

VENTURE CAPITAL, HIGH-TECH START-UP ENTERPRISE, CORPORATE GOVERNANCE, AND INTERNAL CONTROLS:

The Case of the Baltimore and Ohio Railroad, circa 1831

THE CASE

It is November 1831. You are Joshua Bates, one of the triumvirate of powerful London investment banking partners of Baring Brothers & Co. You are meeting with an enthusiastic American, George Peabody, who wants your firm to invest \$3,000,000 in securities of the company he represents, the Baltimore and Ohio Railroad. Other Americans have been through your office trying to raise capital for their ventures—canals, toll roads, and states have all come to 8 Bishopgate, Threadneedle Street, London. Barings is regarded as “the American House” since it had financed the Louisiana Purchase. Ironically, the B&O’s chief rival, the Chesapeake and Potomac Canal, has just been rejected for a loan by your firm, but the B&O situation seems interesting, if not risky.

George Peabody is a true salesman, a classic optimist, and the embodiment of the American story with its leap-forwards and set-backs, you think as you listen to Peabody talk. George Peabody was born poor, served as a shopkeeper’s apprentice at age 11, worked for his uncle selling goods peddled by horseback, served two weeks as a soldier defending Washington against the British in 1814 and became a partner with a drygoods merchant he met in the army. The firm moved to Baltimore and Peabody has now morphed from drygoods into international finance. You see greatness in Peabody (but who can foresee that Peabody’s firm will evolve into America’s famous banking institution: the House of Morgan; and that Peabody will eventually become exceedingly wealthy and be a great (America’s first) philanthropist establishing the Peabody Institute and educational institutions and programs).

What you learn from Peabody is that the B&O has built 13 miles of railed-road from Baltimore and is in the process of completing the road into Frederick, Maryland. From there, the construction will go to the Potomac River and follow the river through Harpers Ferry. However, construction is becoming difficult as the railroad is approaching the difficult terrain of the Allegheny Mountains. The risks are high as costs of construction are unknown. Indeed, the B&O has run out of the capital it had initially raised from its 1827 stock offering. The risk is not only the uncertainty of construction costs and whether the B&O will be able to raise enough capital; the engineering of a railed-road is being developed—the technology is yet unproven. Mountains are to be crossed, rivers and gorges bridged, excavation and tunneling completed. And the steam-powered locomotives are yet to be developed into a reliable technology.

George Peabody describes last fall's race between the steam-powered and the horse-drawn trains on the 13-mile track into Baltimore. While the horse-powered train won the race due to a broken belt on the Tom Thumb, clearly steam-powered locomotives is the technology of the future. This experiment in technology was conducted by American inventor, Peter Cooper, in conjunction with the B&O. You are already familiar with a similar race of five years before between the Stephenson's "Rocket" steam-powered locomotive-drawn train and a horse-drawn train on the Stockton and Darlington Railway near Manchester England. Here, Stephenson's steam-powered train won – a victory for British technology, you recall.

Peabody goes on. The land of the American interior is a wilderness and will remain so **until** a transportation system makes the land valuable. The rich interior land of the Ohio and Mississippi River Valleys will never be developed until farmers can get their goods to market and merchants can ship goods from the east coast ports to the interior. By wagon, the cost of moving goods only a few miles can easily be several fold more than the value of the goods being

shipped. If a cheaper way could be found to move goods within the U.S., then land will become valuable. Canals – such as the Erie – reflect some of the economic potential of an efficient transportation system. A “railed-road” represented a huge incremental step beyond the canal.

You listen intently. This is fascinating information. You try not to let your imagination go too far. The former Colonies have always been enticing—a land of opportunity. You ask about Peabody’s own commitment to the B&O venture. You learn that he was among the founders. He subscribed to 122 shares of stock in 1827 for a total investment of \$12,200. His initial interest in the “railroad” idea had arisen from a drygoods merchant perspective of Baltimore needing to preserve its competitive advantage in trading with the Ohio Valley, in light that the Erie Canal had just opened and made New York City a much more viable port city for this interior trade. Now George is explaining the economic benefits that will flow as development will occur in regions connected to the railroad. If it can just be built!

Other leaders of Baltimore had been as involved as George Peabody. The list of directors which Peabody gives you reads like a Who’s Who of American businessmen. The name that immediately catches your eye is Alexander Brown, who is America’s preeminent investment banker. In fact, his firm, Alex. Brown & Co. Inc. has opened branches in England and you have traded with it. The commitment to the B&O by these gentlemen is impressive.

The citizens of Baltimore and Maryland had been eager to invest in the stock. Peabody may be exaggerating a bit, you think, when he says that every citizen had bought shares. Yet you are surprised to hear that of the 30,000 shares of B&O stock issued, 10,000 are owned by the State of Maryland and 5,000 are owned by the City of Baltimore. So half of the stock is owned directly by the government, making the citizens truly owners, directly or indirectly.

TABLE 1

Original Board of Directors of the B&O

Name	Estimated stock ownership shares (% of total)	Business Background
Alexander Brown	500 (1.66%)	investment banker, founder of Alex. Brown & Sons, Inc.
Charles Carroll	300 (1.00%)	wealthy landowners, signer of Declaration of Independence
Thomas Ellicott	300 (1.00%)	president of Union Bank
George Hoffman	Not known	
Talbot Jones	300 (1.00%)	
William Lorman	100 (.33%)	banker, investor in steamboat and turnpike companies
Isaac McKim	100 (.33%)	owner of mills and sailing vessels
John B. Morris	100 (.33%)	banker and real estate developer
William Patterson	500 (1.66%)	merchant
Robert Oliver	500 (1.66%)	merchant and western land owner
William Stewart	Not known	
Philip E. Thomas	300 (1.00%)	hardware merchant and banker

Solomon Etting – representing the City of Baltimore (5,000 (16.66%))

Patrick Macauley – representing the City of Baltimore

Officers

Philip E. Thomas - elected president – also director

George Brown - appointed treasurer – son of Alexander Brown, associated with father’s investment bank

You receive various financial documents including annual report information, corporate minutes of the Board of Directors and newspaper accounts from George Peabody. Peabody leaves. Your clerk, William Samson, a hard working, if not overly bright fellow, examines these documents and writes a summary of the financial and operating activities of the B&O during its first four years. Clerk Samson’s report summarizing the content of the minutes, annual reports, report of B&O engineers, and Baltimore newspaper stories is contained in the next section after the “QUESTIONS FOR STUDENTS.”

QUESTIONS FOR STUDENTS

1. What created the “agency” problem at the B&O? Why hadn’t this problem not arisen earlier in American business? What steps were taken at the B&O to reduce the “agency” problem?

2. Using the *Business Week* “Principles of Good Governance” criteria (Appendix B), evaluate the B&O’s Board of Directors. Where possible, point to specifics to support your assessment on each of the criteria.
3. Describe the importance of the audit committee role in the survival of the B&O. What essential functions did these committees perform for the B&O? How are these functions carried out today?
4. Describe specific instances of internal control weaknesses at the B&O. What were the consequences? What steps were taken to strengthen the internal controls?
5. How did the reorganization improve the B&O’s chances of survival?
6. Describe why an external investor such as the House of Barings might focus on the make up of the Board of Directors and the role it plays in governing the corporation. Why should the audit committee’s activities be of interest to an external investor such as Barings?
7. Describe the purpose of an audit. Who is the “client” that the auditor represents and protects in the audit examination? Why is this an important issue?
8. Why was the B&O’s audit committee presence and active role a key point for external investors to consider in making investment decisions about the B&O securities?
9. Comment on management’s integrity as demonstrated by the B&O’s President and by the Superintendent of Construction. Why should Barings be concerned about the management integrity issue?

APPENDIX A

CLERK SAMSON'S SUMMARY OF THE B&O'S FINANCIAL AND OPERATING ACTIVITIES

HISTORICAL BACKGROUND

The Baltimore and Ohio Railroad was formed in 1827 as merchants of Baltimore sought to preserve their city's commercial advantage as a seaport link with the American interior. The city had risen to be third in size in the U.S., due to the construction of the National Road which bridged the Allegheny Mountains from Cumberland, Maryland to the Ohio River Valley and the Mississippi River Valley of the Midwest. However, even with the National Road, travel by wagon was arduous, slow, and costly. The opening of the Erie Canal (connecting New York City's port with Lake Erie) in 1825 threatened to ruin Baltimore's commercial role as transport with the Ohio and Mississippi River Valleys shifted to waterborne shipment via canal, lake, and river through New York City. Freight prices dropped significantly and set off a boom in canal building by some cities, and a search for alternative forms of transportation by others.

Because Baltimore did not have a direct river access to the west, merchants of Baltimore were willing to consider any and all ideas. Banker Philip E. Thomas had been corresponding with his brother, Evan Thomas, who was in England and who was excited about "railed roads" there. Similarly George Brown, an investment banker, had been hearing from his brother, William, in Liverpool, about British railroads. So Philip E. Thomas and George Brown met over dinner and discussed the possibility of a railed-road connecting Baltimore with the Ohio River [Dilts 1993, 37]. The two believed that the cost of construction over the mountain would be less for a railroad than the Chesapeake and Ohio Canal's proposed cost (the nearest competitive alternative); and the two also felt that the railed-road offered mechanical advantage such that horse-drawn wagons could be pulled in a train efficiently upon the railed-road.

Merchants of Baltimore met and seized the railed-road idea [Dilts 1993, 38]. Incorporation was done via special enactment by the Maryland legislature in February 1827. Thirty thousand shares of \$100 stock were quickly subscribed to as virtually every citizen of Baltimore supported the enterprise [Jacobs 1995, 13]. City of Baltimore and State of Maryland funds also were invested as these entities received half of the ownership (5,000 and 10,000) of the shares, making the B&O a quasi-public, quasi-private entity. An annual report (“Statement of Affairs”) issued by the corporation to its shareholders was required by the B&O corporate charter; though, the contents of the annual report were not specified [Previts 2000, 5].

The size and growth of the enterprise from the time of the initial public offering is significant. The Erie Canal cost \$8.8 million, and was a fully-state-funded enterprise, and a record for the cost of a U.S. business project at completion in 1825. The B&O started as a \$3 million business from its beginnings and quickly grew to exceed the Erie’s cost. Significantly, this large capital investment established that U.S. businesses would become public joint share ventures, not family-owned, privately-held, small-scaled enterprises in which all the capital came from the owner or the family with occasional borrowing from the local source. Railroads, by contrast, required large numbers of investors, outside the business and outside the region, who needed communication from and control over management. The railroad management quickly evolved into a separate professional class with only a small ownership interest, but with expertise to run the operations. This early evolution would lead to agency relationships, significant in the development of accounting, auditing, finance and business.

From its inception, the company had established a committee of directors to serve as a “routine” audit committee. The “Code of By(e) Laws”, adopted April 9th, 1827, states:

A Committee shall be appointed at least once in three months to inspect the accounts and funds of the Company and to examine the vouchers for all monies expended and shall report the same.

After the adoption of the corporate “Code of Bye Laws” at the April 9th 1827 meeting, the Board of Directors met on September 8th, 1827 and appointed two of the directors, John B. Morris and William Stewart, to examine the “Treasurer’s accounts” [*Minute Book A*, p. 30].

The committee’s report, reproduced below, is particularly noteworthy **for it is the first known U. S. audit statement.**

Exhibit 1

Meeting of the Board
1st Oct 1827
Report of the Committee
Appointed to examine the
Treasurer’s a/c

1827 Oct. 1 We have examined the foregoing a/c & find the same to be correct exhibiting the amount rec’d by the treasurer of the Railroad & the several disbursements authorized by the board by which it will appear there remains a balance of \$17,835.9/100 at the credit of the company as p[er] book balances on the 29th of September [with] satisfactory vouchers being produced to show the correct refs of the afore said disbursements.

Signed John B. Morris
 William Stewart

[*Minute Book A*, Board of Directors Meetings, 31-32]

It is significant to find vouchers being used to support disbursements and that all of these payments had been authorized by the Board of Directors. These internal controls, along with the audit committee’s examination, were techniques to assure that assets were safeguarded.

In exhibit 2, below, there is a letter from the President transmitting the 1829 accounts and vouchers to the audit committee. Thus, the President is, in effect, being audited by the committee. The rest of the exhibit is the committee’s audit report which found the balances

correct and supported by documentation. The report does reference exhibits including a balance sheet, which accompanied the committee's report. This had not been done in previous reports.

Exhibit 2

The accompanying accounts of disbursements on a/c of the Baltimore & Ohio Rail Road for the quarter ending 30th Sept. 1829. Having been examined by the Clerk and reported to me as correct, are approved, and transmitted for your examination to P. Macaulay

John B. Morris
Wm Stewart Esqrs
Com.e of Examination

Respectfully P. E. Thomas Pt
B&O R.R. Co.

The Committee to whom was referred the accounts of the company beg leave to Report that they have examined the accounts for the third quarter of the present year laid before them and approved by the President of the Company as per document A herewith transmitted and have found them correct and in all cases supported by the necessary vouchers. It will be observed by a reference to document B herewith transmitted including the account current and **balance sheet** [emphasis added] from the Treasurer that the sum of Eighty three thousand nine hundred and twenty two dollars and seventy four cents appears due to the Treasurer but which in fact did not exist, as it arose from the discount of notes placed in his possession by the Board of Directors all of which has been since paid.

December 31st 1829 signed

Respectfully submitted

P. Macaulay
J. B. Morris
Wm Stewart Committee

[*Minute Book A*, Board of Directors Meetings, 283]

In the reports detailed in Exhibit 3, the audit committee pointed to two cash expenditures, which it felt, were incorrectly paid. Apparently, laborers had been overpaid by \$1.86 by the B&O. This seems very minor, but reflects the care with which the committee undertook its work. The second item, postage of \$54.49 must have been for employees' personal mail, which the B&O paid for. The audit committee recommended a voucher system to ensure that only company postage was paid for by the railroad.

Exhibit 3

Wever did not start immediately; he needed several months to get his personal affairs in order. When he arrived to take charge of construction, building had already commenced.

At about the same time Knight and Wever were hired, the B&O also hired Colonel Stephen H. Long and Captain William Gibb McNeill as engineers; their topographical expertise being needed to locate the best routes over the Alleghenies. Knight, Long and Philip E. Thomas, the B&O President, became the Board of Engineers (BOE). This unit's formation and role perhaps reflect an idea carried from the American federal government's use of a panel of engineers used in the construction of forts and internal improvements [Dilts 1993, 75]. The BOE acted in the capacity of overseeing the railroad construction. It soon clashed with Superintendent Wever, who was in charge of construction and a person not suited to being thus supervised.

The Board of Directors commenced building on July 4, 1828, with much fanfare as marked by a great "laying the stone" ceremony. The contract procedure followed the pattern that was used by the federal government, and the BOE oversaw the initial contract work, since Wever, who had been hired, had not yet arrived to supervise.

Following the U.S. Corps of Engineers experience, the Board of Engineers delegated Capt. McNeill to draw up regulations governing construction contracts [Dilts 1993, 75]. These regulations adopted on June 9th 1828 are given below in Exhibit 4.

Exhibit 4

Selected Regulations of the Board of Engineers

- Article 4: calls for appointment of superintendent of construction who would receive all his instruction from the Board of Engineers
- Article 7: dictates the manner of keeping and rendering accounts for disbursement, quarterly abstracts, accounts current and disposition to be made of them. It provided for examination of records by the Board of Engineers

- Article 8: sets standards of responsibility for company employees to whom funds or other property of the company had been entrusted
- Article 9: specifies the duties of the Treasurer and the Committee on Accounts in the relationship to fiscal operations
- Article 10: requires the Committee on Accounts' report to be in writing, and to express an opinion as to the proper or improper application of funds of the company
- Article 11: requires that any funds spent based on estimates must be approved first by the Board of Engineers. Payments for contracts made when contracts fulfilled – only paid by Treasurer on order by President after certificate given by Board of Engineers who inspected the work and certify that the contract has been fulfilled.

[Articles extracted from Long and McNeill's *Narrative of the Proceedings of the Board of Engineers*, 1830, 29-30]

These regulations were approved by the Board of Engineers by a vote of 2-1 – with Thomas and Knight approving and Long voting against (he felt the articles were not explicit enough) [Long 1830, 34]. The “Committee on Accounts,” while not described further, is likely to be a reference to the Board of Director’s audit committee, given the subsequent use to which that Committee was put by the BOE.

When Wever took over the Superintendent’s job, he insisted that he have control over all grading, masonry, and bridge work without any interference from the BOE. He also insisted on being able to relocate the road and control the payment of contractors [Long 1830, 35-36]. While Col. Long opposed Wever’s demands, Thomas and Knight supported Wever. Long feared that if the Board of Engineers did not monitor and control Wever, then the Engineers would be held accountable for cost overruns. Therefore, on August 2, 1828, the Board of Engineers, in a two-to-one decision, agreed to allow Wever to operate construction without direct BOE oversight [Long 1830, 58]. However, the BOE did require Wever to render a first-day-of-the-

month detailed progress report to it and also expected Wever to request permission of the BOE to make changes in any construction plans [Dilts 1993, 76].

At the end of September 1828, the BOE made estimates of costs of construction in a report to be included in the annual report to shareholders. In its report, the Engineers wanted to present reassuring projections on cost per mile of grading and bridging. These projections about the “cost per mile” were important because the C&O Canal had already encountered substantial cost overruns in its construction. Long and Knight estimated the cost per mile to be \$7,000. President Thomas estimated construction at \$3,500 per mile [Long 1830, 64]. Such estimates became suspect and embarrassing as the actual costs continued to run much higher. When McNeill was selected to replace Thomas on the Board of Engineers, thereafter charges of mismanagement were directed against Wever by the BOE, which now had two of its members (McNeill and Long) in opposition to the Construction Superintendent.

Because Knight, McNeill, and George Washington Whistler were leaving in November 1828 for a seven-month extensive investigation into all aspects of British railroad operations, the BOE elected its remaining member, Col. Long, to be President of the Board. To direct Wever’s actions, the BOE then passed requirements for closer accountability over disbursements; required estimates of monthly expenditures to be submitted to the Board of Engineers for approval, and required vouchers to be used for all disbursements [Long 1830, 83].

Wever ignored the BOE resolution. He gave the Board his estimates, but without details or accounts [Long 1830, 86]. He requested \$30,000 be paid to contractors, but provided no documentation to support the payments. The BOE felt that the Superintendent was challenging the Board’s authority. President Thomas, though, supported Wever, and directed that the BOE not interfere with Wever. President Thomas had Wever report directly to himself. Thomas then

assigned Long the responsibility of completing the western survey for the route of the railway [Long 1830, 101-105].

Nonetheless, in the last quarter of 1828, the BOE found Wever's accounts were "informal and defective" and "not rendered in accordance with provisions of regulations for the Engineering Department" [Long 1830, 118]. Further, Wever was found to have made payment to contractors without voucher documentation to support the payment, that is, no physical measure of the work done had been made before making payment. Wever had not submitted estimates of cash payments he would be making in January 1829, nor had he provided information to the BOE about the progress of construction, quantity of work done, and amounts that needed to be paid. The BOE became especially concerned over Wever's practice of making advances to contractors, while using vouchers to serve as mere receipts of money paid with no measure of work done or object of the payment [Long 1830, 119-137]. Long criticized Wever's expenditure procedures for lacking specifics about the nature, quality, price and circumstances surrounding expenditures [Long 1830, 138]. Wever defended his practice as meeting the accounting standard for disbursement of funds on the construction of the National Road, which were larger dollar amounts – hundreds of thousands of dollars – without such record-keeping demands now being placed on him [Long 1830, 138]. It should be noted that Wever had been responsible for paying contractors on the National Road significant sums of money. Apparently, Wever had a habit of poor record keeping there too [Dilts 1993, 63]. It is interesting to note that in constructing the National Road, Wever had the authority to dictate the location of portions of the road; so Wever's actions were not inconsistent with his previous job [Dilts 1993, 63].)

To resolve the charges that Col. Long had made against Wever, the Board of Directors asked the Audit Committee to examine the Superintendent of Construction's contracting system.

The Audit Committee gave Superintendent Wever support in the report issued April 27th, 1829.

This report vested the Superintendent with control over the construction contracts, free from interference of the Board of Engineers. Exhibit 5 contains the entire report of the Committee.

Exhibit 5

THE AUDIT OF THE SUPERINTENDENT OF CONSTRUCTION

The Committee to whom was referred (sic) the Accounts of the Company beg leave respectfully to report that they have examined the accounts laid before them for the last quarter of 1828 and the first quarter of 1829 and found them correct and supported by the necessary vouchers. They deem it however advisable to lay before the Board of Directors the following statement in relation to the accounts. The committee has found the expenditures in the Superintendent's department in all instances supported by receipts signed in duplicate for the amounts paid to the contractors for work done in construction and for other matters where services have been rendered or articles purchased. The requisite certificate was also appended that they had been necessary for the service. These accounts which appear to the Committee perfectly correct have nevertheless not met the sanction of the President of the Board of Engineers in consequence of a supposed informality resulting (as he states in the document marked A herewith transmitted) from actual measurement being required for all work done whether completed or not and transmitted as a portion of the voucher for the amount paid. Under the 7th rule for the regulation of the Engineer department the board of Engineers are charged with the examination of the accounts, but it appears to the Committee that their approach [is] exclusively the duty of the President of the Company: this subject they beg leave respectfully to refer to the decision of the Board of Directors.

The Committee are fully aware of the great importance of a faithful discharge of the duties of the Superintendent's department but they are unable to discover what particular good is to result from an actual measurement being made in all cases for work done, before the contractor can be provided with the necessary means for continuing his operations on the contrary the numberless agents which such a system would require to carry it into effect must greatly diminish the funds of the Company, and tend to retard the work. In the settlement of the accounts which have just been passed by the Committee they have in all cases found where a final payment had been made that the Company was in arrears to the contractor nor does it appear that the amounts which have been advanced to the contractors have in any instance exceeded the work done on a final settlement. The Committee does not hesitate to believe that the work will be greatly facilitated by the system, which the Superintendent has adopted, and that full reliance should be placed in his judgment and faithfulness in the discharge of his duties.

The document marked B herewith furnished will show the state of the funds of the company with the receipts and expenditures up to the 1st April 1829. All of which is respectfully submitted

27th April 1829

Patrick Macaulay
John B. Morris
William Stewart

Committee

[*Minute Book A*, Board of Directors Meetings, 202-203]

Despite the “clean bill of health” which the audit committee had given Wever and despite the support for Wever by President Thomas, the BOE felt Wever was operating recklessly. Long and McNeill, who had returned from England in May 1829 and replaced Thomas on the Board of Engineers, sought to control Wever. In particular, the BOE was concerned about the expenditures that were evident as Wever changed specifications for bridges from wood to stone, lengthened bridges without consultation, built bridges without drawings and plans, and moved and adjusted routes as he saw fit. Long discovered that the cost accounts and financial records were incomplete and refused to authorize payments to contractors unless the documentation improved. Wever bypassed the BOE and got the Board of Directors to authorize payment to the contractors, resulting in a \$20,000 to \$30,000 cash outflow per month for uncertain expenditures which could not be precisely linked to specific work or contracts [Dilts 1993, 76].

By June 1829, Wever decided he needed the help of the BOE. He requested that the Board support his recommendation that the contractors be paid amounts over and above their contracts to underwrite the losses, which they were encountering. Wever feared if the contractors suffered losses, that they would walk away from the contract, leaving men idle and unpaid, and work stopped. With news of such losses, new contractors would be discouraged from bidding on work. Wever pointed out that the contractor’s losses were due to the almost 50% unforeseen rise in labor cost during the past year, changes made in the plans, and unanticipated difficulties such

as encountering rock which caused added costs in excavation. The BOE approved Wever's request for assistance and set out to determine the additional amounts to be paid to contractors.

Whistler and McNeill examined the work done on the line from the city of Baltimore to the end of the second division, at the Patapsco River. They felt that an additional \$45,000 should be paid to the contractors [Dilts 1993, 77]. The Board of Directors agreed. However, the B&O did not have the money. This caused the directors to call for a \$5 per share payment on the stock subscription, payable by November 1829. To support the call for more capital, Thomas felt he needed more information about the cost of construction so he had the Engineers examine what amount it would take to complete the section. For the 13 miles from Baltimore to Ellicott's Mill, the cost was \$37,500 per mile. Estimates a year earlier of \$7,000 per mile (Long and Knight) and \$3,500 (Thomas) now appeared to be poorly done. The first 13 miles crossed flat tideland. Mountains and gorges loomed ahead. What would the cost per mile be? Worse – the company was out of money. The Ohio River was becoming very distant.

In September, Wever surprised the Board of Directors again when he told them that he would need \$180,000 to finish the first two divisions of the railroad and that this amount was needed within the next three months. Since the B&O had only \$20,000 on hand, the directors who had banking connections scrambled to raise money. Eight directors signed \$12,500 promissory notes, which the B&O discounted for cash at a bank. The cash inflow carried the B&O until the subscription payments were received from shareholders [Dilts 1993, 78].

Long felt that the costly surprise was Wever's responsibility. The Board of Engineers launched an investigation into the bridge construction. The Board found that Wever relied on verbal rather than written contracts with the contractors and that the bridges were being built without plans, and that they were being designed as they were being constructed [Dilts 1993, 77].

Long drafted another set of bylaws governing engineering and construction for the BOE. These new rules would strip Wever's power to pay contractors and shift the disbursement authority to the BOE. However, President Thomas vetoed Long's actions. He did so because the price of B&O stock was falling due to the cost overruns and the stock assessment. Thomas feared a controversy would reduce the price of the stock further. If the Engineers revealed the true costs of the bridges, the overruns would shake the investors' confidence so badly that the stock price would plummet and a secondary offering could not be made [Dilts 1993, 77].

However, in the B&O's third annual report, issued October 1829, both Thomas and the Board of Engineers reported on the cost overrun problems in separate letters to shareholders. By December 1829, Thomas and the directors appointed a special five-man committee to review the Superintendent of Construction and the charges, which McNeill had made against him. At the January 30th, 1830 meeting of the Board of Directors, an audit committee appointed to investigate McNeill's charges reported its finding. This report is included in its entirety in Exhibit 6.

Exhibit 6

The committee appointed to examine into the charges preferred against the Superintendent of Construction in relation to the discharge of his official duties produced the following report which was accepted to viz: The undersigned Committee appointed on the 3rd day of November 1829 to investigate certain charges preferred against the Superintendent of Constructions by Capt. Wm. G. McNeill as contained in his communication bearing date 31st Oct have been bestowed a patient attention on the same....: In this, that he [SoC] did in several instances on or about the first of July 1829 knowingly make misstatements in this official return of the contract prices.

The committee take this occasion to remark that it does appear [the contrary is not alleged] that the Superintendent has honestly and satisfactorily accounted for every sum that has been placed in his hands uniformly furnishing clear and satisfactory vouchers for every payment made in the service of the Company----neither does it appear that in any instances his payments to contractors have been made beyond the amount due and they have not learned

that upon the termination of the work the company have ever sustained a loss by being in advance of the work actually executed. The omission to reduce contracts to writing on the part of the Supt does appear to have been loose and different from what should have been strictly adhered to which it is believed was the result of circumstances. In all future operations it would be advisable to conform thereto as far as the perpetual changes of contracts and contractors will permit an observance of such a course if there be cause of blame against the Supt. The Committee believes the Supt has greater claims to approbation
December 22nd, 1829
Directors Morris, Brown, Macaulay, Magruder and Lucas as signing members.

[*Minute Book A*, Board of Directors Meetings, 235-237]

The first report absolved Wever of the charges of the Engineers. A second report then was issued by the same audit committee (Exhibit 7). In this report, the committee recommended the termination of the Board of Engineers and a restructuring of the governance and organization of the B&O.

Exhibit 7

The Committee appointed in October last to examine into the application of the funds of this Company and to inspect the work as far as it has been executed and who were also desired to inquire if an improvement could not be made in the organization of its officers, produced the following Report which was accepted and the several recommendations therein proposed were unanimously approved.

The Committee appointed at the stated meeting of the Board on the 5th of October last “to examine into the operations of the company for the last year, to revise and inspect the various expenditures which have been made, and the manner in which the work has been executed and who were also desired to report their opinions whether under the experience acquired any improvement can be made in the organization for carrying on the business of the company, or in the administration of its affairs” now beg leave to report in part that they have given considerable attention to the important subject committed to them and are unanimously of the opinion that an “improvement may be made in the organization for carrying on the business for the company and in the administration of its affairs.”

They therefore agree in recommending the immediate dissolution of the Board of Engineers and a suspension of the salaries of all the officers attached to the Engineer Department, with the view of affording an opportunity to the Board of effecting an entire change in the organization of that branch of the service. And

they also recommend the repeal of all the rules and regulations heretofore adopted by this Board for the government of the Engineers Department.

The committee asks for further time to report upon the other subjects submitted to their consideration and recommend the adoption of the following resolution.

RESOLVED that an Executive Committee consisting of three members of this Board be appointed to take charge of the Engineer Department, the Archives, papers etc and the general concerns of the Company, until the future organization be fixed upon by the Board of Directors.

[signed]
January 2nd, 1830

All of which is respectfully submitted

John B. Morris, Chm.
Alex Brown
Patrick Macaulay
R. B. Magruder
F. Lucas Jr.

Upon motion resolved that Messrs Macaulay, Lucas and Magruder be appointed an executive committee in conformity to the foregoing report and that they be vested with. All the duties and power therein proposed.

[*Minute Book A*, Board of Directors Meetings, 239]

In summary, the special organizational audit committee exonerated Wever, rebuked the Board of Engineers, repealed its authority, and set in motion the steps for its dissolution.

By May 1830, part of the crisis abated as 13 miles of track were opened for excursions. Employing a variety of power sources, wagon-type trains ferried excited citizens on novel rides. The company shifted its focus back to completing a rail connection between Baltimore and the Ohio River.

REORGANIZATION

The financial crisis and the internal conflict between the Superintendent of Construction and the BOE led the audit committee to propose an organizational restructuring. In its February 8th, 1830 report, the committee looked at the operations and decided a stream-lining of duties, responsibilities, and reporting authority were important.

As a result of this audit committee's work, the Board of Directors made major changes to the management structure. Exhibit 8 contains the key officers designated in this reorganization. Noteworthy is the appointment of a high-ranking staff **auditor**, whose duties initially focused upon construction contracts, was one of the changes. The auditor's role with regard to payments of contractors and the treasurer's job is specified here as well. Given the problems that the B&O had just encountered, this reorganization was a significant change. Arrangements with contractors and controlling of construction costs were essential to the railroad's survival, for it had to reach the Ohio. The staff auditor's role would be a vital one in accomplishing these plans.

Exhibit 8

ORGANIZATION OF THE OFFICERS OF THE BALTIMORE & OHIO RAIL ROAD COMPANY

There shall be appointed:

1st. A Chief Engineer. Who shall have a general superintendence of direction over all the works of this Company...

2nd A Superintendent of Construction. Whose duty it shall be to superintend the graduation, Masonry, Viaducts & Bridges according to the plans to be furnished by him and the instructions he may receive and which plans shall be submitted to be approved by the President & Directors and Chief Engineer. He shall form Estimates of the cost thereof and report the same to the President & Directors. He shall advertise for contracts & shall submit to the President.

3rd An Auditor Whose duty it shall be to keep the Books of the Company, to examine & certify to all claims or accounts against the Company and to perform such other duties as the President may require of him.

4th A Treasurer Who shall take charge of all Monies belonging to the Company and shall only pay the same upon regular vouchers to be furnished by the Chief of the department under which the claim arises, after the same shall have been regularly passed by the Auditor, except as regards contingent expenses which shall be paid only upon the certificate of the President passed by the Auditor, or on the vote of the President and Directors. It shall be the

duty of the officer at the head of each department to report on the last week of every month to the President of the Company a list of the assistant in his service. The particular duty in which they are employed, the amount of salary they receive, and every three months make a report of the work about to be undertaken, the progress of the work on hand, and the work finished within the preceding three months – On motion resolved that the salary of the Chief Engineer be three thousand dollars per annum-

Resolved that the salary of the Superintendent of Construction be Twenty five hundred dollars per annum

The Board having proceeded to an Election of Officers it appeared that Jonathan Knight was appointed Chief Engineer, Caspar W. Wever Superintendent of Construction and George Brown, Treasurer of the Company. The foregoing salaries to take effect from the 1st of January 1830.

A claim for services rendered by Lieut. Dillahunty certified by Captain McNeill amounted to \$393. Was submitted and ordered to be paid.

Adjourned.

[*Minute Book A*, Board of Directors Meetings, 292]

Report respectfully submitted by William D. Samson, Clerk, Barings Brother & Company

APPENDIX B

***BUSINESS WEEK PRINCIPLES OF GOOD GOVERNANCE*¹**

Criteria for Evaluation of Corporate Board of Directors

- 1) Independence – from current/former executives
- 2) Stock ownership – each director should have a substantial (\$150,000) stock ownership in company – excluding stock options.
- 3) Direct quality
 - a) Board should include at least one independent director with experience in the company's core business
 - b) Board should include at least one independent director who is a CEO of an equivalent size company
 - c) Fully-employed directors should sit on no more than 4 boards, retirees on no more than 7 boards
 - d) each director should attend at least 75% of all meetings.
- 4) Board Activities
 - a) Board meets regularly without management present
 - b) Board should evaluate its own performance every year
 - c) Audit committees should meet at least four times a year

¹ Louis Lavelle, "The Best and Worst Boards," *Business Week*, October 7, 2002, page 108.

- d) Boards should be frugal on executive pay
- e) Boards should be decisive on CEO succession
- f) Boards should be diligent in oversight responsibilities
- g) Boards should be quick to act when trouble strikes

TEACHING NOTES

INTRODUCTION AND PERSPECTIVE

As Chandler establishes in *The Visible Hand*, the railroads were America's first modern businesses. The Baltimore and Ohio (B&O), formed in 1827, was an early, if not the earliest, U.S. railroad (both Dilts and Jacobs, in the titles to their treatise works, and others credit the B&O as being *the first* American railroad, while Cleveland and Powell cite the B&O as being "the first important railroad project undertaken in the United States" [Cleveland 1909, 61]).

What made railroads modern businesses was the capital requirements of these enterprises, which were far in excess of contemporary enterprises. This, in turn, meant that external financing had to be sought to construct a railroad line. While other contemporary businesses were owner-operated, family ventures that required local bank loans, at most, for seasonal financing, railroads, by contrast, with the long-term capital needed to construct a line, excavate, bridge, tunnel, fill, lay track, and equip with rolling stock, required more capital than one person could risk; so many individuals, including both debt and equity investors external to the railroad operations, were needed to provide capital. This created new issues of how to communicate with external investors regarding the performance of the railroad and how to monitor the managers of these enterprises who were deemed to be stewards of the company's assets. These so called "agency" problems, which first appeared 175 years ago in early American corporations, are still being addressed today, wherein the separation of the providers of capital from the management is fundamental to control and communication structure, and to corporate governance.

With the greater emphasis placed on the audit committee today, particularly since 1994 and the report by the Kirk Panel,² there is increasing expectation on the part of regulatory agencies, such as the SEC, and by the auditing profession that corporate audit committees play a larger role in the corporate reporting process. This comes at a time when the Board of Directors as a whole has been delegating increasing responsibilities to the subset of directors who make up the audit committee. Thus, the corporate audit committee typically oversees the compliance with laws and regulations, monitors the company's code of conduct, and supervises and evaluates the company's internal controls, as well as examines areas of management activity. As the responsibilities of the audit committee are increasing, and expectations about the performance of the committee are raised, corporate audit committees are seeking to be effective in these expanded duties [Steinberg 2000, 9-16]. At the same time, the recent Enron and WorldCom debacles reveal problems in the reported financial statements and the relationship with the auditing firm. The role of the Enron and the WorldCom Audit Committees raises further questions about corporate governance, management disclosure, and auditing oversight.

What has not heretofore been well established in historical terms with regard to U.S. corporations is the origin and role of the audit function. The current regulatory focus, both in the U.S. and in Great Britain, on the role of the audit committee, may suggest that audit committees are of recent origin. However, the Baltimore and Ohio Railroad (B&O), from its beginnings, had as a by-law a requirement for a committee made up of its directors to "inspect the accounts and funds of the Company and to examine the vouchers for all monies expended and shall report the state of same." Thus, from its formation in 1827, the B&O assigned a group of its directors as an audit committee. This case reviews the experiences of this early corporate use of directors in an

² The Kirk Panel was established by the AICPA's Public Oversight Board and was headed by former Financial Accounting Standards Board chair, Donald Kirk. The Panel presented its findings in 1994.

audit committee role during the formative (1827-1830) period of the company as described in the original records and minute books.

The B&O's capital formation process involved selling shares of stock to many Maryland citizens to start a venture of constructing a railroad across mountains and rivers using unproven technology and ideas. The scale of the enterprise, dwarfing even the capital requirement of the Erie Canal, was ultimately \$30 million to reach the Ohio River – a record sum at the time. This large investment had to be accounted for and controlled. Those who promoted the enterprise, clearly recognized this in an 1827 by-law requirement, even before making the first expenditures to construct the railroad, by making an audit committee a key element of corporate governance and by specifying the steps in the audit function which were required on a regular basis. Further, the use of the board members as an active means of corporate governance meant that, on occasion, there were multiple audit committees, with special audit committees operating to address specific tasks or assignments.

The B&O audit committees, as such, pre-date the employment of external independent auditors by several decades in the United States. Further, the committee produced an “audit report”, with exceptions noted therein. Also, operational audits as well as internal control issues were addressed by some of the special audit committees. The routine audit committee examined the “treasurer's reports”, while a larger committee of directors, including the routine audit committee members, examined problems with construction expenditures. Documentation for such expenditures was poor, payments had been made in advance of work done, and also payments were made beyond contracted amounts. Internal disputes occurred between the Construction Superintendent and the Board of Engineers about the lack of control. Cost overruns, evidenced by excessively high cost per mile (more than three times the budget) meant

the company ran out of money and sought out founders for “bailout” loans and its shareholders for an assessment of its capital stock subscription. Such circumstances made control over construction outlays important. Since these episodes occurred while the B&O track was being built for only a short distance over relatively easy terrain, achieving effective controls over cost and preservation of capital was critical to the company’s goal of reaching the Ohio River.

Early railroads encountered new control problems as they grew to deal with large volumes of business transactions occurring daily across long distances, with a multitude of employees handling cash or originating otherwise complex transactions. These employees ranged from ticket agents and freight agents at each station and depot, to conductors on each train. Cash disbursements were the responsibilities of an ever greater number of employees: work crew foremen, machine shop foremen, conductors on each train, station-masters, and yard superintendents to name a few. Control over cash transactions would push accounting from the family-owned business’ journal-ledger system of recording infrequent transactions to the development of techniques to assume proper recording, transferring, safeguarding, depositing, and handling cash. Internal auditing developed, as did accountants, who were trained in legion by the railroads. Financial innovations in the U.S. were sparked by the railroads. The railroads raised large amounts of capital, requiring wider public sale of stock and bonds. This expanded the role of investment banking and the securities house, which had previously been trading government debt obligations.

In business, railroads created a new standard of precision in operations. To be successful, the railroad had to operate trains in a safe, efficient manner, which required a close-coordination not seen at the time. Operating from distant locations, running on one-way track in two directions, with trains of different speeds, required everyone to work by the same strict

standards, beginning with a standard (“railroad”) time system, to maintenance of the equipment and line and to strict adherence to procedure. Supervision was needed and lines of authority were drawn. A hierarchy became established. Managers with special expertise evolved into a professional class who organized activities and employees and made resource allocations. Railroad success depended on throughput: running the trains full, running them fast, and turning them around quickly. This concept was revolutionary in its day, but became the essence of the Industrial Revolution as high volume plant utilization of fixed cost facilities drove down cost per unit. Managing by accounting for costs of a department and other subunits and by statistical factors, such as “cost per freight-ton-mile”, evolved with the railroads.

The railroads revolutionized the economy: freight costs declined dramatically, travel time between cities or regions of the country decreased from days to hours. The interior land of the U.S. became open to farming when the farmer’s produce could be shipped to market as well as to merchants who could sell goods to rural customers.

This case provides students with a realistic situation, based on actual historical events, of auditing – both for external and internal control purposes, the audit committee, and an active board of directors. The case, the Baltimore and Ohio Railroad of 170 years ago offers a refreshing look at an active board of directors governing the corporation at a critical point in the survival of the enterprise. The contrast to the current failures in corporate governance by boards of directors and audit committees draws a clear picture of how businesses ought to run. Further, the details of the internal controls that were implemented and changes in the organization that were made allow the student to see the importance of these to the survival of a corporation.

This case places the student in 1831 in the London investment banking firm of Baring Brothers where investing in the B&O Railroad is being considered. The financial and operating

events of the first four years document the B&O's struggle. From this report of the first four years is information that points to steps that are in place to help make the B&O a long-term success. Students, in the role of investment bankers, should see the significance of these internal and external control features.

The historical dimension to the case offers unique advantages in teaching: First, the case is "unfamiliar" – the student is put in a "new" situation, not unlike what will be encountered in a changing future. Second, the outcome of the case is known: the B&O not only survived, it endured for more than 135 years before merging with the Chesapeake and Ohio Railroad in the 1960s. Third, the case exposes students to history and thus the development of accounting and auditing which is otherwise taken for granted.

In keeping with historical accuracy, it should be noted that the approach to the Baring Brothers by George Peabody to place B&O securities actually occurred eight years later than 1831, in the fall of 1839. This and injecting the "fictional" clerk, William D. Samson into the case are done for creative effect, though these people/events did exist, but in a different year.

SUGGESTED SOLUTIONS

[to be developed]

REFERENCES

- Baladouni, Vahé, "Accounting in the Early Years of the East India Company," *The Accounting Historians Journal*, Vol. 10, No. 2, Fall 1983, pp. 63-80.
- _____, "An Early Attempt at Balance Sheet Classification," *The Accounting Historians Journal* Vol. 17, No. 1, June 1990, pp. 27-45.
- Baltimore: Its History and Its People*, Volume III, (New York: Lewis Historical Publishing Company) 1912, pp. 812-814.
- Board of Directors, *Minute Book A*, Baltimore and Ohio Rail Road Company, April 24, 1827 to August 26, 1830, [Hays T. Watkins Research Library, B&O Museum, Baltimore, MD].
- Bookholdt, James L., "A Historical Perspective on the Auditor's Role: The Early Experience of the American Railroads," *The Accounting Historians Journal*, Vol. 10, No. 1, Spring 1983, pp. 69-86.
- Boyd, Edward, "History of Auditing," *A History of Accounting and Accountants*, Richard Brown editor, (Edinburgh: T.L & E.C. Jack) 1905.
- Burke, Frank M. and Guy, Dan M., *Audit Committees: A Guide for Directors, Management and Consultants*, (New York: Aspen Law & Business) 2001.
- Chandler, Alfred A.D., Jr., *The Visible Hand-The Managerial Revolution in American Business* (Cambridge, MA: Belknap Press of Harvard University) 1977.
- Chatfield, Michael, *A History of Accounting Thought*, (Fort Worth, TX: Dryden Press), 1974.
- Cleveland, Frederick A. and Powell, Wilbur, F., *Railroad Promotion and Capitalization in the United States*, (New York: Longmans, Green and Co.) 1909.
- Dicksee, Lawrence R., *Auditing: A Practical Manual For Auditors*, London: Gee and Co., 1892.
- Dilts, James D., *The Great Road: The Building of the Baltimore & Ohio, The Nation's First Railroad, 1828 – 1853*, (Stanford, CA: Stanford University Press) 1993.
- Flesher, Dale L., Gary J. Previts, and William D. Samson, "Using Accounting to Manage: A Case of Railroad Managerial Accounting in the 1850's", *Accounting and History*, (Madrid: CAJA) 2000.
- Glynn, John J., "The Development of British Railway Accounting: 1800-1911," *The Accounting Historians Journal*, Vol. 11, No. 1, Spring 1984, pp. 103-118.
- Hungerford, E., *The Story of the Baltimore & Ohio Railroad 1827-1927*, Vol. 1 (New York: G. P. Putnam & Son) 1928.

- Illinois Central Railroad Company, Report and Accounts, 1857*, (Dated March 17, 1858).
- Jacobs, T. (ed.), *The B&O: America's First Railroad*, (New York: Smithmark) 1995.
- Jenks, Leland, "Railroads as an Economic Force in American Development", *Journal of Economic History*, Vol. 4, No. 1 (1994), pp. 1-20.
- Kay, Robert S. and Searfoss, D. Gerald, eds., *Handbook of Accounting and Auditing*, 2nd ed., 1989.
- Lavelle, L., "The Best and Worst Boards," *Business Week*, October 7, 2002, pp. 104-114.
- Littleton, A.C., *Accounting Evolution to 1900*, (New York: American Institute Publishing Co. Inc.), 1933.
- Long, S. H. and William G. McNeill, *Narrative of the Proceedings of the Board of Engineers of the Baltimore and Ohio Rail Road Company From its Organization to Its Dissolution, Together With An Exposition of Facts Illustrating of the Conduct of Sundry Individuals*, Baltimore, 1830.
- Lovdal, Michael L., *Board of Directors' Audit Committees: An Exploratory Study*, (Unpublished thesis: Harvard University) 1975, 328 pps.
- McKee, Thomas E. "An 1870 Corporate Audit Committee," *The Accounting Historians Journal*, Vol. 6, No. 2, Fall 1979, pp. 61-68.
- Mobile and Ohio Railroad, *Board of Directors Minutes, Book 2, 1852-1866*, (University of South Alabama Library, Mobile, AL).
- Moyer, C. A., "Early Developments In American Auditing", *The Accounting Review*, Vol. XXVI, No. 1, January 1951, pp. 3-8.
- Pixley, Francis W., *Auditors: Their Duties and Responsibilities*, (London: Effingham Wilson, Royal Exchange) 1881.
- Previts, Gary J. and William D. Samson, "Exploring the Contents of the Baltimore and Ohio Railroad Annual Reports: 1827-1856," *The Accounting Historians Journal*, Vol. 27, No. 1, June 2000, pp. 1-42.
- Steinberg, Richard M. and Catherine L. Bromilow, *Audit Committee Effectiveness – What Works Best*, 2nd Edition, PriceWaterhouseCooper, 2000.
- Worthington, Beresford, *Professional Accountants: An Historical Sketch*, (London: Gee & Company) 1895.