John Dougherty and the Rise of the Section Boat System

ERHAPS the most picturesque traffic over the main line of the Pennsylvania Canal in its heyday was the movement of sectional boats. The largest consisted of four sections, mounted on cradles and supported by double-wheeled trucks, and they could have been seen loading at Philadelphia warehouses in the vicinity of Broad and Vine streets. Locomotives, the fledgling creations of William Norris and Mathias Baldwin, hauled them over the rolling hills of Lancaster County to Columbia on the Susquehanna, eightyone miles distant. Lowered into the water and connected together to form a single craft, stout teams were hitched to pull them up the Eastern Division of the canal via the Susquehanna and Juniata rivers to Hollidaysburg, eastern terminus of the Allegheny Portage Railroad. Arrived there, component sections were disassembled, floated on trucks, and prepared for the thirty-six mile crossing of the Allegheny Mountain. Teams were stabled in the bow or stern sections, one or the other being fixed up for their accommodation, or else they were driven overland to meet the boats. At Johnstown, western terminus of the road, canal transportation was resumed on the Western Division to Pittsburgh.

The popularity of section boats as freight carriers reached its height about the middle of the eighteen forties. In those years their passage across the Alleghenies was commonplace. They were everyday sights to the Irish Catholic emigrants who lived in isolated villages along the right of way, many of whom had had a part in digging the canal and grading the high embankments and planes of the railway. They were objects of interest to all sorts of travelers whose business took them over the Main Line: young contractors, entrepreneurs, and politicians like James K. Moorehead, John W. Geary, and Thaddeus Stevens; eminent foreigners discovering midnineteenth century America like Charles Dickens, the Prince de

Joinville, and Jenny Lind; and finally these boats were in some measure conveniences to a mass of anonymous tradesmen and plain people earning a livelihood and sometimes seeking to settle in the mid-west or far-off Texas. So, while intelligent males discussed Mesmerism and women poured over the modish pages of Godey's *Book*, sectional boats on the Pennsylvania Canal typified the ingenuity that could be applied to existing transportation facilities in the dynamic forties. Along the waterway, merchants, politicians, innkeepers, and canal people all knew the name, if not always the person, of their bustling inventor.

The section boat was an innovation confidently intended to increase the revenue of the public works and bring about a much wider degree of general utility than they had previously enjoyed. Its advent engendered hopes and fears, passions and prejudices among all who plied the Main Line canal. A keen rivalry arose between the proprietors and crews of the standard line boats and the newer section boats that were capable of passing through terminals, from the medium of canal to railway, without stopping to unload or tranship, as it was called. No wonder occasional riots occurred in the basins with blackened eyes and severed towing ropes for their less serious consequences. The sectional boat was in truth something of a *deus ex machina* that threatened the supremacy of the established transporting companies which had large investments in storage warehouses and unloading facilities and monthly payrolls to meet in five canal terminals.

Many western travelers then believed, and even today the misconception persists, that the chief purpose of the State's railways, which connected up her great Main Line of canals, was to move boats across intervening land barriers to water transportation. In actual fact, however, that practice evolved slowly and incidentally and was one of several interesting attempts made to improve and speed up the movement of freight east and west. The introduction of the boat, if not its origination, was largely owing to the untiring persistence and skill of one man.

Its development represented essentially an effort to overcome the disadvantages of Pennsylvania's mixed system of canals and railroads, a handicap to transporters and forwarding merchants that became obvious shortly after the opening of the Main Line in 1834. The

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idea of a sectional boat was nevertheless considerably older. The first mention of it came from Canvass White, the able engineer who assisted in the construction of the Erie Canal where he had perfected the use of hydraulic cement.¹ As early as 1826, while making surveys of the Pennsylvania route, he noted the feasibility of moving boats across the Alleghenies. "I would suggest the idea of making the canal boats in three or four pieces, to be divided transversely, and transported over the Portage without changing the cargo," he wrote to the Pennsylvania authorities.² White may have derived his idea from the Morris Canal in New Jersey, under projection at the time, where short inclined planes of slight elevation were being equipped with machinery for raising and lowering boats from one water level to another.³ His suggestion was original, however, in that he contemplated boats divided into sections to facilitate movement over the long railway mileage of the Pennsylvania route to the West. At any rate, his proposal received little or no attention, and in the following eight years the Pennsylvania works were constructed with no particular provisions for effectuating it.

As soon as the first track of the Allegheny Portage Railroad with its ten inclined planes and levels was completed in the spring of 1834, the Main Line was opened throughout its three hundred and ninetyfive-mile length from Philadelphia to Pittsburgh. It remained for an inventive and practical transporter to demonstrate the full potentialities of the new waterway. In October of that year there arrived at the Hollidaysburg basin one Jesse Christman, an emigrant en route to Illinois, with his family of nine persons and his household goods aboard his flatboat *Hit or Miss*. He had navigated from the Lackawanna River down the North Branch Canal to the Juniata and thence west on the Eastern Division of the Main Line. Tying up in the Hollidaysburg basin, he met John Dougherty, formerly a canal contractor⁴ and now one of the proprietors of the Reliance Trans-

¹ John B. Jervis, "A Memoir of American Engineering" in Transactions of the American Society of Civil Engineers, VI, 39-44.

² Quoted in Tarring S. Davis & Lucile Shenk, A History of Blair County, Pennsylvania (Harrisburg, 1931), I, 55.

⁸ Wheaton J. Lane, From Indian Trail to Iron Horse, Travel and Transportation in New Jersey, 1620–1860 (1939), 230–232.

⁴ George R. McFarlane in *Democratic Standard and Huntingdon County Gazette*, May 12, 1843.

portation Company. He acted as agent for the Line in the booming eastern terminus of the Portage Railway and conducted a small retail business from his basin warehouse. The operation of the road had been unsatisfactory that season, for very little freight could be moved over its single track. We can imagine Dougherty eyeing this latest arrival curiously and turning over in his mind a way to make a few dollars. Christman's intention was to sell his boat and haul his cargo of beds, chairs, tables, cooking utensils, and "poultry and pigeons" overland. Dougherty told him that his boat, which was twenty-nine feet long and seven feet wide, might readily be moved over the railroad. Christman agreed to the proposition, and Dougherty at once proceeded to prepare one of his flatcars for the purpose.

"The boat was taken from its proper element," says a fulsome, contemporary account, "and placed on wheels, and by the superintendence of Major C. Williams, who politely offered his services to play captain of rail road cars and canal boats, (and who, be it remembered, was the first man who ran a boat over the Alleghenv mountain). At 12 o'clock . . . the boat and cargo, together with the delighted family, began their progress over the Allegheny. It was pleasing to see the comfort and convenience that the ingenuity of man has added to the journey of the emigrant. The whole family were comfortably located in the cabin of the boat, . . . whilst some . . . were preparing the coming meal, others were lying on their downey pillow, occasionally aroused by the hissing of the steam from the engines at the head of the inclined planes, but they were not to be stopped by this hissing of the puffing auditory, but continued to ascend the proud eminence which the projector's ingenuity was destined to attain." Night was spent on the summit level of the railway, and next morning the descent to Johnstown was made. From there the Hit or Miss proceeded on her novel inland voyage. With a little inspiration doubtless, this feat was widely hailed by the newspapers, and Dougherty gained considerable publicity for the Reliance Line by his enterprise.⁵

The Morris Canal with its unusual system of moving boats from lock to lock, level to level, was in operation by this time. We know

⁵ The best known account of the *Hit or Miss* is quoted in Sherman Day, *Historical Collections of the State of Pennsylvania* (Philadelphia, 1843), 184. Other accounts, from which some of the details above have been extracted, appear in Hazard's *Register*, XIV, 284–285.

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Dougherty \checkmark s familiar with its plan and the methods employed upon it. In the next five years, 1834–1839, during which he made his livelihood as a forwarding merchant, he set to work with a view to devising sectional boats.⁶ At about the same time as the Christman episode, the peculiar requirements of the Pennsylvania Main Line attracted the attention of another ingenious mechanic. Captain John Elgar of Baltimore was a Quaker machinist who had built the first iron steamboat in America, and he later collaborated with the famous Ross Winans in the manufacture of locomotives for the Baltimore and Ohio Railroad.⁷ In 1835 Elgar received a patent for "Improvements in the Art of, and Apparatus for, the Transportation of Goods upon Canals and Rail Roads."

The invention consisted of an adaptation of railroad cars to navigational use. "This I effect," his patent read, "by making such vehicles, or car bodies, of sheet iron, in the manner of iron tanks, riveting them up water-tight in the same way. The dimensions . . . must be determined by that of the canal locks, through which they are to pass when used as boats. If, for example, the lock will admit a boat of fourteen feet in width, and eighty in length, the bodies may be made seven feet wide and twenty feet long, so that eight bodies, two abreast, and four in length, may pass at the same time."8 In order to reduce the resistance of the water to his car bodies when joined together and not passing through locks, Elgar intended to connect them in a single line, sandwiched by bow and stern compartments. On account of the considerable length a boat formed of car bodies would thus attain, it would be necessary to provide a means of adapting them to the curvature of the canals. Elgar proposed to do this by using between each car body "flexible joints, . . . which will allow of the requisite lateral motion."9

⁷G. R. Prowell, *History of York County, Pennsylvania* (Chicago, 1907), 609; James M. Swank, *Progressive Pennsylvania* (Philadelphia, 1908), 126 and 127.

⁸ "The bodies when made of this length are to be carried upon eight wheeled cars. If four wheeled cars are preferred, the bodies must be made of a length suitable thereto, and a greater number of them will then, of course, be connected together, when in the water." Specifications of Elgar's patent are reprinted in the Journal of the Franklin Institute of the State of Pennsylvania and Mechanics Register, XVII, 418-419.

⁹ "These rule joint sections are to be coupled together by a connecting bar which falls, or is placed, on a strong upright pin, fixed in the center of the circumference of the joint, or in any other convenient mode." *Journal of the Franklin Institute* . . ., *supra*.

⁶ Davis & Shenk, op. cit., I, 54.

John Dougherty promptly became Elgar's patent as gnee for the State of Pennsylvania. In experiments he undertook to'test out the invention, many disadvantages came to light that limited its usefulness. The boxlike car bodies had flat bottoms and were so wide that when placed on railroad trucks the wheels revolved under the platform on which the car body rested. "The consequence of this arrangement was that unless the wheels were made of so small a diameter as to destroy their utility, the car boxes were elevated to such a height above the rails as to render it necessary to lessen their own height in a corresponding degree, in order that they might pass under the bridges, or through the tunnels. . . . "10 Elgar's method of connecting his car bodies flexibily in the water was also found to be very faulty. They could not be navigated "with their sides and bottoms coincident, but vary laterally, as well as upward and downward, from which cause they are liable to be injured by snags, or rocks, and have their motion retarded by the water. A still more frequent difficulty resulting from the original mode of connecting them, has arisen from the want of a free passage of the towing lines from end to end of the boat." There was enough space between each car body to catch the tow ropes on every section. Canal navigation required frequent movement of these ropes along the deck, especially when two boats were passing. The irregular, broken deck surface of Elgar's multiple-part boat made this common operation troublesome and hazardous. Dougherty encountered other difficulties at this time too. Some of his early models were found to weigh in excess of the Canal Commissioners limitations for the railroads, and zealous State agents forbade their running.

Dougherty improved and radically changed Elgar's design. He lowered the boat platform or cradle on the trucks so as to utilize better the carrying space for each boat section. He thereby reduced the height of each section when mounted on wheels. His plan was more practical than Elgar's in that he adapted canal boats to railroad movement, for by far the greater mileage of the Main Line consisted

¹⁰ United States Patent Office, John Dougherty, of Hollidaysburg, Pennsylvania: "Manner of Constructing Canal-Boats so that they can be Transferred onto Railroad-Cars," Letters Patent No. 2,973, dated February 24, 1843. Elgar's car bodies were designed to be at least six feet high, comprised of three feet of sheet iron and three of wood. The description suggests the origin of Dougherty's later iron transhipping boat. of waterway. "I construct the eight-wheeled cars upon which . . . sectional parts of boats are to be carried," he explained, "so as to allow the wheels to pass up through the frame, or cradle, . . . The bottoms of my boats . . . I usually form bulging, or convex, in their cross section, in the manner in which such boats are ordinarily made."

His method of connecting the sections in the water differed materially from that of the Baltimore mechanic. Dougherty planned his largest boats to be two sections wide and at least two or more in length. He attached "... to the fore end of each section, which is to have a rear section joined to it, a plate of iron six, or eight inches . . . in width and of such length as that it shall extend entirely across the under part of the section, from side to side, and sufficiently high on each side to confine the two parts, or sections, in place. Such plates are to be bent so as to conform to the curvature of the bottom, are to be fastened to one of the segments by bolts . . . and to project over and form a ledge . . . so that the rear section may be received, and rest upon it." This method of fastening the sections firmly together comprised the basis of his subsequent patent. "The sections are then to be firmly secured end to end, by loops and keys, . . . until the intended length is obtained; and two such series of sections are to be secured by bolts, bars, or clasps, side by side, and are thus to constitute a combined boat, of . . . ordinary width of a canal boat, and in length adapted to the locks through which they are to pass."11

By 1837 Dougherty's Reliance Transportation Line was running two-piece section boats that moved over the railways on eightwheeled trucks. Excessive weight no longer hindered their operation, for a change of State administration brought into office more helpful railroad superintendents and more obliging Canal Commissioners. A man of good education and a fluent writer, Dougherty now determined to publicize his invention with a view to securing its adoption on the State works. That year marked the start of a campaign he waged vigorously and with great effect for the next six years. Newspaper articles, first published in the leading metropolitan sheets and

¹¹ Dougherty, *supra*. All his boats as afterwards built consisted of a single line of sections divided transversely. He never seems to have built a longitudinally divided boat as described in his patent. Such a craft would have been too wide for the locks.

subsequently copied by weeklies in every town and hamlet along the Main Line, were the medium by which he and his associates in the Reliance proclaimed the merits of the new boats.

That summer he made a business trip to Pittsburgh to demonstrate his detachable boats. We can picture a small group of men, merchants, boatmen, and curious idlers, gathered by a warehouse on the basin. Dougherty is the center of attention. With an air of importance he supervises the coupling and uncoupling of the sections and explains how readily they can be floated on trucks for movement by rail. He claimed their introduction would speed up delivery of through freight, "ensure security from separation on the way," reduce transportation charges by fifty per cent, and "dispense with the cost, risk, and detention in transhipping." The demonstration over, he saw to it that the officials of the public works were thanked for their cooperation, and the warm terms were indicative of his future hopes. Stated the *Pittsburgh Gazette*:

The proprietors of the Reliance Transportation Company express peculiar satisfaction for the very efficient aid rendered by Mr. Patton, Superintendent of the Allegheny Portage Railway, and also to the correct, judicious and independent course pursued by the present Board of Canal Commissioners in affording an opportunity to carry into successful operation a work which to many appeared more than visionary, and by turning a deaf ear to the dark suggestions of individuals who endeavored to thwart the enterprise and crush it in its birth.¹²

This is the first hint of opposition to the Juniata Valley inventor and his plans. We cannot identify the individuals to whom reference is so positively made. That they were ousted railway officeholders and agents of competing lines is certain.

Dougherty's efforts seemed to promise good things for the Reliance Company when, early in the following year, it underwent an expansion. On the strength of prospects he held out for the future of larger boats, built in three sections, new partners were persuaded to go into the firm. Among them were Dr. Peter Shoenberger, who had made a fortune in Juniata iron, his sons' firm or partnership known as G. & J. H. Shoenberger; and James M. Davis, another well-known businessman.¹³ New rolling stock, some of a novel type, was pur-

¹² United States Gazette, July 28, 1837, reprinted from the Pittsburgh Gazette.

¹³ In addition to Dougherty, the new proprietors were John D. Davis, Peter Shoenberger, James M. Davis, John McFaden, G. & J. H. Shoenberger, and John and William Bennett (Blairsville). United States Gazette, March 30, 1838.

chased with the extra capital available. "We have," the Company announced in advertising broadsides, "in addition to our former large stock of Rail Road cars and canal boats, added a number of iron Transhipping Canal-Boats, in which goods are placed at Philadelphia, and pass (Together with the boat) direct to Pittsburgh, with safety, certainty, and unprecedented despatch."¹⁴

Transhipping boats promised to solve a problem about which Main Line shippers had complained ever since the opening of the canal: frequent separation and loss of parts of the same cargo or shipment en route from Philadelphia to Pittsburgh. The iron boats mentioned seem to have been modeled after Elgar's plans. They were of small capacity, carrying only about six tons, but their size made for easy movement over the railways. By using them the Company hoped to maintain a "fast line" of freight to take only six days between the two cities.¹⁵ Dougherty himself took the Philadelphia agency of the Company. Exactly what his interest amounted to we do not know. He had undoubtedly used his own funds to build the iron transhipping boats as well as the two- and three-piece section boats and trucks in the experimental period.

Despite new equipment, novel methods, and fresh capital put into the Reliance Company, its affairs did not go well, and in 1839 it was dissolved. Dougherty severed his personal relationship with the firm and gave up the agency he had maintained in the warehouse on Market Street, Philadelphia.¹⁶ Shoenberger and the remaining partners purchased from him the right to build and run three-piece section boats, and the firm henceforth became known as the Reliance Portable Boat Line.¹⁷ The inference that the small six-ton and twopiece detachable boats were very uneconomical may safely be made. Dougherty, acting on his own initiative, went ahead with plans for running four-piece boats. He contracted with George R. McFarlane,

14 Advertisement signed by Dougherty in United States Gazette, March 30, 1838.

¹⁵ So fast a schedule was nothing more than a promise made to secure business. Ordinary freight sent by line boat was supposed to be delivered within ten days. But even this schedule could not be maintained. "In 1839 a freight receipt issued by John Dougherty stipulated that the merchandise receipted for was to be delivered at Pittsburgh 'within twelve days, Sundays and unavoidable delays excepted.'" Swank, *Progressive Pennsylvania*, 151–152. See also *The Keystone*, Harrisburg, February 7, 1838.

16 Hollidaysburg Register and Huntingdon County Inquirer, July 10, 1839.

17 H. W. Storey, History of Cambria County, Pennsylvania, I, 341; Swank, op. cit., 150; see also The Keystone, February 7, 1838.

a Hollidaysburg foundryman, for construction of trucks for several new boats of this type that same year.¹⁸

In settling the affairs of the old Reliance Transportation Company, disagreements arose between Dougherty and his former associates, and litigation developed between them. It is probable that they were irked by Dougherty's intention to bring out a fourpiece boat and may have considered his action as in some sense a breach of contract. As a matter of fact Dougherty probably would not have disposed of the right to the three-section plan, had he not been convinced of the advantages of his four-piece boat which was larger in size and more economical to operate. Here again we do not know the precise conditions under which the old Reliance partnership was dissolved, except that it had lost money. Its successor, the Portable Boat Line, continued to do so in spite of its use of threepiece boats. Early in 1842 Dr. Shoenberger was reported "willing to bestow the whole concern on any one who would take it and relieve him of any further trouble with it."¹⁹

McFarlane's foundry delivered the new trucks for four-piece section boats in the spring of 1840. The forwarding merchant did not run them himself but leased them out. He now devoted most of his time to securing their general introduction on the public works. He explained his ideas in two circulars addressed to the State legislature and the public. In the first, written in 1839, he promised "to throw open to the public (with certain restrictions) the right to build boats in sections."²⁰ The inventor's views were animated by altruism and plain business sagacity. He wanted the general public to derive maximum benefit from his invention and incidentally to compensate himself for personal outlays.

He hoped to make the four-piece sectional boat "a cheap and ex-

¹⁸ "The first step towards building was the purchase of materials; and I contracted in September (1839) for the iron to be used . . . with T. Hunt & Son of Harrisburg. . . . They [the trucks] are charged in our Books, Feb. 29, 1840, amount \$1,555.20. . . ." George R. McFarlane, *Register and Inquirer*, May 31, 1843.

19 "A Democratic Reformer" in *Register and Inquirer*, March 2, 1842. He describes the dissolution of the Reliance partnership in these words: "Some time [in] 1839, owing to difficulties, they [the partners] separated, and some suits pending since then, remained unadjusted. Mr. Dougherty however owns some trucks individually, and his interest in the company previous."

20 Excerpt quoted in Davis & Shenk, *History of Blair County*, I, 54-55. Not otherwise available to this writer.

peditious means of transportation" for men of small means. The forwarding business on the Pennsylvania route had, by 1840, come to be regarded as a near-monopoly of a handful of companies whose combinations to sustain high freight rates were notorious. If, Dougherty suggested, "a man owning a single boat" were enabled "to load the same at Philadelphia and pass direct to Pittsburgh without unloading . . ." monopolistic combinations could be broken up and the revenue and business of the Main Line vastly augmented. "The introduction of free trade," as he called it, and of individual capital and enterprise were "imperatively required to make productive the canals and rail roads of this Commonwealth." If such conditions were fostered, he wrote, the place of Philadelphia as a market for the

was the case for the truck system, as it began to be called.²¹ Dougherty projected his lively imagination far into the future to suggest a whole series of measures for improvement of the Main Line. All were designed to stimulate and foster his individualistic theories. He advocated that repairs to the canals and railroads be made by contract instead of by the day, a change being currently instituted on the Allegheny Portage. The works could then be divided into short sections, "not more than five miles to one man" who should actually perform the repairs and not sublet the contract. In the future, Dougherty urged, State contracts of that kind should stipulate "that as many of the short curves in said rail roads as can be conveniently changed into straight lines, be so done, and the two tracks also be separated some two feet or more, so as to pass . . . boats in sections of a greater width than can now be used."

West and the interior of the State would be assured. In short this

As a corollary to the truck system, he proposed that the State should lease its locomotives on the Columbia and Philadelphia Railroad to individuals "who will run the said engines themselves." Dougherty foresaw a time when "locomotives, owned by individuals, can start from any section of rail road, if connected with other lines, and traverse from one extreme of this Union to the other. Fuel can be furnished at the various water stations by the hotel keepers, just as hay and oats are furnished on common roads by innkeepers. . . . This individual economy will greatly lessen the cost of repairs and

²¹ "To the Members Elect to the Legislature of Pennsylvania and The Public Generally," in *Democratic Standard*, November 5, 1841.

... running the engines." (How suggestive of the distant future automotive age!)

Other recommendations he made were that the Belmont plane on the Columbia Railroad, one of two, be eliminated, that the canal reservoirs, whose construction had lagged, be completed, and that the canal locks be lengthened and enlarged "to admit boats 14 feet in width and 125 feet or upwards in length. This will enable boats to carry 100 tons and upwards, each." These improvements made, steam power could be used on the canals. What change more pleasing to "benevolent man," he asked, than to free "the noble horse . . . from the severe fate to which he has been heretofore subjected." All these innovations, Dougherty predicted to his readers, were calculated to assure the productivity of the State works, "advancing the prosperity of the people," and, what was even more remarkable, having "a tendency to allay the violence of party spirit." A placid state of political feeling was the most paradoxical benefit ever claimed for the truck system! It was for ideas like these that the inventor of the section boat became known as "Agitator Dougherty."22 His pen too often led him far afield.

He hoped to induce the legislature to purchase his patent right to the four-piece boat and place publicly owned trucks on the State railways for their use. Dougherty's promotional efforts, in which he was joined by some of his former associates who were still carrying on the Reliance Portable Boat Line, soon began to bear fruit. By 1841 the utility of section boats had become the question of the day all along the Main Line. The metropolitan newspapers teemed with controversial articles on the subject. The superintendents on the public works were among Dougherty's first converts and urged adoption of the scheme in their reports to the Canal Commissioners.²³

Those who opposed the inventor, and they were influential if not numerous, did not lack cogent reasons, beside self-interest, for doing so. The debt incurred by the building and unproductive operation of the works had reached staggering proportions. Unless retrench-

²² He was known locally as Captain John Dougherty and sometimes nicknamed "Forwarding John" to distinguish him from another resident of the same name, known as "Honest John."

²³ Report of John Snodgrass, Supt., Allegheny Portage Railroad, October 31, 1840; Report of Thomas Tustin, Supt., Philadelphia and Columbia Railroad, December 1, 1841.

ment were undertaken the financial stability of the Commonwealth appeared threatened. Hence this was not the time to increase expenditures, they asserted.²⁴ The limited capacity of the four-piece sectional boat was cited against its utility. The average line boat on the Pennsylvania Canal carried forty tons, but each piece of a section boat mounted on its railroad trucks could not carry more than six or seven tons; therefore it would be uneconomical to drive the larger boat from the inland waterways by a policy of favoritism. Another oft-repeated allegation was that the trucks with their loaded boatsections would cause excessive wear and tear on the railways. And, finally, these writers charged, it would be foolish indeed for the State to spend \$3,000,000 to separate the tracks of the existing railroads sufficiently to accommodate section boats eleven feet wide instead of eight and a half, as Dougherty's boats were then built. Already survevs had been made for a graded road, free of inclined planes and to

replace the Portage Railway, over the Allegheny Mountain.25 The circulars of 1839 and 1841 addressed to the people can hardly have been Dougherty's debut in print, but they made him a public character, a role he evidently found highly congenial. Very often in these years personal attacks were made upon him to discredit his ideas. His relations with his former partners in the Reliance Company afforded a good opening. "It is a little curious," one of the most outspoken of the anti-truck men wrote in 1842, "that so soon as there was a prospect of getting the State to take the whole matter [the trucks] off their hands, they could bury the tomahawk and most lovingly cooperate in effecting that object. Messrs. Shoenberger, Davis and McFadden, use their influence at Pittsburg, and prepare the public mind by newspaper puffs; James M. Davis, at Philadelphia, Mr. Dougherty and his host of coadjutors at Harrisburg, all seeming to have no personal interest; advising and urging the State to buy said Trucks &c. which they themselves would not agree to ownprovided they were bound to keep them up!" The poor showing of the Reliance Portable Boat Line, which had staked its success on the

²⁴ By 1840 the public debt of Pennsylvania stood at over thirty-four millions. For five years previously the average net yield of the public works was \$139,600. But "the average yearly interest on sums borrowed to construct the works had exceeded \$1,200,000." A. L. Bishop, "State Works of Pennsylvania," in *Transactions of the Connecticut Academy of Arts and Sciences* (New Haven, 1907), XIII, 218.

²⁵ Democratic Standard, December 31, 1841. Reprinted from United States Gazette.

worth of the three-piece section boat, gave much point to this attack. "Does any one apprehend," the writer went on, "that Dr. Shoenberger would be so anxious to sell if anything was to be made by keeping them. There is no lack of means to do all that the State can do, and with more economy too, and the Shoenbergers and Davis, with their immense means, could if the plan was a good one, reap a great harvest from it."²⁶

Dougherty's fond belief in what he called "individual enterprise" and "free trade" was likewise criticized as being far fetched and unrealistic. It required a large expenditure of public funds merely to increase "the facilities of every man who can raise two horses and a boat. . . . Has a single Boatman ever yet asked the Legislature or Canal Board for such interposition in their favor?" asked the same writer, who signed himself "A Democratic Reformer." Then he detailed what purported to be the verdict of canalers themselves on the new "system":

Among real practical boatmen, who are fully aware of all the difficulties and obstacles in the way of the proposed plan, it is a subject of merriment when talked about, and all agree that the portage [Philadelphia to Columbia and Hollidaysburg to Johnstown] was not the obstacle, as that has been open to *all* men whether with one boat and 2 horses or 10 boats and 20 horses: but they unanimously say, "We could not get any freight in Philadelphia, only what little we might happen to find when our own immediate friends and acquaintances happen to be buying at the time and in addition to that, they say that the time lost in drumming up loads, after they get into port (their expenses being from six to seven dollars per day) would more than over balance any advantages they might possess, over the Lines, who keep up all the necessary fixtures, and unload and reload a boat in part of a night; and besides that, they say they could not carry at as low rates as the Lines carry during one half of the season."²⁷⁷

The change in freight rates for one half of the season, here alluded to, may be explained by the fact that Pennsylvania transporters customarily charged higher rates in the spring of the year when the Erie Canal was closed to navigation. As soon as the northern route opened, competition brought the rates down to something like an equal basis. So raged the debate. The boatmen's opinion just quoted is somewhat exaggerated to conform to the writer's prejudices. Nevertheless it was essentially sound criticism. Even today, it is

26 "A Democratic Reformer," see supra. 27 Ibid. worthy of note, local traditions attest the impracticability of sectional boats as compared with the older standard line craft.

As we have seen, Dougherty's zeal on behalf of his system had taken him from one metropolis of the Main Line to the other. His thoughts were always concerned with the drift of official currents through the Canal Board's room in Harrisburg. January, 1842, found him finally, as already disclosed, in the State capital, advocating his plan and, as one of his opponents afterwards phrased it, acting the part of "confidential calculator to the Canal Commissioners." How successfully may be judged from the fact that in the following February he was appointed weighmaster at Hollidaysburg by Governor Porter's Democratic Board.²⁸ Several months later the legislature passed a bill authorizing the Commissioners to place State trucks on the Columbia and Allegheny Portage Railroads. The purpose of the act was to test the merits of the section-boat system. It provided that the whole expense of procuring trucks for both roads, obtaining use of the patent right claimed by Dougherty (but which was not actually granted him until February, 1843), and other incidental expenses should be limited to \$40,000, payable out of revenue to be derived from actual rental of State trucks.²⁹ No provision was made for the purchase of the patent, only for its use. Within these limits the Canal Commissioners could exercise their own discretion.

The inventor heard this news at Hollidaysburg with disappointment. The measure was a timid, half-hearted endorsement of his plan that quite failed to meet his expectations. Rumors were current in the western part of the State that he hoped to obtain some such amount as \$80,000 or \$100,000 for his invention, but these were popular exaggerations. He stated his objections to the law in a letter to John B. Butler, President of the Board of Canal Commissioners, and threatened to prevent the running of section trucks by the State, if his wishes were not regarded. The President of the Board replied that unless Dougherty were to accept the State's offer for use of his trucks and manner of payment, that is, out of earnings as they accrued, the Commissioners would prevent him from operating them

²⁸ Democratic Standard, February 11, 1842. 29 Democratic Standard, July 8, 1842.

himself. It is probable that the Canal Board's offer for use of the trucks was not higher than several thousand dollars.³⁰

During the winter of 1842-1843, the Commissioners made preparations to provide trucks for the Main Line. The Act of 1842 did not authorize the State to become a carrier of freight, as some of the anti-truck men had feared, but merely to provide facilities for movement of section boats over the railways. Eighteen sets of trucks of four sections each were contracted for, and ten were earmarked for use on the Allegheny Portage.³¹ Boat slips with short inclined planes leading to the railroad tracks had to be built on the canal basins at Columbia, Hollidaysburg, and Johnstown, so that sections could be floated over trucks and then pulled out of the water. Dougherty was probably present at the Hollidaysburg basin when the State slip was tried out in the spring of 1843. The first craft to use it was the fourpiece section boat C. Garber, Captain Bennett.³² A novelty of the occasion that attracted attention was a wire rope used to draw up the trucks with their loaded boat-sections. It had been installed by a young engineer whose name was badly misspelled in the published account. But then even city editors had not heard of John A. Roebling.

Dougherty learned, meanwhile, that the Board's policy would be to put the State's trucks on a preferential basis as compared with those owned by himself and other individuals, including the Reliance Portable Boat people. His relations with the Commissioners, already strained, deteriorated further. In disgust he resigned his office of weighmaster in February, 1843, the duties of which his critics accused him of neglecting. When the navigation opened, his trucks, as he had foreseen, could not compete with those run by the State and were idle. As a consequence his affairs now reached an impasse. He had given his notes to George R, McFarlane, the builder, in partial

30 A story that Dougherty was to ask John Snodgrass, Superintendent of the Allegheny Portage Railroad \$80,000 for the State's title to his patent and equipment and that Snodgrass in turn was to use his official influence to obtain \$100,000 for them was vigorously denied by the railroad official. The superintendent believed that the cost of securing the patent, etc., should be limited to three or five thousand dollars. *Democratic Standard*, July 15, 1842.

³¹ William B. Wilson, "The Evolution, Decadence, and Abandonment of the Allegheny Portage Railroad," in *Annual Report of the Secretary of Internal Affairs* (Harrisburg, 1900).

³² Named for Christian Garber, McFarlane's business partner. This Captain Bennett was probably one of the former agents of the old Reliance Company at Blairsville.

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payment of the trucks contracted for in the summer of 1839. Some of them were long overdue, but McFarlane had not pressed him. On the contrary, he had done all he could to assist the inventor in Harrisburg in 1842.

Partly on account of political estrangement, partly because of this business difficulty, the two men quarreled and in May, 1843, began publicly to air their grievances in the rival Hollidaysburg newspapers. McFarlane was a successful iron founder, a Democrat of unshakable loyalty to his party, and a former journalist of marked ability. Both men had an interest in the weekly Democratic Standard, and Dougherty was trying to use the paper as an organ to advocate his personal views on the section-boat question. He accused McFarlane of obstructing his plan and of being partial to the Canal Board's policy. He asserted that the foundryman had delayed the building of the trucks, contracted for in 1839, until after the results of the November elections that year were known. On his side, McFarlane refuted the accusation of delay, revealed Dougherty's long standing indebtedness to his foundry, gave a first-hand account of his activities in Harrisburg, in which he had himself taken a friendly, cooperative part, and alleged that Dougherty had never paid the assessment for his newspaper stock.

With increasing asperity and bitterness the two men attacked each other in lengthy letters week after week. The performance was not creditable to Dougherty and the cause he represented, for McFarlane usually had the better of the argument. One cannot read these letters today without feeling that Dougherty may have misapplied the rentals of his trucks by failing to do all he might to pay his notes, and the suspicion of undue self-interest in his dealings with the Canal Commissioners constantly arises. On the other hand, the inventor had a good case, for in the main he himself had borne out of his own pocket the expense of developing section boats. But the recklessness with which he attacked McFarlane weakened his stand.

The transportation companies watched the adoption of the truck system by the State with misgivings and disfavor, for their business was threatened by a new form of competition which they had great difficulty meeting. They countered Dougherty's claims at every opportunity and made their opposition felt in Harrisburg. "The

demands which have been made upon this Board," a harassed Canal Commissioner complained early in 1843, "to add to the already heavy expenses charged a section boat for use of the trucks, by charging them also with motive power wheel tolls, is manifestly too extravagant and unreasonable to be entertained or seriously listened to."³³ Legal restraint was the only resort left to the transporters, and they were not slow to grasp it. In May, 1843, headed by David Leach, the veteran proprietor of D. Leach & Co., they brought suit in the Supreme Court against the Commissioners to secure imposition of higher charges for use of State-owned trucks. One of the plaintiffs was James M. Davis, who represented the Reliance Portable Boat Line.³⁴ They contended that the Commonwealth should charge, in addition to a fee for haulage of trucks, a motive power wheel toll, a device to equalize the rates.³⁵ The object of the companies was to compel the Board to levy enough toll on those using State trucks, over and above the regular toll, to equal the amount of their expenses "incurred . . . for warehouses, clerk hire, agents, etc."36 The Board argued the illogic of charging wheel tolls on its own equipment. The Court's decision later that year upheld the Commissioners.

Dougherty, for his part, did all in his power to protest his position and interest to the Commissioners. After resigning his office, he placed himself in open opposition to them, an action that caused many to believe he was opposing the system he had so long championed. His most successful critic on this score was McFarlane. The forwarding merchant, however, believed that the official policy was a discrimination aimed solely at himself. Although dissatisfied with the law of 1842, he contended it was the administration of it that jeòpardized his rights to his section boats. "The Canal Commissioners were not required to purchase of me my Trucks," he wrote in explanation of his attitude, "neither was there any law to *compel* me to sell my property *against* my consent; yet one of these Commis-

33 John B. Butler in Democratic Standard, March 17, 1843.

³⁴ Other transporting companies that joined in the suit were James Steele & Co., and E. G. Dutilh & Co. See Wilson, "Evolution, Decadence, and Abandonment of the Allegheny Portage Railroad."

³⁵ The relation of section-boat charges to Pennsylvania Canal and Railroad tolls requires too extended discussion for the limits of this paper.

36 Wilson, op. cit.

sioners, (Mr. Butler) informed me that unless I would accept their offer as to price, and also as to manner of payment (viz: out of Rents or Hire of my own Cars or Trucks) that they would *prohibit* my Trucks from being used on *their* Rail Roads. This you are aware they have done. . . .³³⁷ Research has not yet disclosed exactly what kind of an offer the inventor would have found acceptable.

In August, 1843, Dougherty finally secured the editorship of the Hollidaysburg newspaper, *Democratic Standard*, which had formerly supported the regular Democracy. He used it to mount forceful attacks on John B. Butler of the Canal Board, the superintendent of the Allegheny Portage Railroad, with whom he had now fallen out, and Governor Porter himself. The Juniata Valley inventor's association with the cause of individual enterprise made his political opposition distasteful to the Commissioners, for a popular following supported him along the Main Line. His efforts at length achieved their purpose. The following spring the policy of the Board was changed, and trucks owned by individuals were permitted to pass over the State railways on the same terms as those hired from the Commonwealth.³⁸

All and sundry might now run four-piece sectional boats on equal terms. It remained to be seen how well their inventor's theories wou'd be justified. Temporarily circumstances appeared to bear them out. Boat-trains became a feature of the Main Line transportation scene, alike common to the business district of Philadelphia and the distant planes of the mountain railway. From the late forties to about the middle of the next decade the use of these boats rivaled that of the much older and larger line boat. In 1849, for instance, more than eight hundred section boats passed east and west over the Allegheny Portage Railroad. The figure indicates the degree to which boats of this type were being used and is not to be taken as the number of section boats built. Not all were making the through trip from Philadelphia to Pittsburgh, but most were. Some plied between the western metropolis and the cities and towns of the Susquehanna Valley.

37 Dougherty in Register and Inquirer, May 24, 1843.

³⁸ Democratic Standard, March 23, 1844. Quoted by Harry A. Jacobs, The Juniata Canal and Old Portage Railroad (Hollidaysburg, 1941).

Impressive as the foregoing statistic is, there was a reverse side to the picture. The old contention of opponents of the system that loaded boat-trucks would wear out the railroads proved to be true. The first trucks bought by the State were found to be constructed too lightly and were constantly breaking down. Heavier castings remedied the numerous accidents but did nothing to decrease excessive wear and tear on the right of way. The planes and levels of the Portage Railway required that the motive power on boat-trains be changed twenty-three times in thirty-six miles, another source of expense to the State and delay in transit of boats. As time went on the rates charged for use of trucks were determined to be so low that their operation was maintained at a loss to the Commonwealth.

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It was unfortunate that the rise of the section boat coincided with a decade of formative change. The role of individuals, far from increasing as Dougherty had predicted, was rapidly diminishing in the field of through transportation. The joining of corporate competition to public enterprise was everywhere apparent. The Pennsylvania Railroad Company was now rapidly completing its line westward parallel to the canal. It was out of the question to charge higher rates for rental of the State's boat trucks. For these reasons successive boards of Commissioners grew more and more lukewarm in their toleration of the system, until, by 1854, its abolition was proposed. It must be remembered that the introduction of these boats, improved to the four-piece plan, came at a time of great financial stringency when the unproductiveness of the State works could no longer be ignored or explained away. The first steps of the movement leading to their sale had already begun. Bearing in mind this over-all decline of the Main Line, it is nevertheless true that in the economics of canal-railroad transportation the sectional boat did not find a lasting place.

Dougherty's own fortunes did not match the fleeting success of his cherished invention. Of his activities from 1844 to the end of the canal period we hear little. He resigned his editorship in less than a year. Owing to straightened business circumstances he sold most of his trucks and equipment shortly afterwards. Apparently he did not derive more than several thousand dollars both from the State and from individuals who used his patent. There was doubtless a good deal of infringement of it that he could not prevent.

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In spite of his disappointment Dougherty's preoccupation with mechanical contrivances continued for the rest of his life. He always remained a disappointed inventor, that not infrequent combination of the practical man and the visionary. His ideas were progressive and novel but, judged even by the technical standards of the forties, naively amateurish. His quaint outlook was characteristic of the canal-railroad era. After the close of the waterway he settled into an obscurity broken only by his death, at Pittsburgh, early in the eighteen eighties at what must have been a respectable age. His passing rekindled memories of thirty years. A younger contemporary who as a youth had "captained" cars on the State Portage during the last phase of its operation recalled in his diary the days of Dougherty's prominence and notoriety along the Main Line. Of all the forwarding merchants, "Agitator Dougherty's" dimming reputation and forgotten celebrity remained unique. The diarist closed his brief entry with the neat little epitaph: "Peace to John. A clever man."39

Oklahoma City

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39 Diary of Major S. S. Barr, in Blair County Historical Society, Altoona, Pennsylvania.