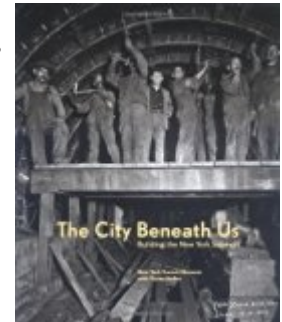


**New York Transit Museum with Vivian Heller.** *The City Beneath Us: Building the New York Subway.* New York: W.W. Norton & Company, 2004. 248 pp. \$45.00, cloth, ISBN 978-0-393-05797-3.



**Reviewed by** Peter Derrick

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The 100th anniversary of the opening of New York City's first subway line was celebrated in 2004.[1] The celebration included numerous exhibits, tours and lectures throughout the city as well as a nostalgic train trip using vintage subway cars for invited guests (including this reviewer) on October 27. This subway ride started at the same City Hall station at which the first subway service had been inaugurated precisely 100 years before.[2]

The subway's centenary also saw the publication of numerous books specifically for this occasion. In this reviewer's opinion, the best of these is *The City Beneath Us: Building the New York Subway*, prepared by the New York Transit Museum with Vivian Heller, who helped select the photographs in the book and wrote the book's narrative history of the subway. Heller's short history is elegantly written and provides numerous insights into the subway's relationship to New York's economy, society and politics over the past 100 years. The book's main strength, however, is its hundreds of black and white photographs, taken before and during the building of the vast majority

of the city's subway lines between 1900 and 1940. In fact, as indicated by the subtitle, this book was prepared to use these photographs, almost all of which are from the collection of the Transit Museum, to show in detail the complexities involved in building the world's largest rapid transit network, and what a major accomplishment this was. Heller's subway history was meant to accompany these photographs, not the other way around.

This review will focus mainly on *The City Beneath Us* but will first provide a summary of the other books published for the subway's centenary. This is a useful exercise in how a major public event was celebrated in print as well a commentary on the lack of involvement by academics. Aside from *City*, the only other new book that has a coherent narrative history is Lorraine B. Diehl's *Subways: The Tracks That Built New York City* (2004). In many ways, Diehl's book is a useful compliment to *City*, which only has black and white photos, largely of subway construction and a few illustrations. *Subways* draws on the large number of photos, illustrations, maps and other material available at the Museum of the City of

New York, the New York Historical Society, university and public research libraries in New York, and many private collections. (Strangely enough, none of Diehl's materials are from the Transit Museum.) Her illustrations are organized very effectively to accompany the book's straightforward narrative history of rapid transit in New York from the mid-nineteenth century to the present. To write this history, the author explicitly drew upon several secondary sources, which are cited in her notes when directly quoted and listed in her bibliography. Diehl also thanks specific authors in her acknowledgements and her book has an index. (This is in contrast to Heller's text, which does not have source notes even for direct quotes, does not have a bibliography or an index, and which acknowledges no specific secondary source or author.)

In addition to *City* and *Subways*, the centenary was seized upon by several other authors and publishers. These works fall into three categories: narrative or anecdotal histories or accounts; children's books; and books of photographs. The first category includes another edition of the standard academic history of the subway, reworks or updates of popular histories, and a collection of columns about the subway by a reporter who had covered the subway beat for the *New York Times*.

A centenary edition of the standard academic history of the New York subway, Clifton Hood's *722 Miles: The Building of the Subways and How They Transformed New York*, was published in 2004. First published in 1993, Hood's narrative traces the history of the subway up to the creation of the New York City Transit Authority in 1953. His book remains the best comprehensive history of the development of the rapid transit system in New York, and will probably remain so for several years.[3]

Stan Fischler, a sports writer who has published two previous popular histories of the New York subway, prepared a brand new book for the

100th anniversary, *The Subway and the City: Celebrating a Century* (2004).[4] This work is the rail fan's book for the centennial. It has over 400 photographs, many of them never before published, mostly of subway lines and equipment and the communities they go through. The text is of a genre almost unto itself, a jumble of anecdotal nostalgia, including some very interesting stories. For this reader, the best of these is his piece "John Tauranac--Mapmaker Extraordinaire," about the man most responsible for the current official subway map, which is much more readable, understandable and practical than prior ones.

An even more prolific author on the history of mass transit in the New York metropolitan area is Brian Cudahy. His standard popular history of the New York subway, *Under the Sidewalks of New York: The Story of the World's Greatest Subway System*, has gone through three editions, with the first published in 1979. This book has a excellent narrative text that follows the story chronologically, with the focus on technical matters relating to the system itself. In 2002, Cudahy published a book about many forms of transit in Brooklyn. For the centennial, he wrote *A Century of Subways: Celebrating 100 Years of New York's Underground Railways* (2003). This book does indeed have one chapter on the first subway in New York, built and operated by the Interborough Rapid Transit Company (IRT), although owned by the City of New York. There is also a chapter on the legacy of the IRT, which is about rapid transit in several American cities, including Chicago, Philadelphia, San Francisco and other cities, together with a brief update on events in New York. There are also chapters on the development of rapid transit systems in Boston and London. In addition, there is chapter that covers the development of the electrified commuter rail network in the New York metropolitan area, which includes services now operated by the Long Island Rail Road, Metro-North Railroad (both of which are agencies of the Metropolitan Transportation Authority, or MTA, which also oversees the New York

City Transit Authority, the agency that now operates the subway and the city's buses), and New Jersey Transit.

Much of Cudahy's career was spent in mass transit, and he is a master of his genre, which is distinctly different than that of the nostalgic stories related by Stan Fischler. He also made sure that a centennial edition of the 1904 book published by the IRT to celebrate the subway's opening, *The New York Subway: Its Construction and Equipment Interborough Rapid Transit 1904* (2004), was reprinted, at a reduced size, with a new introduction by Cudahy.

The last book in the first category is a collection of articles by Randy Kennedy which original appeared in his "Tunnel Vision" column in the *New York Times*.<sup>[5]</sup> This book has little to say about the subway's history, but does capture effectively some of the more interesting aspects of recent activities in the subway, including performers, underground fauna, a traveling magician, door blocking, pole hugging and "token suckers."

Subway books for children were also published in 2004. *My Subway Ride*, is aimed at four- to eight-year-olds.<sup>[6]</sup> This charming book takes readers on a subway ride to several famous sites in New York, including Yankee Stadium, the Museum of Natural History, Coney Island and Times Square. David Weitzman's *A Subway for New York* (2004) is aimed older children, ages eight to eleven, but can be enjoyed by readers of any age. Weitzman, who has written children's books on railroads and other topics, is a superb illustrator and his captivating drawings show in simple detail how sections of New York's first subway were built. This includes drawings of the "cut-and-cover" method of construction, whereby a trench was dug out in the street which was then covered over by wood planking to allow traffic to continue as the rest of the tunnel was excavated and finished. He also shows how other tunnels were constructed using pressurized (to keep out water and mud) steel-and-cast-iron cylinders with a shield in the

front. Oftentimes, deep tunnels were blasted out of bedrock, with workers making holes for dynamite, setting off the charges and then removing the debris. There are also illustrations of power systems, stations and subway cars. These drawings are useful to examine when looking at the photographs of underground construction in *The City Beneath Us*. Weitzman's text describing the work going on (proofread by this reviewer) is clear and concise.

A third category of books published for the centennial is of works consisting primarily of photographs, with little text. For this reviewer, the best of these books is another one produced by the New York Transit Museum, *Subway Style: 100 Years of Architecture and Design in the New York City Subway* (2004). The illustrations in this book are of materials that were in a 2004 exhibit at the UBS Gallery in Manhattan, curated by Carissa Amash of the Transit Museum. Unlike most of the other photo books, which feature subway passengers, *Subway Style* has chapters on artifacts of the physical plant of the system: stations and structures, subway mosaics and other ceramic designs, metalwork, lighting, station furnishings, fare collection equipment, signage and graphics, route and system maps, and on the design of subway cars. What strikes the reader most are the bright colors and vibrancy of the subway cars and of the elements of the physical plant, often regarded as dark and dismal places, and the high level of the design standards. The text that accompanies the photographs is very well written.

Camilo Jose Vergara's *Subway Memories* (2004) is the most engaging of the ones that feature photos of riders. Accompanied by an informative introduction, the book consists of photos taken between the early 1970s and the early 2000s. In addition to passengers of all types, Vergara includes photos of the neighborhoods that many of its elevated subway lines (that is, lines that are elevated in the outer boroughs, but go underground in Manhattan--most New Yorkers call

these elevated lines subways, the reverse of common parlance in Chicago) pass through and of the stations and structures of these lines. These neighborhoods are where the vast majority of New Yorkers live. Some of these communities went through severe decline in the 1970s but have since been rebuilt, as is shown in some of Vergara's before and after photos.

*The Subway Pictures* (2004) by Peter Peter contains color photos, taken after 9/11/2001, mostly of odd-looking passengers riding in almost empty trains. Although the cover of the book says these riders are "ordinary" (quote marks in book) New Yorkers, over 50 years of riding the subway lead this reviewer to question their ordinariness. A stronger case can be made that the ordinary riders in New York are the millions of persons of all ethnic groups, races, sexes and income levels who use the subway everyday to get to and from their jobs, schools, stores, entertainment centers, etc., on trains that are usually standing room only. You wouldn't suspect this from Peter's camera shots. Another book of photos that features odd characters is Christophe Agou's *Life Below: The New York Subway* (2004). In this book the subway system comes across as a place much darker than one sees in *Subway Style*, almost as if the author, who is French, prefers it that way. The 64 black and white photos were taken between 1997 and 2000. The photographs in both Peter and Agou's works are excellent; as documentaries of daily life in the subway they fall short.

The last book that features riders is *Many are Called* (2004). This is a reissue of a 1966 book of black and white photos taken by Walker Evans in 1938-1941, with an original introduction by James Agee. The photos of riders were taken surreptitiously by Evans, with a camera hidden in his coat and the lens sticking out. Over 600 photos were taken, and this book includes 90 of them. Although many of them are as striking as the photos taken by Peter and Agou, these passengers come

across as average riders taking the subway to go about their normal business.

The last book in this category is Gene Sansone's *New York Subways: An Illustrated History of New York City's Transit Cars* (2004). This is a reissue of a 1998 book, which included engineering drawings and technical data for the cars as well as photographs. The photos are in color and black and white. All you ever wanted to know about rapid transit rolling stock, from its beginnings to the recent past.

Given the plethora of books published for the subway's centennial, this reviewer's favorite is *The City Beneath Us*. This is, of course, a matter of taste, since the various works have different purposes and are aimed at different audiences. If, however, what the reader is looking for is a series of photographs that document most aspects of subway construction, almost all of which took place before 1940, together with an engaging short history of the system over the past 100 years, then this is the book to read first.

*City* is divided into two sections. The first, pages 13-81, consists of a ten-chapter narrative history of the subway over the past century, accompanied by photographs and illustrations pertinent to each chapter. A few of the black and white photos and illustrations are not from the Transit Museum's collection, but the great majority are. The second section, variously called "Gallery" and "Portfolio," consists of black and white photos of the building of subway lines between ca. 1900 and 1940. The Gallery section will be discussed first, since these photographs, all from the Transit Museum's collection, are the main reason the book was prepared.

The Gallery has 144 photographs. All of them have good captions, in part because of the assistance of Joseph Cunningham. In addition, there is an explanatory text for each of the sections the Gallery is divided into. The shots were taken before or during construction by what appear to have been professional photographers. Many of

them cover the entire 8-by-10-inch pages, and some extend over more than one page. Together they provide a superb visual history of how the subways were built and the impact this construction had on the surrounding communities. Great care was taken to organize the photos into sections showing particular activities. It was a stroke of genius to decide to use these photographs to celebrate the opening of the first subway.

Building the New York subway required several distinct types of construction. The first was "cut and cover," used to build most of the underground lines. In this method, a shallow trench was dug in the street, which was then covered over with wooden planks held up by timbering while the rest of the construction went on underneath. After excavation, concrete foundations were laid and waterproofing was installed, and steel I-beam frames with stone footings were erected to form the skeleton of the tunnel. Then more concrete was poured around the I-beams, leaving space between the rows of steel columns for the tracks. Concrete walls and roofs were also put in place. Following this, the tracks and power and signal systems were installed. Building near the surface of the street required the relocation of existing utilities, including trolley lines, sewer and water pipes, gas mains, steam pipes, and electric conduits. Several of the photos in the book show tunnels being excavated and timbering used to cover them over and shore them up. There are also photos of the finishing work being carried out. In addition, there are many shots of utility lines being rerouted and of adjacent building being shored up by timbering. The photos of street scenes show that the impact of construction on the surrounding communities was enormous.

There were several areas where the cut-and-cover method was not possible because the subway's elevation meant that the tunnels had to be deep underground. In these areas, tunnels had to be drilled or blasted through hard rock. Blasting involved boring holes that were then filled with

dynamite, which was then exploded. The rubble was then removed. There are many photos of workers carrying out this dangerous work.

Several of New York's subway lines pass under the Harlem or East rivers. Building tunnel tubes under these rivers was done using the most modern engineering techniques then available. For the Harlem River, cast-iron tubes were fabricated and then floated into the river, to be sunk into predredged sites and then secured and connected to subway tunnels in Manhattan and the Bronx. Between Manhattan and Brooklyn, construction of the first IRT line was accomplished by the installation of circular cast-iron plates under the riverbed. This was done in part by using the pressurized shield method, whereby a steel-and-cast-iron cylinder was put in place. Workers entered the shield through a lock, which was sealed with concrete. After the workers dug or drilled through the river bottom in the pressurized chamber, which kept out water and mud, the shield was moved forward by a piston. Then sections of the cast-iron plates were bolted together and reinforced to form the final tunnel. Numerous photos show both types of construction.

Many of New York's rapid transit lines are underground in areas of the city that were built up 100 years ago, such as most of Manhattan and downtown Brooklyn. But when these lines reach neighborhoods that were largely undeveloped a century ago they become elevated. The reason for this is that one of the main goals of rapid transit in New York was to open as much vacant land for residential development as soon as possible, to help alleviate the congestion of population in the older tenement districts. Since the unit cost of construction was four or five times higher for a subway than an elevated structure, many more miles of elevated rapid transit could be built as underground line, with the same amount of money, thereby opening up more land. Several of the photographs in the Gallery show the construction of these elevated lines into open land in northern

Manhattan, the Bronx, and Queens. Yet another set of photographs show the construction of subway stations as well as of completed stations and kiosks.

Just publishing the photographs of the construction of New York's subway system would have been a major accomplishment. But the Transit Museum also wanted to provide the reader with a short history of the subway, and asked Vivian Heller to do this. Heller, who is not a subway expert, appears to have gone through the relevant secondary literature, and was also aided and assisted in her research by numerous individuals. Her final product is indeed, in the words of Transit Museum Director Gabrielle Shubert in the book's acknowledgements, "a rich, well-paced, and compelling history of the first hundred years of the subway, giving life to a story many people don't know" (p. 9).

Heller's ten chapters are accompanied by relevant photographs and illustrations. Unlike the Gallery, which only show subway construction, these black and white illustrations are varied, including an opening day photo, views of the city, individuals and groups, accidents, and the reconstruction of the subway line that passes through the World Trade Center site.

The title of chapter 1, "From City Hall to Harlem in Fifteen Minutes," captures one of the main accomplishments of the subway, which was to move people through the city, using express as well as local services, as fast as possible. Starting with the opening day ceremonies, it moves on to a discussion of why rapid transit was needed in New York, including the relief of severe overcrowding in the tenement districts as well as to reduce travel times. After the usual overlong coverage of Alfred Ely Beach's experimental pneumatic subway, only short mention is made of the development of the two networks of solely elevated railroads built in Manhattan and the Bronx and in Brooklyn in the late nineteenth century. There is also a short discussion of the plans for

what became the city's first subway that were made in the 1890s, under which the City of New York would provide the funds to build the subway, and would own it, but where service would be operated by a private company, chosen in competitive bidding, under a long-term lease.

Chapter 2, "Miracles, Tragedies and Fantastic Discoveries," continues the coverage of the first subway, focusing on the difficulties of construction. It is, however, the weakest chapter in the book. While misnaming the public rapid transit board which planned the first subway (which was the Board of Rapid Transit Railroad Commissioners) the first paragraph tells us that William Barclay Parsons was chief engineer for this board (p. 19). Five paragraphs later Heller says that August Belmont, the financier who backed the construction of the first subway and who created the Interborough Rapid Transit Company to operate it, hired Parsons to be chief engineer for the IRT Company at the age of 34. In fact, Parsons was 34 when he was hired by the Rapid Transit Board (RTB) in 1894 to be its chief engineer, and this was six years before Belmont got involved in the subway. Moreover, Parsons never worked for the IRT. He was the chief engineer of the RTB until he resigned at the end of 1904. In this role, he oversaw the preparation of engineering drawing for the first subway, and oversaw the construction of the subway by private contractors hired by Belmont and his team, but he was never an employee of the IRT.[7]

The confusion about the relationship between Parsons and Belmont, as well as several other factual errors in Heller's history, might have been avoided if the author had had to check her sources by providing notes for direct quotes and by citing the secondary sources she consulted in a bibliography.[8] For those familiar with the history of rapid transit in New York, it is clear that the author drew on several secondary sources, some of which are quoted directly. Yet, aside for the passing mention of a few individuals, the reader

is not given the names of the books or articles she has consulted.[9]

Chapter 3, "Growing Pains," contains a good summary of the battle that took place between August Belmont and the IRT, on the one hand, and William Randolph Hearst, the publisher of New York's two largest newspapers at the time, on the other. Belmont believed that any new subway lines beyond the original IRT network built under Contract Nos. 1 (1900, for lines in Manhattan and the Bronx) and 2 (signed in 1902, for the first subway to Brooklyn) should be logical extensions of the this network. For example, the first subway line in Manhattan zig-zagged up the island on both the East and West sides; Belmont wanted extensions that would result in one north-side line on each side of town. He also believed that any new lines should be built slowly and incrementally, so that IRT could continue to make the high profits it was then making from subway operations out of the five-cent fare that was fixed in the company's contracts with the City of New York. (The City's capital costs for subway construction were also paid out of this Fare.) Building many new lines at the same time was a risky proposition, according to the IRT. Hearst, on the other hand, wanted many new lines built at the same time, by the City, and he also wanted them to be municipally operated by public employees. To this end, his newspapers constantly attack the "traction interests" represented by the IRT. This battle resulted in an impasse over how to build new subways for over ten years.

The third chapter also tells how this impasse was resolved, largely by reform Manhattan Borough President George McAneny, whose plans for new subways eventually received the strong backing of Mayor William J. Gaynor. McAneny's primary aim was to get as many new subway lines built simultaneously. To this end, he devised the Dual System of Rapid Transit, under which the city's two existing networks of the IRT (which had leased the Manhattan Railway Company's elevat-

ed lines in 1902) and the Brooklyn Rapid Transit Company (BRT, which controlled most transit lines in that borough, included a number of steam railroad services that could be converted into rapid transit lines), would be greatly expanded, at a cost more than ten times that of the first IRT lines. McAneny also devised the financing for this plan, which called for both the companies and the City to cover its \$366 million cost (over \$22 billion in current dollars). This plan received final approval on March 19, 1913, with the signing of Contracts 3 and 4. Heller, who seems to have read Lately Thomas's biography of Gaynor before she found out about McAneny's role, gives too much credit for this major accomplishment to the mayor compared to the borough president.[10]

Under the Dual System plan, most of New York's current rapid transit lines were built or improved, largely by 1920. This included two north-south trunk subway lines in Manhattan for the IRT, connected to feeder lines in The Bronx and Brooklyn and, via transfers, to a new subway line under 42nd Street to Queens. The BRT received a trunk line under Broadway from Lower Manhattan to Midtown, with an extension to Queens. Many feeder lines from southern Brooklyn fed into the Broadway subway. In addition, the BRT got a new line crosstown line under 14th Street to northern Brooklyn and a new loop subway in Lower Manhattan. Chapter 4, "The Subway Comes of Age," covers this expansion. The Dual System lines extended mainly to areas that were sparsely developed, which, by 1940, had become the new "Subway Suburbs" of the Bronx, Brooklyn and Queens. Almost all of New York's net population growth of over 2.6 million between 1910 and 1940 was in the new neighborhoods build up along these new lines.

After World War I, the subway once again became the major issue in local politics, this time over the five-cent fare. Inflation caused by the war had more than doubled the capital costs of subway construction as well as of operating costs.

This meant that the five-cent fare, fixed in the Dual System contracts, was insufficient to cover all the costs, including debt service, of the subway. Rather than face this issue squarely, the fare became a hot political issue, largely because of the populist demagoguery of Mayor John F. Hylan. Hylan was elected in 1917 with the strong support of Hearst because of his opposition to the Dual System contracts with the IRT and BRT, and won public support by attacking the "traction interests." (The same rhetoric continues today, with attacks by politicians on the public agency that is responsible for the subway, the Metropolitan Transportation Authority, every time there is a fare increase.) As a result, the BRT went into bankruptcy in 1918, emerging as the Brooklyn Manhattan Transit Corporation (BMT) in 1923; the IRT went bankrupt in 1932.

When it came to building new subway lines, Hylan insisted that a new Independent Subway System be constructed and operated by the City, with no connections between the IRT or BMT networks, which were largely owned by the municipality. He got his way, and the IND System was approved in 1924. Aimed largely at replacing the old nineteenth-century elevated lines with subways, this new system opened between 1932 and 1940. It never covered its costs. Chapter 5, "Nickel and Skyscraper," is Heller's best. It captures the situation the IRT and BMT faced in the 1920s as a result of the politicization of the fare issue and provides a good account of the antics of Mayor Hylan.

Since the opening of the final line of the IND in 1940, the Sixth Avenue subway, few new rapid transit services have opened in New York.[11] This has been the result largely of inadequate financing, of both operating and capital needs. Until the 1930s, all of the costs of subway operations were expected to be paid from fares and other operating revenues. At a five-cent fare, this was no longer possible by the end of World War I. (In fact, as a result, the subway has been publicly supported since around 1920, when tax revenues first had

to be used to pay the City's debt service.) The first non-local funds for the subway came, during the administration of Mayor Fiorello LaGuardia in the 1930s, from the federal government for the completion of the IND system.

Meanwhile, during the 1930s there were negotiations with the IRT and BMT for the City to take over their two networks, a process called "unification," by which all subway services would be operated by the City as one system. This finally happened in 1940. The events of the 1930s are covered in chapter 6, "From the Great Depression to the World's Fair." This chapter also discusses the creation of the Transport Workers Union (TWU), under Michael Quill, one of the most colorful characters in the city's history.

Chapter 7, "From GI Joe to Jackie Robinson," covers the subway during World War II and its immediate aftermath. After serving as a vital part of the city's infrastructure during the war, plans were once again made for the expansion of the subway following 1945. The problem now was that the City transportation policy, under Mayors LaGuardia and his successor, William O'Dwyer, was dominated by Robert Moses, who had big plans to built limited access highways throughout city, but who despised public transit. Almost everyone agreed that a new subway under Second Avenue was a necessity to replace the Second Avenue El, already torn down, and the Third Avenue El, demolished in 1955. In 1951, voters approved a City bond issue thinking it was for the Second Avenue line, but this was not to happen.

Again the problem was dealing with the issue of who should pay for the subway, including both capital needs and operating costs. By the late 1940s, it was obvious that the five-cent fare, in place since the subway had opened in 1904, was an anachronism. The issue was who would take the heat for raising the fare. Heller vividly tells the story of how Mayor O'Dwyer and TWU President Quill went through a charade during negotiations over increased wages for transit workers in



1948. They had already agreed to an arrangement under which wages would be increased and the union would support a fare increase. In the end, Quill got what he wanted, and the fare was raised to a dime.

"Dark Times" continued from the 1950s to the 1970s, as discussed in chapter 8. Although Heller inexplicably does not mention it, the New York City Transit Authority (TA) was created in 1953, in part to take the heat for raising the fare off local politicians. A creation of the State of New York, the TA was made responsible for the operation of the subway and most local bus service in the city. The deal was that transit fares would cover all operating costs, while all capital costs would be covered by the City. The TA's unelected members raised the fare to fifteen cents in 1953, requiring the creation of the subway token, since one coin would no longer suffice. Mayor Robert F. Wagner ran for office in 1953 by attacking this fare increase, but he failed to meet the City's part of the deal after he was elected. As with prior mayors, under Wagner Robert Moses would continue to build highways using public funds, while neglecting the subway's needs. At the same time, the TA leadership decided--correctly, since the City did not provide what was required for capital renewal--to use the funds supposedly for the Second Avenue subway for the replacement of its assets, including new subway cars, signals, track, etc. Heller does not discuss any of this, although she does make the point, quoting a subway worker, that "There was no money" (p. 63). This was indeed the problem, but no explanation is given for the problem.

During the 1960s and 1970s the fare was increased several times, but never enough to prevent the deterioration of service because of inadequate maintenance. In addition, the City continued its policy of disinvestment in the capital plant of the transit system. In order to reduce the magnitude of fare increases, first the City and then the State and the federal government began to subsidi-

dize transit operations. In an effort to deal more effectively with this situation, New York Governor Nelson Rockefeller created the Metropolitan Transportation Authority (MTA), which came into office in 1968. Most of the MTA's board was appointed by the governor. (The MTA is a regional agency that oversees the TA as well as the Long Island Rail Road, Metro-North Railroad, and the Triborough Bridge and Tunnel Authority.) Instead of discussing the underlying issues involved in transit financing, including the creation of the MTA, Chapter Eight focuses largely on the battle between union leader Mike Quill and Mayor John V. Lindsay, which ended in the first strike by the TWU in January 1966.

During the 1980s and 1990s, the transit system in New York finally received capital funding sufficient to restore its assets. Chapter 9, "The Subway Makes a Comeback," covers this story, which began when MTA Chairman Richard Ravitch was able to win State support for a massive five-year capital plan for 1982-1986, and sufficient funding to pay for it. Under this and successive five year plans, the subway has largely been restored to a state of good repair. At the TA, President David Gunn made several management changes during the 1980s to make sure that this would happen, as Heller relates. Indeed, so much progress has been made that the five-year capital plan for 2005-2009 includes funding to actually begin to construct the long-awaited subway under Second Avenue.

The new sense of optimism at MTA and its agencies is reflected in Heller's last chapter, "Steel Arches." On September 11, 2001, a portion of the subway which passed under the World Trade Center was destroyed, as part of the overall devastation at the site. By September 2002, the 1/9 line had been rebuilt and reopened. The massive effort by transit workers and management on 9/11 and the days that followed to protect the public during the disaster, and to quickly restore subway service on lines other than the 1/9, is told in this chapter. So is the story of how the 1/9 line was

quickly rebuilt and reopened. New York City Transit engineer Joel Zakoff is quoted in Heller's last line as saying: "It's the phoenix rising from its ashes." And he is right, in more ways than one.

Despite the lapses in Heller's narrative, it is the best popular history of the subway prepared especially for the centennial. Some of the chapters relate stories that even this reviewer, who has studied the subways history for over 40 years, was not aware of. In addition, this reviewer actually appreciates a text that is lively and well written.

One question that might be asked is why no new history of the subway was prepared by the academy for the 100th anniversary. This may have to do with a belief that many of the books cited in this review adequately cover the field, and that there is little left to say about rapid transit in New York. A good argument, however, can be made that this is not the case. An overall history of rapid transit financing remains to be written. There is also little secondary literature on the history of the New York subway during the last half-century. This is a period in which one of the major pieces of infrastructure in the United States was allowed to deteriorate, in part through disinvestment in its capital assets, while many other cities outside the United States were restoring their subways and/or building many new lines. Fortunately, the New York subway has been restored to good working order during the past quarter century through several MTA capital plans, which together represent the largest transit infrastructure renewal effort ever undertaken in the United States. But the underlying financial issues that almost resulted in the subway's collapse have not been addressed adequately. This sounds like more work for future historians.

#### Notes

[1]. This was the first underground line, the initial portion of which extended from City Hall station to 145th Street. This portion of the first subway opened on October 27, 1904. The rest of

the initial subway network, operated by the Interborough Rapid Transit Company, or IRT, but built with City funds and owned by the City of New York, was opened between this date and 1908. Before the first subway opened, two extensive networks of solely elevated lines had been constructed with private capital, one in Manhattan and the Bronx, the other in Brooklyn. In 1900, these lines were under the control of the Manhattan Railway Company and the Brooklyn Rapid Transit Company, and which together carried 253 million riders that year. Portions of the Brooklyn elevated network were later incorporated into New York's current system, meaning that the first subway was not the first rapid transit line in New York that is still in operation.

[2]. The gorgeous City Hall station was closed in 1945. It has recently been restored by the New York Transit Museum, and may eventually be opened to the public as a branch of the museum.

[3]. The other subway histories written for an academic audience are: Michael W. Brooks, *Subway City: Riding the Trains, Reading New York* (New Brunswick: Rutgers University Press, 1997); and Peter Derrick, *Tunneling to the Future: The Story of the Great Subway Expansion That Saved New York* (New York: New York University Press, 2001).

[4]. Fischler wrote the first modern history of the subway, *Uptown Downtown: A Trip Through Time on New York's Subways* (New York: Hawthorn Books, 1976), which was published in an updated edition as *The Subway: A Trip Through Time on New York's Rapid Transit* (New York: H&M Productions, 1997).

[5]. Randy Kennedy, *Subwayland: Adventures in the World Beneath New York* (New York: St. Martin's Press, 2004).

[6]. Paul DuBois Jacobs and Jennifer Swender, *My Subway Ride* (Layton, UT: Gibbs Smith, 2004).

[7]. For Parsons' role see James Blaine Walker, *Fifty Years of Rapid Transit, 1864-1917* (New York:

The Law Printing Co., 1918; reprint, New York: Arno Press and The New York Times, 1970), pp. 142, 153, 172, 180, 183, 188.

[8]. These errors are as follows: on p. 20 she once again implies that Parsons worked for Belmont. On p. 26 she says that in 1905 Belmont took guests on a trip on his private rail car, the Mineola, from the Grand Central Station stop of the subway to "the Belmont raceway." In 1905, Belmont Park was in Elmont, NY, in Nassau County, where it is today, and the first subway could not have been used to get there. P. 34 has the Dyre Avenue line, incorporated into the subway system in 1941, as a BMT line; in fact, the BMT, the successor to the BRT, never went to the Bronx. The Dyre Avenue was always operated as part of the old IRT system. Lastly, on p. 72 we are told that the first MTA Capital Program for 1982-1986 was "financed through the sale of a \$6.3 billion bond." In fact, there were many other sources of capital funding for this program other than those derived from the sale of bonds, and many types of bonds were sold, backed by different revenue streams.

[9]. As noted above, this is in contrast to Diehl in *Subways*. Almost all other authors who have written about the subway's history provide source notes.

[10]. Lately Thomas, *The Mayor Who Mastered New York: the Life and Opinions of William J. Gaynor* (New York: William Morrow, 1969).

[11]. In 1941 a portion of a former railroad, the Dyre Avenue line, was incorporated into the subway system and in 1956 the Long Island Rail Road's Rockaway line was added. Meanwhile, almost all of the former solely elevated lines were torn down. From the late 1980s on, portions of the new subways in MTA's 1968 expansion plans have been opened for operation, although not one of its key elements, the Second Avenue subway.

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