

WORLD TRADE CENTER



BY PETER SKINNER
PREFACE BY MIKE A. WALLACE

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The Giant that Defied the Sky

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**Note: Not all photographs for World Trade Center are integrated here. We have included any photographs for which we have permission to print.*

Preface

by Mike Wallace

The hijacked planes that zeroed in on New York and Washington with such murderous accuracy obviously chose their targets for a reason. They didn't attack Los Angeles and Miami, after all. Why not? It's reasonable to assume that they chose cities and buildings that they believed had great symbolic and actual potency: the respective headquarters of the military and financial institutions whose decisions have tremendous impact throughout the globe.

As we've seen from the outpouring of support from around the world, millions of people love and admire the United States and its pre-eminent urban centers.

But others hate us passionately. Not, despite what some say, because we are the land of the free and good, but because the nation has embraced policies from which they feel they've suffered. Driven by calculated strategy and suicidal fanaticism, they've dealt a terrific blow to proud towers and command centers alike.

New Yorkers are rolling with the blow magnificently, despite the added shock of having it come both figuratively and literally out of the clear blue sky, shattering our sense of invulnerability.

But that sense always rested on a truncated reading of history. While the particular form of the attack was fiendishly novel, New York, over nearly four centuries, has repeatedly been the object of murderous intentions.



Figure 1

Through a combination of luck and power, we have escaped many of the intended blows, but not all of them, and our forebears often feared that worse might yet befall them.

In recent decades, some opponents of the expanding global cultural and economic order of which New York and Washington were seen as headquarters, turned to terror. The resulting mayhem seldom touched New York's shores—the first World Trade Center attack was a notable



Figure 13

exception—but fantasies about urban destruction exploded in popular culture. The popularity of cinematic depictions of overseas (or alien) predators wreaking havoc on New York and Washington, with the World Trade Center and Statue of Liberty as attendant casualties, was perhaps also fueled by antagonism to Big Government and Big Corporations.

Now these fantasies have been horribly realized—one reason that we've repeatedly heard stunned witnesses exclaiming the devastation seemed "unreal" or "just like a movie." This is not to say that terrorists are copycats and that Hollywood's to blame, but rather that cultural producers, like almost everyone else, tend to assume that New York and Washington are the likeliest targets.

One consequence of reality having caught up to fiction might be a new reluctance to spin such fantasies—a reissue of "Independence Day" was just postponed—though it's equally likely that someone is already hard at work on a mini-series.

More hopefully, our shattered sense of invulnerability will be replaced by a sober appreciation of the fact that, even as we mourn our casualties, take prudent precautions to prevent similar attacks, help track down and punish those responsible, and reconstruct our city, our generation of New Yorkers, like those that preceded ours, has witnessed and survived a cataclysm even worse than our imaginations had been able to conceive.

1
Nocturne in black and gold.

The Twin Towers are reflected in
the waters of the Hudson River.

2 and 7

The two satellite views show Lower Manhattan and the World Trade Center area before and after the September 11, 2001 attack.

With the Towers' collapse, the Plaza becomes an immense, impenetrable tomb.

3-6

The Twin Towers, the World Financial Center, and Battery Park City by night.

10

New perspectives: Lady Liberty salutes the Spirit of Enterprise.

11

The Woolworth Building stands like a sentinel in the darkening skies of Lower Manhattan, September 11, 2001.

12 bottom

The shattered lattice that soon became an image recognized the world over.

13

At dusk, the World Financial Center (foreground) and the Twin Towers took on a golden glow, reflecting the setting sun.

14-15

The view that was gone forever: the Twin Towers no longer rise behind the Winter Garden, dwarfing the World Financial Center towers. In the foreground: North Cove Harbor.

Introduction

New York! The fabled city with the dramatic skyline, beacon for the best and the brightest, for the fortune seeker, the immigrant—for anyone in search of opportunity. But New York is young and has to create its own myths. New York does this superbly—and believes absolutely in its own grandiose projections. New Yorkers' lives are shaped by images: they are convinced the city offers the newest, the smartest, and the coolest. They speak in superlatives, sure that New York is the biggest and the best; its ideas and products shape the world—and the world persuades them this is true.

The Twin Towers silently voiced it all. They caught and reflected the city's optimism and energy. Though massive, they were lean and clean enough in proportion and style to win general acceptance. Leave the pinnacles and spires and filigreed elegance to older cities; New York projects power and purpose. By 1980, everyone had forgotten that the World Trade Center had been a hotly debated project, that during the 1960s construction had been a slow, disruptive process, and that in the 1970s renting the new space had been difficult. That was the past; New York lived in the present, dreaming of the future. In the 1990s the city was booming; the future was bright and beckoning.

Too easily New York forgets past crises—even though their causes and results live on. In retrospect they seem less acute; in fact they are more numerous and serious than New Yorkers want to admit. The race antagonisms that blew up in the mid-1960s, the near-bankruptcy that sandbagged New York in the mid-1970s, the inadequate performance of the public schools, the spiraling costs of housing, the lack of entry-level jobs, the increasing gap between rich and poor, and the city's slow strangulation by traffic—all persist. As for other big-city ills such as noise, dirt, poor air quality and incomprehensible tongues, New Yorkers simply take them for granted. "This is New York—the world's most exciting city. Whatever the problems, we can fix them," they persuade themselves. New

Yorkers live for the new: the new job, the new apartment, lover, vacation, restaurant, show, movie, book. The economy and the city seem endlessly inventive; while one bubble burst, the next confidently swelled. New York could never be truly at risk.

The young professionals seem peerless and fearless; well-paid, well-groomed, ascending the corporate escalator, closing the deals, casing the cocktail party crowd, bouncing from *affaire* to *affaire* with an army of trainers and therapists to provide physical and psychological makeovers as needed. Tomorrow was never just another day; it was a bigger, better opportunity. There would be another model being photographed in the park, another film-shoot in process on the block. New friends and new relationships beckoned by the minute. If life in London, Paris, Rome, Istanbul, New Delhi, Hong Kong and another half-dozen great cities was just as sophisticated and exciting as in New York, so what! New Yorkers discounted the claim. It had to be better here: this is New York!

But myth and reality and symbol and substance were beginning to separate even before the brilliant, sunny morning of September 11, 2001. The dot.com world was deflating like a punctured balloon. People who normally vacationed in Europe announced sudden, urgent needs to visit their parents in the Mid-West. The thin, nifty models were a little thinner and considerably more nifty, and the film-shoots on the streets served their crews bagels and cream cheese rather than brioches and imported jams. But New York still held reality at bay; this was merely a temporary economic downturn, a useful correction; the system was shaking out the fat, tensing up for the next forward surge. Real trouble occurred only elsewhere; horrific events in Rwanda, in Serbia, in Bosnia and Kosovo; the frequent flare-ups in the Israel-Palestine confrontation and the occasional flare-ups in Northern Ireland were far away, almost unreal.

America remained blessed, beyond the reach of wars and shootings in the streets; Americans didn't have to listen to the day's death toll each evening on the TV news.

What New York and America lost on September 11, 2001 was not only 5,000 innocent lives tragically ended, great buildings reduced to rubble and vibrant businesses blasted into bankruptcy. New York and America lost the deeply held myth of some peculiar, sacrosanct core of invincibility. Defying the horrific events of its own recent history, America had clung to

this myth. New Yorkers managed to filter experience: the 1993 World Trade Center bombing had not brought the tower down; in the fullness of time the perpetrators were brought to justice.

The 1997 Oklahoma bombing was far more lethal, with 138 victims compared to six in the WTC bombing, but America assured itself this was a uniquely aberrational domestic crime, perpetrated by an American. The nation's mistake was to concentrate on the trials and the punishments of the perpetrators; the crime was to neglect the evidence of American

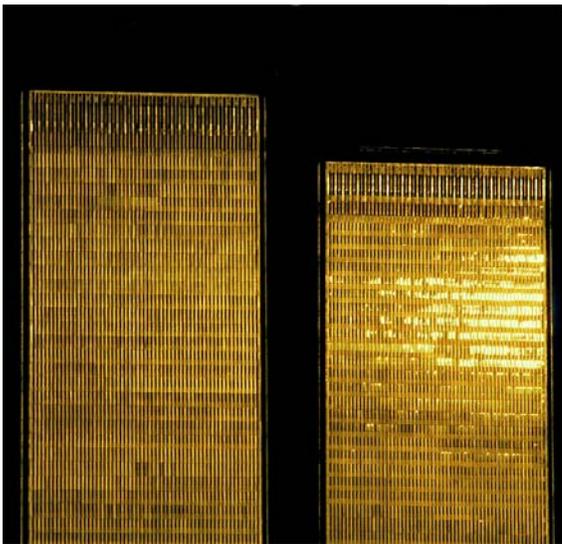


Figure 21

vulnerability. In retrospect, it is clear that in September 2001 the intelligence and security systems maintained to protect New York and its bridges, tunnels, transportation, electrical and water supply were utterly inadequate.

Just what precautions can be taken and at what cost to a democratic nation's open society and civil liberties is hard to define. It would be easy enough

in Tokyo, Beijing, Cairo or Riyadh to “keep an eye on foreigners” because they are so few and so identifiable. It's a different situation in European capitals with their broader mix of residents, and an even more different situation in major American cities, which have thoroughly mixed populations and remarkably few restrictions on activities or movement. Diversity and freedom are the blood and oxygen of American life.

On September 11, every American and most of the world's citizens realized an era had ended and life would thereafter be different. The nationwide response after the initial shock and the heroic rescue efforts says much for America. The instant solidarity felt between individuals in their communities and between the American people and their government, the refusal of individual Americans to ostracize Moslems, and the restraint Americans sought and their government has practiced in terms of retaliatory action all speak of great moral strength. The saving

thought is that whatever the suffering now brought to Afghanistan, it will not equal the suffering that the Taliban continues to inflict.

It is a superb irony that many powerful Moslem critics of American government and policy live and work freely and untrammled in America while in Moslem nations few critics of government remain free and at large for long. It's an irony too that the terrorists thrive only in the hinterlands of the least effectively governed Islamic nations, despised and condemned by thinking citizens. But a stronger, more immediate take on reality is to be found in asking a local Moslem cab driver, shish-kebab cart operator or newsstand owner in New York what he wants most. The answer very seldom has to do with American policy or Islam; it is most often the statement, "To bring the rest of my family to America."

Moslem immigrants willingly accept America with all her challenges. They are not afraid of hard work or raising families or taking on the risks of starting small businesses; they are not afraid of naming their land of birth or practicing their religion. If they are afraid of anything, it is the remote possibility of being forced to return home. Their children move through the public schools and distinguish themselves in the nation's colleges and universities; they become Americans. Now for them and their parents, there is a fear: they may be at risk of death through the actions of their former countrymen who hate the nation that they, the successful immigrants, have come to love.

17

The twin Towers frame the Woolworth Building (1913), "The Cathedral of Commerce" designed by Gilbert Cass. To the right is 1 World Financial Center.

18 and 19

The moment of impact—for the North Tower 8:45 a.m. and for the South Tower 9:03 a.m.—meant a deluge of 20,000 gallons of jet fuel flooding in, bursting into flames and creating a temperature in excess of 2,000°F.

20-21

From dull bronze to gleaming gold. The Twin Towers' anodized aluminum skin proved remarkably sensitive to external light conditions, day by day, season by season.

22-23

A catastrophe beyond belief creates unforgettable images of death and destruction.

1 : Manhattan Before the Twin Towers

To picture New York and its life before the Twin Towers requires revisiting the 1960s, the decade before the towers were built. They were completed more than thirty years ago; the North Tower's first tenants moved in 1970 and the South Tower's did so in 1971. For a majority of New Yorkers and tristate area residents the Twin Towers have always been there, always visible, a lodestar and an undeniable fact of life. It takes conscious effort of will to conjure up the New York of the 1960s; recapturing the state and texture of the city demands more than just recalling the exuberant youth rebellion, the rock-and-roll highlights and the superficial 'good times glow' of that decade, especially its middle years. It requires searching for the underlying realities: the who-was-who among political leaders, the state of the economy, race relations, public services, education, and housing; it means examining perceptions about crime and public safety, about the quality of life and levels of confidence. For most people under forty the 1960s decade was before their time, ancient history they never shared. For those over sixty, it's "the old days," when life was different, more manageable—a time now slipping away in the haze of overburdened memory.

In 1960 John F. Kennedy was president, Nelson Rockefeller was governor of New York State, and Robert F. Wagner was mayor of New York. They were a trio of big, confident leaders in a big, bold decade. But it was a difficult, demanding decade in which prosperity and an exuberant youth culture often seemed to be forces designed to keep people's minds off disasters. The Vietnam War and student protest, the assassination of President Kennedy, race riots and cities on fire, and then on to Watergate.... Yet it remained a surprisingly optimistic decade—and New York did not seem to take its problems too seriously.

New York did not lack for iconic buildings before the Twin Towers soared 1,360 feet up from their Plaza into the heavens. Solid, vibrant Rockefeller Center, largely completed in the 1930s, with its mall and flag-

studded sunken Plaza, was a major attraction, awash with New Yorkers and tourists. The city was affectionately proud of the Chrysler and Empire State buildings, both in midtown, rising high above their neighbors to dominate the skyline. The former (completed in 1930 and 1,046 ft high) was famous for its stainless-steel eagle heads, art deco trim and its 71st floor visitors' center; the latter (completed in 1931 and 1,250 ft high) offered an immensely popular observation deck. Both had ideal locations. The Chrysler building is only a block from Grand Central Terminal where the railway network serves the northern suburbs, and the Empire State building is conveniently close to Penn Station, with rail service to Long Island and New Jersey.

These two monumental stations have cautionary histories. Penn Station, modeled on the baths of Caracalla in Rome, was completed in 1911. In 1965, real estate interests demolished it and built a bland office tower and covered arena. Only an intensely spirited public protest led by Jacqueline Bouvier Kennedy saved the magnificent Grand Central Terminal, completed in 1913 and famed for its vast, barrel-roofed Main Concourse, from a similar fate. Grand Central, now totally restored to its former splendor, is a visitors' "must see" destination, drawing millions annually.

Downtown in Lower Manhattan's Financial District, to the southeast of the Twin Towers' site, the 66-story Woolworth Building ("The Cathedral of Commerce," completed 1913) rose in relative isolation at Broadway and Park Place, a proud architectural icon, admired for its elegant masonry and terracotta cladding. The building looked across at City Hall (1812), a refined, cupola-topped two-story pavilion in a tree-filled park, and just south of it, to the bulkier, recently restored Victorian-classical Tweed Court House (1878). The three buildings are distinguished standouts of fine architecture, though a number of handsome older stone-clad office buildings keep them company. All could afford to be scornful of the banal new office towers plugged into to every possible site, particularly toward Wall Street and the south. To the casual visitor or the fast-moving tourist, New York seemed to be on wave of prosperity, enjoying boom times. The truth was far different; the city was entering stormy financial waters and within a decade would be poised on the brink of bankruptcy.

A major cause of the city's worsening financial plight was the 1965 federal and state mandate that the city pay 25 percent of its welfare and

associated medical care costs, previously entirely met from state and federal sources. Other causes included liberal welfare policies that added recipients to the public assistance rolls and generous pay raises for the city's fast-growing unionized workforce. Between 1960 and 1970, New York's budget more than tripled to over \$6 billion. To meet financial needs, the city borrowed money, incurring heavy repayment obligations. By 1971, when the second of the Twin Towers was completed, the city was headed for financial disaster, with longer term loan repayment costs exceeding its current budget.

No remedies were in sight: property taxes had been hiked to the bearable maximum and new taxes added to business and personal income. As a result, businesses and residents were beginning to leave New York for more welcoming financial climates. Thus the gleaming Twin Towers, with 10 million square feet of brand-new office space, rose over a city in precipitous decline.

Though clear to the well informed, the city's rapidly worsening financial situation remained happily masked to millions of citizens and visitors. "Urban renewal," meaning a building boom, was a catchword; new office towers and apartment buildings were rising. The construction of Lincoln Center for the Performing Arts was underway, projected to be not only a cultural center but also a new anchor and catalyst for economic revival of the West Side between 59th and 72nd streets. Philharmonic Hall (later renamed Avery Fisher Hall) opened in 1962, New York State Theater in 1964, and the Metropolitan Opera House in 1966. Much emphasis was given to the central Plaza that opened on to these first three Lincoln Center buildings. It was a welcoming public meeting place, a civic amenity, reflecting the marriage of the arts and life. The sight of the Plaza thronged with lively crowds from midday to mid-evening was not lost on the World Trade Center's planners and architects.

Behind the glitter and below the surface, New York was experiencing wrenching strains. The schools were seen as segregated and failing their minority students, and the educational bureaucracy was under heavy fire. "Experimental districts," with control by community school boards with parent participation, had led to a prolonged teacher strike. Concern existed that minorities were denied access to higher education, and in

1970 the city college system adopted a much criticized “open admissions” policy.

The Vietnam War had led to increasingly tense and disruptive demonstrations, and in 1968, student riots broke out at Columbia University over the university’s collaboration with the Institute of Defense Analysis and its lack of support for community development in neighboring Harlem.

As the 1960s closed, the city was visibly in decline. The economy was weakening, public services were being cut, and the subways and commuter railroads were deteriorating. New York was no longer able to meet the reasonable needs of its minority citizens and their lot would worsen as the city faced an ever bleaker financial future. Given the overall situation, the majority of citizens welcomed the World Trade Center project. Yes, they said with a keen appraisal of reality, in the long run it would make the rich richer, but it had to be built, maintained and serviced, and that meant jobs—for some of them at least—and jobs meant income. All in all, building the Twin Towers was seen to be an act of confidence, heralding expectation of a brighter future for New York.

26 top
Battery Park and the Staten Island Ferry Terminal in the 1940s.

27
The 15-acre WTC site in the mid-1960s, before building demolitions. The area lacked major economic importance and architecturally significant buildings, but was home to hundreds of small businesses, including the famous “Radio Row” of electronics dealers, as well as restaurants, bars and other retail establishments. Owners and residents put up a fierce “small man vs juggernaut” fight before unwillingly leaving.

28-29
Governors Island (left foreground), ex-U.S. Coast Guard HQ, is available for \$1 (with expensive conditions). Most of Manhattan’s Hudson River passenger and freight piers have been demolished, victims of rising costs. Top left: George

Washington Bridge, bottom right, Brooklyn Bridge; with Manhattan Bridge just north. South of Brooklyn Bridge is the historic Brooklyn Heights residential area.

29
The Lower Manhattan Skyline seen through Brooklyn Bridge’s suspension cables.

30 top and 30-31
New “box” high-rises intrude among older, decorative skyscrapers. Foreground: the 5-bay Staten Island Ferry Terminal—home of the famous “5-cent ride.” Mid-left: the circular Castle Clinton (1807) in Battery Park, once guarding New York Harbor.

31 bottom right
President and Mrs. Kennedy, seen in an open motorcade on Lower Broadway, were warmly welcomed visitors to New York. Ticker-tape parades were reserved

for sports victories or foreign heads of state, though in 1960, JFK enjoyed one as a presidential candidate.

32 top

Special-purpose harbor craft maintain the Staten Island ferry waterways. Operating 24 hours per day, the ferries are a vital link to New York's smallest borough.

32 center

Manhattan doesn't always head the agenda: President Johnson visits Brooklyn.

32-33

Two undisputed dowagers of Lower Manhattan: the Woolworth Building (center) and Brooklyn Bridge. Both were praised for their elegance.

34-35

The Queen Mary en route to a Hudson River terminal. New York is no longer a great passenger port: during the 1950s-1960s the proud trans-Atlantic liners steamed into history, victims of inexpensive air travel, though some cruise-ship traffic continues.

2 : The Twin Towers: Design and Architecture

The Twin Towers no longer exist. For just thirty years they were the distinctive hallmark of the Manhattan skyline, one of the most famous in the world. More than an intrinsic visual reference point for downtown New York, the city's vital center, they were also the nerve center of the world economy. Yet their record-breaking height, structural design and the basic fact of their presence were always subject to criticism. It was never a secret that architectural critics did not fully support the World Trade Center project or the Twin Towers' size and design.

Two days after the September 11 attack on the Twin Towers, Nicolai Ouroussoff (the Los Angeles Times' architectural critic) described the construction of the towers as an act of optimism and outlined the unusually strong symbolism of the World Trade Center. At the same time, he referred to their "limited architectural value."

Richard Ingersoll (Professor of Architecture at Syracuse University in Florence, Italy; visiting professor at the Swiss Federal Institute of Technology, Zurich; founding editor of the Design Book Review) went further, claiming that the Twin Towers were a sad, dull place to work, and even considered that their vacuous forms were indicative of an imminent disaster. This negative opinion was not shared by ordinary people, who felt that the towers were a symbol not just of a city, but of an entire system; a liability, however, that the towers were saddled with from the day of their design.

In their book "Architettura Contemporanea" (Milan 1976), the authors and architectural historians Manfredo Tafuri and Francesco Dal Co discussed the WTC as a work that was "out of scale," and guilty of traumatically changing the development and functional balance of Manhattan.

A huge increase in the number of commuters was the project's first consequence, so significant that from 1966 on, Governor Nelson Rockefeller pushed for construction of a new city on the water—Battery

Park City—with the aim of alleviating travel problems and exploiting the new skyscrapers' location. The initial 1966 plans for Battery Park City were by Wallace Harrison and his collaborators. In fact, according to Tafuri and Dal Co, Battery Park City, Roosevelt Island, and the World Trade Center together represented what Raymond Hood (1881-1934) had envisioned in his futuristic master plan, "Manhattan 1950." Discussion of the WTC project inevitably leads to its Japanese-American architect, Minoru Yamasaki (1912-1986), assisted by Emory Roth, whose reputation was made by the WTC project. Architectural historians and critics prefer some of Yamasaki's other major works over the WTC. These include the St. Louis airport (1935-55), designed with G.F. Hellmuth and J. Leinweber (a terminal typified by a series of slender intersected cylindrical vaults covering the passenger waiting area), the Society of Arts and Crafts building (Detroit, 1958); the American Concrete Institute building (Detroit, 1959), or the Reynolds Metals Offices, also in Detroit (1959). The most typical elements of Yamasaki's work are vaults that mask structural elements of the walls, often formed by profiled modules made from concrete or other agglomerates.

After studying architecture at the universities in Washington and New York, Yamasaki worked for Shreve, Lamb and Harmon—the architects of the Empire State Building—where perhaps the idea was born and nursed that, one day, he could compete with the masters. The masters Yamasaki most admired were Mies van der Rohe and Le Corbusier.

The WTC was conceived in 1962, began to take form in 1964, and the first construction started in 1966. The towers' distinctive features were geometric divisions, glass walls, and load-bearing columns. The North Tower was completed in 1971, and the South in 1974, when the WTC complex was inaugurated.

Strongly promoted by the Port Authority of New York and New Jersey, the WTC was a sensational project for the period, aimed at bringing into being a commercial district of great visual impact in a depressed area. It occupied (it is sad to have to refer to it in the past tense) a total ground area of over 15 acres, and the Plaza at the base of the towers exceeded five acres in extent.

Yamasaki believed deeply in the project, stating, "The World Trade Center must . . . become the living representation of the faith of man in

humanity, of his need for individual dignity, of his trust in co-operation and, through this, of his ability to find greatness.”

The WTC’s immense scale is reflected in the extraordinary statistics that describe the 10-year project, to use a rather dry term for a mighty undertaking. In addition to the towers (1 and 2 WTC) were five other buildings and an immense subterranean shopping mall. No. 3 WTC was the Marriott Hotel (designed by Skidmore, Owings and Merrill, and built in 1971 as the Vista Hotel); 4 WTC housed the Commodities Exchange; 6 WTC was the 8-story U.S. Customs House. The remainder were office buildings. To a greater or lesser extent, all were destroyed by the collapse of the towers.

The Twin Towers were each roughly 1,360 feet high, 196 feet long on each side, had 110 floors and 104 elevators. They rested on foundations that penetrated 69 feet into the bedrock. Construction required 200,000 tons of steel and 3,000 miles of electrical cable to satisfy the daily distribution and consumption of about 80,000 kilowatts. For express elevator ascent, the structures were divided into three vertical zones. The towers had over 43,000 windows, each one 22 inches wide. In total, the façades required some 215,000 square feet of glass.

The initial stage was the clearance and excavation of 12,000,000 square feet of land, with the preservation (and re-routing) of the New York-New Jersey subterranean railway lines, and accommodation for the New York subway and pedestrian passageways.



Figure 56



Figure 59

breakthrough configuration compromise. This option offered the

Yamasaki produced about one hundred models before choosing the two towers, which represented a

possibility of creating the required ten million square feet of office space. In designing the towers, Yamasaki went beyond the existing principles of skyscraper construction (the U.S.'s most important contribution to architecture), making skillful use of technology and materials.

The structural system was simple and effective. The façades (196 ft wide) were to all effects a cage made of steel and prefabricated sections (in modules measuring 10x32 feet), able to resist wind-induced and seismic strains without transferring stress to the towers' core structure, but distributing and absorbing it throughout the outer wall structure. The structures were highly resistant yet light, without internal columns beyond the elevator core.

Designed to resist atmospheric agents, seismic events and even accidental intrusion (including being hit by an airliner), the Twin Towers were unable to withstand the heat caused by flaming combustion of the 20,000 gallons of jet fuel spilt into each tower on September 11. The heat literally detached the concrete-clad floors from the towers' steel core and exterior walls. These, having lost their characteristics of resistance and flexibility because of excessive heat, gave way under the weight of the structure.

It is certainly right, though perhaps a little premature, to consider a future for the WTC site and to document the unexpected argument that pits supporters of the creation of a memorial against the faction of "rebuilders." Renzo Piano, who was recently received a commission to design the New York Times' new midtown offices, states that he favors construction of new skyscrapers, though

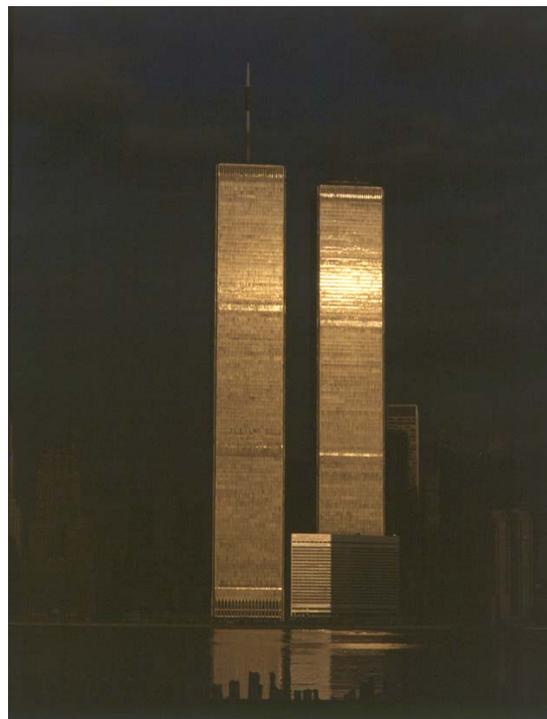


Figure 60

perhaps not so high—only 656 feet.

The proposal by two artists and two architects (Julian La Verdière and Paul Myoda; John Bennet and Gustavo Monteverdi) is more spectacular

and verges on kitsch; their idea is the temporary creation of two towers of light, the diaphanous representation of what used to stand on the site.

More simply and realistically, what remains of one of the most famous, debated and daring projects of American—or even world—architecture is the knowledge of its absence, its memory and the warning it provides.

38 top

A smiling Minoru Yamasaki is captured on film in a perfect perspective at the foot of the structures that brought him worldwide fame: the World Trade Center's Twin Towers.

39

A distinctive picture of the towers glistening in the sun. These soaring structures of steel, aluminum and glass had a totemic role: the propylaea of a world city.

40

The World Trade Center model reveals the huge size of the Plaza (approximately 5 acres) that lies at the foot of the towers, and the “normal” height of the other buildings in the complex.

41 top

The Port Authority of New York and New Jersey was initiator and moving force behind the construction of the WTC. Seen here is the entrance to the PA's Information Office.

42 top and 43 top

Yamasaki produced many models before the final design of the Twin Towers was agreed upon. Potential solutions had considered more towers—smaller, naturally, than the final design—as a compromise to satisfy the PA's requirement for a specific amount of useable office space.

42-43 bottom

Minoru Yamasaki seems to want to dispel all doubt as he discusses the World Trade Center's surface area. The 15 acres the PA acquired in a depressed area were to be used to build a complex

destined to be, as Yamasaki stated, a “living representation of the faith of man in humanity.”

44

A large scale model was set out for a photographic session. Based on a human scale, the size of the pre-existing buildings and the majesty of the towers are clearly evident; once erected, they would dominate the surrounding buildings from an immense height.

45

The deus ex machina of a project about to be set in motion, architect Minoru Yamasaki's thoughts are probably divided between the knowledge of a successful design and the challenge of execution, with the inevitable adjustments and unexpected problems that will emerge during construction. It took 8 years from the start of the excavation in 1966 to the inauguration in 1973, but the World Trade Center began its independent working life as early as 1971.

46 top

In this view of the model, the Plaza of the complex, though enormous, seems to have been sacrificed and trampled by the massive bulk of the towers.

46 bottom

Perhaps the paving of the Plaza—shown here in plan—was supposed to mitigate the insistently orthogonal design of the complex.

47

The model clearly shows the towers' three modules. They were chosen from over one hundred models as the ideal morphological compromise.

48-49

Over 66 feet of rock had to be removed to provide sufficient foundations to anchor the towers to the ground. The apocalyptic pit shown here contains the framework necessary for the excavation to be accomplished.

48 bottom

All the power lines, air inlets and telephone cables ran beneath each floor. The buildings were equipped with complex heating and energy management systems that were extremely modern for the era.

49 bottom

Another city lay beneath the World Trade Center: it comprised car parks, subway and railway lines, miles of cables and the massive machinery needed to maintain the vertical metropolis in operation.

50 top

This view shows the steel load-bearing structure of the towers and the anchoring of the metal columns to the plinth made of reinforced concrete.

50 center

The steel modules (each measuring 10x33 feet) emerge from the bedrock to support the Twin Towers—the world's tallest buildings at the time of the project's inauguration.

50 bottom

These drawings show the phases of excavation, insertion of the reinforcing framework, and the final casting of the foundations of the perimeter walls.

51

This photo gives a good indication of the depth of the foundations. On the right are the perimeter walls; on the left the steel framework is being built.

52

The construction system for the Twin Towers is clearly shown here: a support core, the elevator shafts and plants, and the strong “self-supporting” perimeter framework.

53 top

The bare structure of the steel framework has not yet been covered with the uninterrupted rows of small windows (only 22 inches wide); they will give an impression of harmonized strength and flexibility.

53 center

This drawing clearly shows how the prefabricated sections of the floors rested on both the central core and the strong perimeter sections.

53 bottom

A moment during the anchoring of the steel modules by skilled steel erectors accustomed to working on high-rise towers.

54-55

A striking photograph of Lower Manhattan with the not yet completed towers already declaring their imposing presence. Their acres of windows would have been sufficient for the needs of a town of 10,000 inhabitants.

55 top

The vertical thrust of the façade clearly shows the horizontal section breaks at 1/3rd and again at 2/3rds of height. Yamasaki's design called for the towers to be made up of three almost identical sections.

55 bottom

The three-section structure was also reflected in the arrangement of the superfast elevators (104 in each tower).

56

In this bird's eye view of the World Trade Center the towers dominate the Plaza and the other buildings of the complex.

57 top

The Plaza at the exact moment the shadow of the South Tower is thrown onto the corner of the North Tower to create a fascinating play of light.

57 center and bottom

The World Trade Center is complete: the year is 1973 (as the clothes worn to the inauguration ceremony suggest). Note that the landfill in the Hudson River, on

which the World Financial Center will be built, is still empty.

59

In this photo taken at the beginning of the 1980s, the Twin Towers are reflected in the waters of the Hudson: no other structures have yet been built between them and the riverfront.

60-63

Impressive by day, the towers were more so at night, when, in the warm light of sunset, they rose like cyclopic twin lighthouses in the darkness of New York.

64-65

Perhaps the only decorative element that Yamasaki wanted to give to the façades of the towers were the 10-story high ogival arches on the lowest section of the buildings.

66 top and 67 bottom

The axonometric view shown here (with the plan to the right) shows the situation before and after the attack on September 11. A surprising number of nearby buildings suffered severe structural damage.

67 top

The new World Financial Center is complete. Designed by César Pelli (1981-1987), the towers rose on landfill in the Hudson River, just west of the World Trade Center and adjoining Battery Park City.

68 and 69

Lower Manhattan as it appeared from overhead just before and after the terrible attack on September 11.

Map of Disaster Area

(Included in actual book; not reproduced here.)

Collapsed buildings:

- 1 - 1 World Trade Center
- 2 - 2 World Trade Center
- 3 - 7 World Trade Center
- 4 - 5 World Trade Center
- 5 - North Bridge

Partly collapsed buildings:

- 6 - 6 World Trade Center
- 7 - Marriott Hotel
- 8 - 4 World Trade Center
- 9 - One Liberty Plaza

Buildings with major damage:

- 10 - East River Savings Bank
- 11 - Federal Building
- 12 - 3 World Financial Center
- 13 - St. Nicholas Church
- 14 - 90 West Street
- 15 - Bankers Trust
- 16 - South Bridge

Buildings with structural damage:

- 17 - Millennium Hilton
- 18 - 2 World Financial Center
- 19 - 1 World Financial Center
- 20 - 30 West Broadway
- 21 - Winter Garden
- 22 - N.Y. Telephone Building
- 23 - 4 World Financial Center

3 : The World Trade Center in Movies and Media

The Twin Towers became instant icons. Almost all architectural critics and propounders of the higher aesthetic condemned or dismissed them, often as casually as the public dismisses critics. The towers were too brash, too big, and too dominant, shattering the urban scale, overburdening the area. But New Yorkers on the whole admired the Twin Towers as quintessential examples of the city's "can do" energy and reflections of their own enthusiasm for the best and the newest—even if it had to be the biggest. An additional factor played a role in humanizing the Twin Towers. Three events occurring within five years, each unique in New York's history, endowed the Twin Towers with a special mystique, a magnetism that made New Yorkers realize the towers challenged the human imagination. The towers themselves had entered the record book with a plethora of 'firsts.' Now, by simply existing, they caused new 'firsts' to happen and enter the record.

The first event occurred on April 7, 1974, when New Yorkers left home for work to the surprising news that Philippe Petit, a 24-year-old French citizen, had successfully secured a tightrope between the towers and had made several elegant and seemingly carefree crossings. Contemporary reports made it clear that the PA, New York police and the public had experienced much anxiety—and that Philippe Petit had not.

The second event occurred a little over a year later, on July 22, 1975. That morning Owen Quinn, a 24-year-old New Yorker, made a parachute jump from the roof of the North Tower. Though quickly executed and not unduly complicated, Quinn's jump was dramatic and not without danger. After his safe but bruising landing, the Port Authority charged him with criminal trespass, concerned to discourage other risk-takers. The move did not succeed. On May 27, 1997, another New Yorker, George Willig, aged 27, achieved an exciting first. Using clamps that he had designed to lock into grooves in the tower's façade, he made a three-hour ascent from base

to rooftop, a time-span that greatly pleased the media and enthralled a worldwide audience.

Almost effortlessly the Twin Towers promoted themselves. The five-acre Plaza from which they rose was a pedestrian haven removed from vehicular traffic, its focal point a vast fountain and massive bronze spherical sculpture whose sweeping curve was in dramatic contrast to the unbroken vertical lines of the towers. A full calendar of planned and impromptu events—music, theater and other—made the Plaza a place of endlessly changing scenes. The Plaza, bigger than the Piazza of San Marco in Venice, was a natural starting point for pleasurable activity. Beyond it was the bridge to the World Financial Center and the Winter Garden, opening onto the Marina and the Battery Park City Esplanade and the Hudson River. To the south rose the familiar New York Harbor icon, the Statue of Liberty. Below the Plaza was the Concourse, a permanent magnet for the compulsive shopper.

Two predictable but rewarding features drew visitors and New Yorkers alike to the Twin Towers. The enclosed observation deck on the 107th floor of the South Tower, with its access to the roof, opened in December 1975 and became an instant hit. The deck did not overtake the Empire State Building's 86th-floor open-air observation terrace; fortunately, each offered the best vista in at least one direction. The World Trade Center's observation deck offered stunning views to the south, over New York Harbor and Brooklyn. From the Empire State Building's deck, Central Park unrolling to the north seems only a stone's throw away. Both attractions drew over 1.5 million paying viewers per year; neither complained of being edged out of the market.

In the North Tower, the fashionable Windows on the World restaurant on the 107th floor opened in April 1976, and quickly became renowned for an imaginative menu and an excellent wine list. For hundreds of thousands of New Yorkers and visitors, Windows on the World offered lunch with unrivalled panoramic views. Drinks and dinner à deux there, above the city's myriad lights, with the Staten Island ferries crossing the black waters below like programmed fireflies, was the launching-pad for countless memorable romances.

On the movie front the Twin Towers quickly reached the screen. The 1976 remake of "King Kong" (first filmed in 1933), had as its unforgettable

climax a hunted King Kong leaping from tower to tower, a terrified Jessica Lange clutched in his mighty paw, moments before his fatal plunge. For once, the Empire State Building was dramatically upstaged. Because New York and Lower Manhattan are perennially popular locations for shooting movies, the Twin Towers appeared on screen time and time again, if only in fleeting exterior shots. Practical considerations, security issues and cost made it very difficult to set up and shoot within the towers, though they feature prominently in mock-up or reality in a number of films. Among the better known are Woody Allen's nostalgic "Manhattan" (1979, Diane Keaton, Meryl Streep); "Escape from New York" (1981, Kurt Russell), featuring the towers in a futuristic horror movie; "Wall Street" (1987, Michael Douglas and Charlie Sheen); and "Working Girl" (1988, Sigourney Weaver and Harrison Ford), in which the ambitious Melanie Griffith gazes up at the Twin Towers, a symbol of unbounded ambition, a salute to success. "Godzilla" (1998, Mathew Broderick and Maria Pitilli) was a return to the fantastic.

By 1980 the Twin Towers image was undeniably entrenched in the public mind, and its use has never lessened. Channel 11, a major New York TV station, adapted the Twin Towers' profile and adopted the design as a logo, placing it on countless TV screens day in and day out. Liquor companies, including Maker's Mark Bourbon and Bacardi Rum, have used the image in high-profile advertising campaigns; numerous other companies have featured the Twin Towers on merchandise or on shopping bags or promotions. Fine photography has captured the Twin Towers from endless angles; vertical candles in the dusk cut by the curving light-laced horizontal of Brooklyn Bridge, or rising across the Harbor, above and beyond Lady Liberty's familiar high-held torch, or in closer shots, framing the classic façade of St. Paul's Chapel.

Approaching Lower Manhattan from New Jersey, from Staten Island, from Brooklyn or Long Island, the Twin Towers dominate the skyline. They are never just there; they are powerfully, strikingly there. Seen from the Brooklyn Heights Esplanade, the Twin Towers become almost magical. They shimmer in the brilliant morning light of a spring day; at dusk in winter they are pillars of light in a darkened sky.

And now the Twin Towers and so much else around them are gone; utterly destroyed in a psychopathic act of mindless hatred. Without doubt,

new buildings will rise. Some suggest a memorial within a park; others ask for housing; still others suggest a defiant rebuilding of the WTC and Twin Towers complex. The economic, demographic, employment, and transportation calculus is vastly changed from that of the 1970s; whatever is built must be governed by sensitive interpretation of new criteria.

It is too soon to invest in plans and schedules: the current chapter is not yet closed; the tragedy is too recent and too raw. But what the WTC stood for cannot, must not, be forgotten. Minoru Yamasaki, the quiet, thoughtful architect of the World Trade Center, captured that purpose in words that will not be surpassed:

World trade means world peace and consequently the World Trade Center buildings in New York. . . had a bigger purpose than just to provide room for tenants. The World Trade Center is a living symbol of man's dedication to world peace... beyond the compelling need to make this a monument to world peace, the World Trade Center should, because of its importance, become a representation of man's belief in humanity, his need for individual dignity, his belief in the cooperation of men, and through cooperation, his ability to find greatness.

72
May 26, 1977. George Willig went up solo but came down in police custody in a window-washer's rig. This courageous New Yorker designed his own climbing equipment.

73
130 feet to go; 1,350 feet to fall . . . On August 7, 1974, Philippe Petit captured the world's admiration with his daring feat. His confidence was born of professionalism and preparation.

74 and 75
"The Sphere," a 27-foot-high bronze sculpture, was the focal point of the Twin Towers' 5-acre Plaza. The German sculptor Fritz Koenig designed the much-admired work.

76 top
On a clear day, the South Tower rooftop view extended almost 50 miles in all directions. The stunning panorama of

New York harbor reminded viewers that the city was founded as a port.

76-77
A purist might deem the World Financial Center and the World Trade Center to be strictly "business buildings," but the general public found fascinating combinations of form, texture, and configuration.

77 bottom
The Winter Garden brought whimsical elegance to the adjoining World Financial and World Trade Centers' business environment. A full cultural events calendar made the Garden a popular forum for New Yorkers and visitors alike.

78
Helen Frankenthaler, a New York painter greatly admired as an abstract expressionist, executed this striking major work, mounted in the tower lobby.

79

One quarter of a Twin Tower wrap-around lobby, with the elevator core at left. Openness and spaciousness were key design elements throughout the WTC; hence the 10-story lobby.

80 bottom

“Meet you in the Windows of the World!” A great New York experience: design, décor, food, wine, mood and moment came triumphantly together. If words failed, there was always the view...

80-81

The Winter Garden added whimsical elegance to the Trade and Financial

Centers, and dramatic lighting added to its many special events. The palm trees have seen it all . . .

82 and 83

Filming “King Kong” (John Guillerman, 1976) called for crowd scenes, particularly in dying Kong’s fall to the Plaza. New Yorkers just loved being part of the action . . .

84 and 85

In “Independence Day,” aliens from outer space cast a giant shadow, threatening the Twin Towers, New York and the nation.

In “Men in Black,” the tough guys who saved the U.S. seemed happily employed.

4 : The New Heart of the Financial District

Over its thirty-year life span, the World Trade Center—the Twin Towers and the five smaller buildings, including the Marriott Hotel—was a driving force in the revitalization of Lower Manhattan and the Financial District. For hundreds of millions throughout the world, the Twin Towers symbolized the power of American capitalism. But that was not the primary goal, and it's important to remember who financed and built the WTC, what its original purpose was, and how through natural synergies that purpose expanded and changed.

Ironically enough, the brilliant, bold, and hugely successful idea for the WTC came from a powerful but low-profile government agency that financed itself from airport and marine terminal user fees and from bridge and tunnel tolls, accruing large surpluses that it needed to invest.

The agency was the Port Authority of New York and New Jersey (the PA), founded in 1921 to “improve trade and commerce.” At first, the PA’s main activity was operating marine cargo ports on the New York-New Jersey waterfronts. In the 1930s the PA built the George Washington Bridge across the Hudson, linking New York and New Jersey. It also operated the existing airports, and after World War II built new and vastly bigger ones. By the late 1950s, maritime trade became more competitive and less expansionary. New York felt the squeeze; almost all the docks were to close down by the 1960s, the victim of crowded access streets, expensive warehousing and trucking, and high labor costs. On the New Jersey side, the dock environment was more favorable and the PA was more aggressive, building Port Elizabeth and Port Newark in the late 1940s-early 1950s as new, high efficiency, fast turnaround docks for huge container ships and tankers.

At the beginning of the 1960s, the PA had money and needed public-benefit projects on which to spend it. A trade center was one possibility, soon backed by the financial sector (the loosely allied banks, real estate

tycoons, and major investors), which realized that a major new office complex would revitalize Lower Manhattan, an area within minutes of Wall Street. If the PA's financial resources met most or all of the costs, so much the better. If, in keeping with its charter to "improve commerce and trade," the PA brought in numerous businesses involved in these activities, so much the better; the situation between them and the Wall Street money men would be collaborative rather than competitive.

In the late 1960s the New York-New Jersey region was declining as a trade and shipping center, with Houston and New Orleans growing rapidly. New York needed a dramatic, high profile project to help it and



Figure 88

the region recapture pre-eminence in trade and associated finance. Whole areas of the city were deteriorating; Lower Manhattan urgently needed revitalization, urban renewal had passed it by and decay was evident. The Hudson waterfront area to the northwest of Wall Street, was ripe for redevelopment, particularly some thirty blocks of old, low-rise small and mid-sized business buildings. A brand new World Trade Center for the export, import, shipping, insurance and financing communities could be a powerful catalyst for growth. In short, the World Trade Center was an idea whose time had come, and as such it drew powerful political and financial support.

Big projects meant big money, and everybody wanted a piece of the action. Hundreds of issues had to be resolved, including the size, scope,



Figure 90

and governance of the project and its financing, land acquisition, design, transportation, and taxation. The states of New York and New Jersey and New York City had vested but differing interests and requirements. Wall Street, the banks, and the great financiers had differing and often competing interests.

Knowing that some industries and businesses would benefit and others might be hurt (including major real estate and office-leasing companies), powerful real estate, business and financial groups tried to shape the project. Among the voices of protest were small business owners, shopkeepers and residents who would be ousted. They were surprisingly effective in getting heard and winning sympathy, but the PA was a governmental entity with power of eminent domain—able to “buy” land from owners unwilling to sell. Thus owners and businesses were sacrificed to the juggernaut of “progress.” Despite powerful criticism about the PA’s entry into the commercial and real estate market places, New York and New Jersey, with an eye to economic benefits, passed the legislation that enabled the PA to proceed. They recognized that older office buildings were losing tenants to newer ones; some major financial and brokerage

houses had moved to newer, more efficient and utilitarian buildings in Mid-Manhattan. The WTC would be the dynamo of the economic revival and urban renewal of Lower Manhattan, so the Twin Towers became a reality.

The World Trade Center never became what its name advertised and over time anticipation and actuality moved ever farther apart. For a decade or so the WTC courted maritime, trade, and related businesses,



Figures 92, 94

without ever becoming the single hub for them. New York State and the PA rented very substantial amounts of space; neither were remotely trade organizations. In the 1980s, WTC rents began to move from below-market to equal to or above-market rates. Smaller tenants left the WTC; banks, brokerage houses, insurance companies and law firms moved in, reflecting a wide-ranging mix with fewer trade companies.

With the Twin Towers unrivalled as the defining feature of the Manhattan skyline, and the busy, vibrant five-acre Plaza between the towers well established as a popular meeting place, the WTC began to replace Wall Street as the biggest tourist magnet in Lower Manhattan. Differentiations of roles and activities further blurred during the 1980s and 1990s. The establishment of the Commodities Exchange at 4 WTC and construction of the privately funded World Financial Center, immediately west of the WTC, further expanded the old Financial District, traditionally

centered on Wall Street and concentrated to the southeast. Increasingly, for younger New Yorkers and for tourists of all ages, the WTC typified the Financial District and was its visible, beating heart. Summer and winter alike visitors and tourists streamed across the covered bridge connecting the WTC to the World Financial Center. It was leisurely stroll down through the elegant crystal palace of the Winter Garden, out onto the Hudson River waterfront and to the parks and handsome esplanade that add amenity and elegance to the new apartment blocks of Battery Park City.

The standard circuit took visitors back across a second covered bridge and south to the narrow streets that lead over to Wall Street. Then it's back to the WTC and the vast shopping and dining Concourse below. There a huge range of stores, many of them decidedly fashionable, catered to every consumer whim. The air-conditioned Concourse became a place to visit in its own right; busy, exciting and offering every sort of culinary treat—a very comforting escapist world.

No resident or worker or visitor in the Financial District could for even a moment forget the soaring presence of the silvery, clean-lined Twin Towers. They and the adjoining buildings housed a vibrant community of more than 50,000 people from all over the world; the best, the brightest, and the most confident. In a thousand ways a day they made opportunity, created markets and business, and moved money and goods. Their presence and energy fueled a small world of restaurants and stores, bazaars and boutiques, cafes and conversations. Enthusiasm for life was palpable; walking across the Plaza in the sunny high noon of a perfect New York day or in a brilliantly lit early evening, the message in the air was: "Dream it; do it." It was a very fitting message. The World Trade Center began as an almost impossible dream: it became, if only briefly, a dream realized, a whole new world.

88
The Twin Towers, soaring above the World Financial Center, take on a golden glow reflecting the late afternoon sun.

89

Two New York icons salute one another: Lady Liberty and the Twin Towers.

90 bottom
The view along the West Side Highway toward the World Financial Center confirms Manhattan's total loss of passenger and freight shipping.

90-91

The Winter Garden's curvilinear steel-and-glass construction is in dramatic contrast to the North Tower's vertical modularity.

92

The geometric forms and elegant lines inherent in the World Trade Center's buildings have proved to have powerful appeal to the exploring eye and the camera lens.

93 bottom

St. Paul's Chapel spire framed by the Twin Towers. Built in 1766 at Broadway and Fulton Street, it is New York's oldest public building in continuous daily use.

94

Manipulating architectural reality by converting the WTC's vertical lines into the curves and diagonals of ever-changing configurations is a fascinating photographic challenge.

95

Two symbols juxtaposed: the icons of the nation and its economic power strain for the sky; at their base stands Alexander Calder's red metallic sculpture.

96 and 97

The generously spaced yet slender verticals in the Twin Tower lobbies and the contrastingly muscular horizontal

bands combine to suggest strength and openness—a necessary element considering the vast human flows passing through the lobbies at 9:00 a.m. and 5:00 p.m.

from page 98 to page 105

The fall brings New York varied skies, by turns brilliant and cloudy. City skylines change with the light. Cloudy skies and reduced light soften the forms of buildings and blur architectural detail. Clear, brilliant days reward the searching eye as detail becomes visible. Whatever the weather, sightseers abound.

106

As throughout the world, dusk is a witching hour in Lower Manhattan. As darkness falls, a million lights transform the Financial District.

As cities go, surely Manhattan is Queen of the Night.

107

The Twin Towers invariably lift the eye skywards. It's easy to become oblivious to the intense life and movement on the surrounding streets and waterfront—reflecting “the city that never sleeps.”

108-109

Brooklyn Bridge was engineer John Augustus Roebling's masterpiece (“the eighth wonder of the world”). It was opened in 1883. Two other bridges and a tunnel now connect Brooklyn and Manhattan.

5 : September 11, 2001

The flamebursts and plumes of smoke are seared into people's memories worldwide. No event in the history became known throughout the world so quickly or so dramatically, or was so symbolic. The Twin Towers rise 1,360 feet in the center of one of the world's most densely populated cities. It's likely that more people saw the flames, the smoke, and the collapse of the shimmering Twin Towers with their own eyes than ever witnessed any other urban disaster.

Within the hour on that warm, sunny morning there was nothing that anyone could say that was new or different: TV commentators left no thought unexpressed. People spoke to comfort each other or to break through the numbness that shock produced rather than to make any informative statement. The suddenness, the enormity and the totality of the event was overwhelming; it is impossible to comprehend such virulent hate, such murderous intent.

The multiple-thrust response to the attack showed near-miraculous efficiency and focus. The speed of action, the scale of operations, and the courage of all who participated make for a memorable chapter in the nation's history.

Heroism was the characteristic of the day.

A woman in a wheel chair is carried down endless flights of stairs, a blind man and his dog are escorted down, people assist the injured and disabled. Executives making a last check that all employees are safely out leave too late to save themselves. Some twenty senior World Trade Center staff perish on site, ensuring others will survive. The Fire Department's chaplain, giving the Last Rites to dying firemen, becomes a victim. The courage that kept firemen, police officers, and other rescue personnel in the danger zone, helping people to escape, cost them their lives when the towers collapsed.

New York's Emergency Command Center—in the WTC—was totally destroyed; nonetheless, emergency plans clicked in instantly. Within

minutes, disciplined teams of rescue personnel were doing everything the flame-wracked, smoke-billowing site allowed for. Fire engines and ambulances raced down traffic-free avenues; hospitals in Manhattan and neighboring New Jersey moved into emergency operating mode—for all too few survivors.

In Greenwich Village, a mile and a half north of the WTC, people flooded onto the streets within minutes of the first attack. Most witnessed the collapse of the South Tower at 9:50 a.m., while the North Tower, still billowing flame and smoke, collapsed at 10:29. Horrified watchers saw people jumping from high floors, tiny colored dots within the flumes of falling débris. A sense of the unreal—the surreal—pervaded; people looked into the eyes of complete strangers, uncomprehending. Many clasped each other; some sat on the curbs; some sobbed, knowing that people they loved were dying or must have died in horrific circumstances. The Village cafés had their TV sets locked to the news channel; people watch blankly, unable to speak.

Everything known was instantly broadcast, but little new information was forthcoming. No one would (or perhaps could) estimate the death toll. It was a morning of endless streams of people shambling north up the Avenue of the Americas. Most were in shock, many layered in ash and soot, holding onto companions while local residents desperately dialed on cell-phones, trying to put victims in touch with their families. Here and there exhausted people sat on the sidewalks. Farther south, nearer to Ground Zero, it was worse, with people crowding into building lobbies, bleeding, hysterical or traumatized into silence. In the Village cafés, waitresses gently handed out coffee to those who stumbled in, most dazed though unscratched; the visibly injured or disabled had been picked up farther south. All day long the sirens wailed as emergency vehicles sped south; all day long ambulances raced up the Avenue of the Americas toward St. Vincent's Medical Center. There people were parked all along the hospital forecourt in wheel-chairs—mainly in shock. A huge command post sprang up with well over fifty emergency workers and a hundred volunteers.

The city rapidly went into high alert status, with bridges and tunnels closed and subway and train service suspended. Despite the horrific shock and massive dislocation the attack caused, the call was for the

maintenance of order: stay calm, cope with transportation problems, Move on . . . New York is functioning—shaken but NOT destroyed! The broad artery of Fourteenth Street, running east-west clean across Manhattan, became a manned boundary. To the north, as much normality as possible; to the south, the avenues and streets open to pedestrians only. Further south, Houston (or “First”) Street, another major east-west artery, marked a tightly controlled no-access zone; below it, emergency crews and supplies were assembling.

By 6:00 p.m. the patient inflow to the hospitals had diminished to a trickle; no more survivors could be found. The whole WTC area was one vast mound of smoking rubble, hundreds of feet high, spilling over into adjacent streets. The news coverage was of course constant—terrible figures flowing out; 78 police officers unaccounted for, 200 firemen unaccounted for. Some 50,000 people work at the WTC; some 20,000 more are in the area on business visits. Those killed would be numbered in the thousands.

By mid-evening limited subway service was operating and outbound bridge and tunnel crossings were restored in an effort to clear Manhattan of non-residents and non-essential outsiders. New Yorkers recognized that effective management was in place and emergency operations were going according to plan. The street crowds thinned around 8.30 p.m. as people went home to listen to President Bush address the nation. A judicious speech with only the hint of possible military retaliation. But how does a nation retaliate against an enemy whose weapons are furtiveness and stealth, the murder of the innocent, an enemy too cowardly to ever take the field or stand in the light of day? After the president’s address, people again took to the streets, restlessly wandering from St. Vincent’s down to the Houston Street barriers and back.

Toward midnight a major quasi-military operation became apparent. Convoys of dump-trucks, bulldozers, plank-and-scaffold trucks parked along Houston Street. At intervals they would roll on down the Avenue of the Americas toward the still burning WTC area. The local fire-station became a command post; for a brief time earlier in the day, before more suitable space could be found closer to the WTC, it had been Mayor Giuliani’s Command HQ. The local baseball court became a supply depot; nearby the Salvation Army set up mobile canteens.

To the north, St. Vincent's Medical Center was fully established as a major receiving station, the avenue lit up with floodlights and awash with local residents, the media, and would-be volunteers. These were in excess of need; by noon it had become clear that there would be few survivors, only a massive hetacomb of entombed dead. Emergency morgues were being set up locally and across the river in New Jersey. Thousands who had not escaped would be burned, or crushed or mangled beyond recognition—with the terrible result that many families would have no closure, no solace of burying their lost. A gruesome task lay ahead: removing the fragmentary remains of what might at first estimates amount to 10,000 bodies.

A month later New Yorkers were going about their business and living their lives. Everywhere, except at Ground Zero and the immediate area, there is at first glance the appearance of normality. It's the second glance that notes the uniformed security guard, the screening device, the cautionary notice. It's those who have taken an airline flight or had business in a government building that know life is not the same. The news is no longer about other countries and other people. At the core, it is about the United States and the challenge it faces. Violence is a threat; vulnerability is a fact of life. The hope must be that justice and sanity prevail. (Events as viewed from Greenwich Village, NYC).

118
President Bush greets Mayor Giuliani before visiting Ground Zero.

of jet fuel ignited, creating a blazing inferno.

119
The remains of the Twin Towers after the September 11 attack. The tragic event, portrayed in earlier photographs, is seared into the mind and memory of America and the world.

from page 126 to page 129
The South Tower, the second to be hit, was the first to collapse (9:50 a.m.), condemning thousands trapped within to a horrific death.

120
The Empire State Building, some 50 blocks north of the devastated World Trade Center area, remains a familiar and comforting presence.

130 top and 130-131
As the South Tower collapses, terrified hundreds raced for safety.

from page 121 to page 125
At 9:03, the second Boeing 767 hit the South Tower; the 767's 20,000 gallons

from page 132 to page 135
Smoke and flames embrace the North Tower in the last moments before its collapse at 10:29 a.m.
It was hit at 8:45 a.m.

136 and 137

Smoke, ash, débris and dust give Lower Manhattan a post-nuclear-explosion look.

138-139

The horrific view from Brooklyn a few minutes after the collapse of the Twin Towers.

from page 140 to page 143

Injured, paralyzed by shock, or among the walking wounded—but grateful survivors.

144 and 145

In the immediate aftermath of the attack, Lower Manhattan became an outpost of hell.

from page 146 to page 151

New York Fire Department has written a tragic and unforgettable chapter in the city's history.

The losses: New York Fire Department and Emergency Medical Services, 343; Port Authority (WTC management), 74; New York Police Department, 23 lives.

152 and 153

Almost every NYFD member lost trusted firefighter colleagues; some units had only a handful of survivors. Bottom: the Fire Department's chaplain, father Mychal Judge who was among the heroes who lost their lives in the line of duty.

154 top and 155 top

Severe external and internal damage at The World Financial Center, adjoining the World Trade Center.

154-155

Burned documents symbolize the disaster. The bronze "Man with Briefcase" symbolizes survival and faith in the future.

156

Danger, dust, exhaustion—with no end in sight.

157

For Americans and the world, the Stars and Stripes acquired a tragic new role.

158

Half-buried in rubble, the Winter Garden remains intact between the World Financial Center's towers.

159

This aerial view, photographed on September 26, 2001, shows the immense crater resulting from the attack.

160-161

At night, the clean-up crews' floodlights capture the dramatic scene: the steel lattice remnants of the towers suggest the portals of hell.

162 and 163

September 29, Ground Zero seen from the World Financial Center: deep fires are still burning.

164-165

Thousands seek their lost ones—a tragic quest that for hundreds will have no finality.

166

September 11, 2001, "Never Forget," written in ash, and registering the most tragic day in New York City's history.

Credits

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