May 17, 1825.

22. Ibid.

23. "Steam Boat Excursion in Compliment to Governor Clinton," June 4, 1825, Edward Shippen Burd Papers (MS in HSP). The editor of the Delaware Gazette believed their failure to reach the canal was proof of the "impropriety of taking it so low down the river," where navigation for rafts or canal boats was hazardous. Delaware Gazette, June 28, 1825.

24. Seventh General Report (1826), pp. 7-9.

25. Samuel M. Harrington, ed., Reports of Cases Argued and Adjudged in the Superior Court and Court of Errors and Appeals of the State of Delaware (Wilmington, 1901), I, 42-43, 322.

26. American Watchman, and Delaware Republican, October 25, 1825.

27. Mathew Carey, 7 Exhibit of the Shocking Oppression and Injustice Suffered for Sixteen Months by John Randel, Jun. Esq. Contractor for the Eastern Section of the Chesapeake and Delaware Canal, from Judge Wright, Engineer in Chief, and the Majority of the Board of Directors. . . . By the Author of an Appeal to the Stockholders (2nd ed., Philadelphia, 1825), pp. 2-7.

28. Pp. 4-5; Carey, Exhibit of the Oppression, p. 8.

29. Paul Beck, Jr., to the President and Directors of the Chesapeake and Delaware Canal Company, Philadelphia, September 6, 1825, Carey Collection (LCP).

30. October 14, 1825.

31. Diary of Mathew Carey, November 2, 1825 (University of Pennsylvania Library).

32. James C. Fisher to Governor John Shulze, Philadelphia, November 16, 1825, Chesapeake and Delaware Canal Papers (PHMC).

33. Register of Debates, I, 216-224.

34. Ibid., pp. 285-290.

35. Delaware Gazette, January 28, 1825; Register of Debates, I, 290-297.

36. Register of Debates, I, 302.

37. Goodrich, "National Planning of Internal Improvements," p. 63. Similar subscriptions to the Louisville and Portland and the Dismal Swamp Canal companies were authorized the following year. In 1828 \$1,000,000 was appropriated for the use of the Chesapeake and Ohio Canal Company. The state of Delaware ranked third, after Florida and Ohio, among the states in which the United States government spent money on internal improvements. The American Almanac and Repository of Useful Knowledge for the Year 1830 (3rd ed., Boston, 1839), p. 224.

38. Samuel Hazard, ed., The Register of Pennsylvania, I (June 28, 1828), 415. General Macomb, Chief Engineer of the United States Army Corps of Engineers, remarked in 1826 that in the marshlands area "the canal was literally . . . turned inside out." Quoted in Delaware Gazette, August 22, 1826. The weight of the banks forced up surrounding areas of ground as they sank. A dredging machine, reported Harker, left on the bottom of the canal excavation six feet lower than the surface of the surrounding meadow, was raised above the original ground level. Ibid.

39. Niles' Weekly Register, XXXI (October 7, 1826), 96.

40. J. Thomas Scharf, History of Delaware, 1609-1888 (Philadelphia, 1888), pp. 423-424.

41. Eighth General Report (1827), n.p. On August 15, 1827, the company borrowed \$150,000. The following year \$139,300 was obtained through loans, and the company reopened their subscription books to obtain the balance of a required \$300,000.

42. Delaware Gazette, June 9, 1826; October 31, 1826.

43. The board presented its side of the case in the annual report for 1827, while Clement replied to their "false and groundless" declarations in a letter published in the Delaware Gazette, July 6, 1827.

There is a manuscript book among the Chesapeake and Delaware Canal Company Papers containing the measurements of the "excavation done by Messrs. Clement, Blackstock & Van Slyke." The measurements were made by Henry Heald and Daniel Livermore in March, 1827, "by order of the Referees in the Suit of J. F. Clement vs. the Chesapeake & Delaware Canal Company."

44. Eighth General Report, n.p.

45. Ibid.

46. Ibid.

47. Ninth General Report (1828), p. 9.

48. Philadelphia Gazette and Daily Advertiser, August 8, 1829.

49. Delaware Gazette, June 12, 1827. E. I. du Pont, for example, visited the canal works in June, 1828. F. G. Smith to E. I. du Pont, Philadelphia, June 30, 1828, Francis G. Smith Correspondence (MSS in Old Stone Office Records, Gunpowder, Hagley Museum).

NOTES TO CHAPTER XIII

COMPLETION

1. Eleventh General Report (1830), p. 17.

2. Niles' Weekly Register, XXXVI (July, 1829), 317; Federal Writers' Project Papers, XLVI, 212 (typescript in University of Delaware Memorial Library). Five volunteer military companies, under command of Colonel Benjamin C. Howard, left Baltimore by steamboat "in a torrent of rain, which continued the whole night and the succeeding day and night." They were landed at Chesapeake City and marched along the muddy towpath to the Summit Bridge, enduring "privations and sufferings which have seldom fallen to the lot of volunteer troops." After the ceremonies, the troops expected to be returned to their steamboat in a canal barge, but the canal was obstructed by loose timbers. Delaware Register (Wilmington), July 11, 1829; Anna T. Lincoln, Wilmington, Delaware: Three Centuries Under Flour Flags, 1609-1937 (Rutland, Vermont, 1937), pp. 225-226. It was reported that a member of one of the Baltimore volunteer companies drowned in the canal on the return march. Delaware Register, July 11, 1829.

3. Delaware Register, July 11, 1829.

4. Quoted in Delaware Register, July 11, 1829.

5. John K. Kane to Joshua Gilpin, Philadelphia, October 7, 1829, Gilpin Letter Book (Alderman Library, University of Virginia).

6. Almost thirty replies to the invitations extended by the board of directors are in the C & D Papers (HSD).

The editor of the Delaware Gazette took little notice of the canal opening. The paper of October 20, 1829, contained a brief reference to the event which prefaced the publication of the company's invitation to President Andrew Jackson and his reply.

7. Caleb Newbold, Jr., to William Platt, Delaware City, October 15, 1829, C & D Papers (HSD).

8. Ibid., October 16, 1829.

9. According to Scharf, the United States schooner Ranger was at the St. Georges lock, while the Boston brig Scioto was at Summit Bridge. History of Delaware, I, 424. The two military companies were the Washington Grays and the Philadelphia Grays. Delaware Register, October 24, 1829. The fullest account of the opening celebration was found in Hazard, Register of Pennsylvania, IV (October 24, 1829), 268-272.

10. Hazard, Register of Pennsylvania, IV (October 24, 1829), 269-270.

11. Eleventh General Report, p. 17. See Plate IX, p. 144, for a picture of this tablet.
12. Harlow, Old Towpaths, p. 83.
13. Board Minutes Book, September 28, 1829, C & D Papers (HSD).
14. John Hebron Moore, ed., "A View of Philadelphia in 1829: Selections From the Journal of B. L. C. Wailes of Natchez," PMHB, LXXVIII (July, 1954), 354.
15. Hazard, Register of Pennsylvania, IV (November 28, 1829), 345.
16. Niles' Weekly Register, XXXVII (November 28, 1829), 216.
17. Eleventh General Report, p. 14.
18. Niles' Weekly Register, XXXVIII (April 17, 1830), 140.
19. Eleventh General Report, p. 7.
20. Ibid., p. 15.

NOTES TO CHAPTER XIV

INITIAL OPERATIONS

1. Register of Pennsylvania, V (May 15, 1830), 311.
2. Livingood, Trade Rivalry, pp. 93-94.
3. Ibid., p. 94. Another Baltimore company said that the canal had ruined the city's wheat trade with the Brandywine flour mills. The Brandywine millers, passing their sloops through the canal, collected wheat for themselves rather than trade with Baltimore by the sea route.
4. Hazard, Register of Pennsylvania, V (January 23, 1830), 53-55.
5. Ibid., April 10, 1830, p. 240.
6. Thirteenth General Report (1832), p. 9.
7. Ibid., p. 8. Randel's suit against the company was still pending.
8. Ibid., pp. 11-12; Twelfth General Report (1831), p. 9.
9. Fifteenth General Report (1834), p. 13.
10. This case is one of the most famous lawsuits ever tried in Delaware. John M. Clayton, who later became Zachary Taylor's Secretary of State, was one of Randel's lawyers. In this noteworthy case, damages were the highest ever awarded up to that time. Johnson, Cecil County, p. 391; Federal Writers' Project, Delaware, p. 336.
11. Fifteenth General Report, p. 11.
12. Seventeenth General Report (1836), p. 7.
13. Bunker to Governor George Wolfe, Philadelphia, March 6, 1835, Chesapeake and Delaware Canal Papers (PHMC). Bunker continued: "Many of these persons are strangers in Del: (tho Known in this city & Baltimore) & cannot find bail: & must go to prison for a debt they never owed. to obtain this process, Randall swears they are indebted to the canal co. & when I asked him how he freed himself from perjury, he replied 'it appeared at first alarming, but his counsel (Senator Jno. M. Clayton) had appeased his conscience by telling him that if they were not in debt to the co. they ought to be because the co. ought not to have collected the toll of them untill his debt was paid'--& on the same occasion he declared that 'believing the co. to be insolvent he saw no other way to get his debt of 226,000\$, but by thus trammelling the public trade he expected and hoped to compel the citizens of Philada. & Baltimore to raise by general contribution this large Sum. . . . These and many other facts will be sustained by legal testimony, if required.'"

14. Seventeenth General Report, p. 7.
15. Delaware Gazette, February 5, 1836.
16. Laws of Delaware, IX, 26-28; Seventeenth General Report, pp. 7-9.

NOTES TO CHAPTER XV

SUBSEQUENT DEVELOPMENTS

1. "Chesapeake and Delaware Canal," p. 13, typescript in C & D Papers (HSD).
2. Address of the Board of President and Directors of the Chesapeake and Delaware Canal Company, to the Stock and Loanholders of that Company (Philadelphia, 1845), p. 6.
3. A copy of the letter of confession, written by J. A. L. Wilson to company president Joseph E. Gillingham, dated June 29, 1886, is in the C & D Papers (HSD).
4. Robert Rossiter Raymond, "The Chesapeake and Delaware Canal in the Civil War," Professional Memoirs, Corps of Engineers, United States Army, and Engineer Department at Large, III (1911), 269.
5. Captain Philip Reybold related the story of this event to the Agnus Commission in 1906. His father had suggested the plan to the federal authorities in Philadelphia. Reybold asked the commission: "Do you realize that if the canal had not existed in April, 1861, that the session of the Congress of the Confederacy that convened in Richmond . . . would have been sitting in Washington?" "Report of the Commission appointed by the President to Examine and report upon a route for the construction of a free and open waterway to connect the waters of the Chesapeake and Delaware Bays," 59th Congress, 2nd Session, Senate Document No. 215 (January 12, 1907), p. 44.
6. Dividend Book, C & D Papers (HSD).
7. See "Report of the Commission," Senate Document No. 215.
8. See Earl I. Brown, "The Chesapeake and Delaware Canal," Transactions, American Society of Civil Engineers, XCV (1931), 716-765, for a detailed engineering report on the enlargement.
9. Corps of Engineers, United States Army, The Chesapeake and Delaware Canal: An Inland Waterway from Delaware River to Chesapeake Bay, Delaware and Maryland (rev. ed., Philadelphia, 1941), p. 26.
10. Interview with B. H. Brown, Marine Traffic Control Officer at the Chesapeake and Delaware Canal, April 4, 1958.

NOTES TO CHAPTER XVI

DELAWARE AND ITS CANAL

1. Register of Debates, I, 331.
2. The Delaware legislature, although numerically controlled by the two southern counties, acted in accordance with the wishes of the industrial northern county when possible. A Brandywine canal, strongly urged by Pennsylvania from the early 1790's until 1826, was blocked when it was learned that the Delaware manufactories along the Brandywine Creek "require d all its water for their own proper purposes." Delaware House Journal, 1826, p. 73.
3. Ira Wendell Marine and William Charles Rasmussen, Preliminary Report on the Geology and Ground-Water Resources of Delaware. Bulletin No. 4 of the Delaware Geological Survey (Newark, 1955), p. 148.
4. Wilmington Morning News, June 15, 1954. The article was entitled "Bridges Provide State's Principal Interest in Canal."
5. Wayne Andrews, ed., "A Glance at New York in 1697: The Travel Diary of Dr. Benjamin Bullivant," The New-York Historical Society Quarterly, XL (January, 1956), 69.

ESSAY ON SOURCES AND BIBLIOGRAPHY

ESSAY ON SOURCES

There is a wealth of contemporary printed and manuscript material relating to the early history of the Chesapeake and Delaware Canal, but the secondary works on the subject are both few in number and inaccurate. Without an easily available secondary work, it is understandable that history survey and textbook writers have overlooked the Chesapeake and Delaware Canal or have relegated it to an undeserved minor position. But one brief account of the history of the canal through its first years of operation has been found. James W. Livingood, in The Philadelphia-Baltimore Trade Rivalry (1947), devotes a chapter to the waterway, but its history is told entirely within the framework of the trade rivalry. This is the single most valuable secondary work, but Livingood did not use the voluminous Chesapeake and Delaware Canal Company Papers and almost completely ignored Delaware's role in the canal story.

The Historical Society of Delaware possesses the most complete body of original Chesapeake and Delaware Canal Company material. Many of the official company letter books, ledgers, board minute books, stock subscription books, and survey books, besides ten folders of loose papers--correspondence, receipts, maps, toll sheets, and other pertinent material--make up the collection. Although the major portion of the papers concerns the period after 1829, a considerable amount relates to the company history, 1803-1829. The Gilpin Papers in the H. F. Brown Collection, the separate collection of Henry Dilworth Gilpin Papers, and the Latrobe Papers (transcriptions from the original in the Library of Congress) are useful

supplements to the company records. There is an eighteen foot manuscript map of the canal, drawn in the post-Civil War period, in the society's map collection.

The Letter Books of the Secretary to the Supreme Executive Council of Pennsylvania, and the Chesapeake and Delaware Canal Papers at the Pennsylvania Historical and Museum Commission, Division of Public Records, Harrisburg, revealed much of Pennsylvania's early attempts to build the canal. The William Irvine Papers at the Historical Society of Pennsylvania, Philadelphia, are helpful on this point.

A particularly illuminating series of letters, relating to the revival of the canal company, 1821-1823, is in the Carey Collection at the Library Company of Philadelphia. Here is preserved the correspondence between the directors of the dormant Chesapeake and Delaware Canal Company, and a group of Philadelphia merchants anxious to revitalize the company. Reports and correspondence of the United States Army Engineer Department, in the War Records Division of the National Archives, tell of the service rendered by that body in locating the canal route in 1823-1824. This story is summarized in Forest G. Hill's instructive book, Roads, Rails, & Waterways (1957).

The most informative and useful printed contemporary sources are the numerous canal company publications, especially the General Reports, 1804-1806, and 1824 following. The Historical Society of Delaware possesses a nearly complete set of the reports. Other particularly useful company materials are Facts and Observations Respecting the Chesapeak and Delaware Canal (1805), Letters to the Honorable Albert Gallatin (1808), A Collection of the Laws Relative to the Chesapeake and Delaware Canal (1823), and the

various memorials of the canal company, some of which are printed, with Senate and House committee reports upon them, in American State Papers, vols. XX and XXI.

The semi-official publication by Joshua Gilpin, Memoir on the Chesapeake and Delaware Canal, is invaluable. It contains a historical sketch of the canal up to 1821 written by one who knew intimately of his subject. The merit of the book is enhanced by the inclusion of many canal documents--among them the papers of Thomas Gilpin--in the appendix. Mathew Carey's prolific pen has furnished us with several pamphlets which shed light on the history of the canal. The published and manuscript records of the American Philosophical Society are essential for a study of the first surveys for the canal.

Descriptions of the canal, only one of which was used in the paper, may be found in travel accounts by the following persons: J. E. Alexander, C. D. Arfwedson, J. S. Buckingham, E. T. Coke, Basil Hall, J. C. Myers, Alexander Randall, Francis Trollope, and Henry Tudor. See also the American Almanac for 1830, Davison's Fashionable Tour, Philadelphia in 1824, and the 11th General Report of the Chesapeake and Delaware Canal Company.

Evidences of the twenty-year struggle by the canal company directors to obtain federal aid for their project can be found in the congressional records for the period, the Annals of Congress, 1806-1824, and its successor, the Register of Debate, 1825-1829. Good accounts of the 1807 Senate debate on the Chesapeake and Delaware Canal bill, out of which grew the Gallatin Report on Roads and Canals, are given by William Plumer and John Quincy Adams. The complete Gallatin Report is printed in American State Papers, XX, 724-921.

Newspapers and periodicals proved to be a very fruitful source of information. Most helpful were the Wilmington newspapers--the Delaware Gazette and the American Watchman, the Philadelphia Aurora & General Advertiser, Niles' Weekly Register, and Hazard's Register of Pennsylvania. Other newspapers or periodicals listed in the bibliography were used after references to specific information in them were found.

Articles on the Chesapeake and Delaware Canal have appeared infrequently. Colonel Earl I. Brown's paper, "The Chesapeake and Delaware Canal," in the Transactions of the American Society of Civil Engineers, is primarily concerned with describing the enlargement of the canal, 1922-1927. R. R. Raymond's short essay, "The Chesapeake and Delaware Canal in the Civil War," adds little not readily found elsewhere. The series of three articles on internal improvements by Carter Goodrich, however, are indispensable for persons working in this field

There is no general treatment of the complete history of the Chesapeake and Delaware Canal Company in any secondary source known to the author. Livingood's Philadelphia-Baltimore Trade Rivalry, previously mentioned, summarizes the story to 1860 from the Philadelphia standpoint. For the period covered, John A. Munroe's Federalist Delaware (1954) epitomizes Delaware's attitude toward the canal. Scharf's History of Delaware, (1888), not thoroughly reliable, is useful, particularly on the history of Delaware City.

The best treatments of the development of transportation in the United States are by George Rogers Taylor and Caroline E. MacGill. Alvin F. Harlow's Old Towpaths (1926) is a good, popularly written monograph on the canal era, but it does not discuss the Chesapeake and Delaware Canal at

length. John Bach McMaster's multi-volume history of the United States has much detailed information, taken largely from newspaper accounts, on internal improvements. The influence of the transportation changes in America upon the type and location of industries is ably discussed by Victor S. Clark. Monographic studies worthy of emulation on other canals in North America are by Walter S. Sanderlin and Hugh G. J. Aitken.

Two apparently good sources which were hopefully consulted yielded but a small return. The Tenth Census of the United States contains a "Report on the Agencies of Transportation in the United States" designed to be exhaustive, but the section on canals is disappointing. The Chesapeake and Delaware Canal--one of the few still in operation in 1880--was listed only on the statistical sheet. Similarly, Noble E. Whitford's ambitiously conceived History of the Canal System of New York (1906), which included brief historical sketches of the canals in the United States and Canada, contains but a very short, somewhat misleading account of the Chesapeake and Delaware Canal. Whitford admitted that reliable information on canals in North America was meager. In an amazing statement, he said: "The most complete document on this subject is the report of H. Vétillart /entitled La Navigation aux États-Unis/ to the French Minister of Public Works" (II, 1369).

Another very important source for historical research and documentation is physical remains. Unfortunately the successive enlargements of the Chesapeake and Delaware Canal have obliterated most examples of the original canal company's work. When the canal was converted to a sea level waterway, however, the eastern entrance was relocated. A portion of the original canal through Delaware City consequently was spared of extensive

enlargement, and is used today as a branch canal for small craft. At the opposite end of the canal, a waterwheel and steam pumping unit, installed in 1851, may still be seen at Chesapeake City. The stone tablet erected at Summit Bridge to commemorate the completion of the canal in 1829 is now located also at Chesapeake City. Evidences of the feeder canal, nearly completed by the company in 1804 and 1805 but then permanently abandoned, can be seen in the vicinity of Glasgow, Delaware.

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