LIFTED

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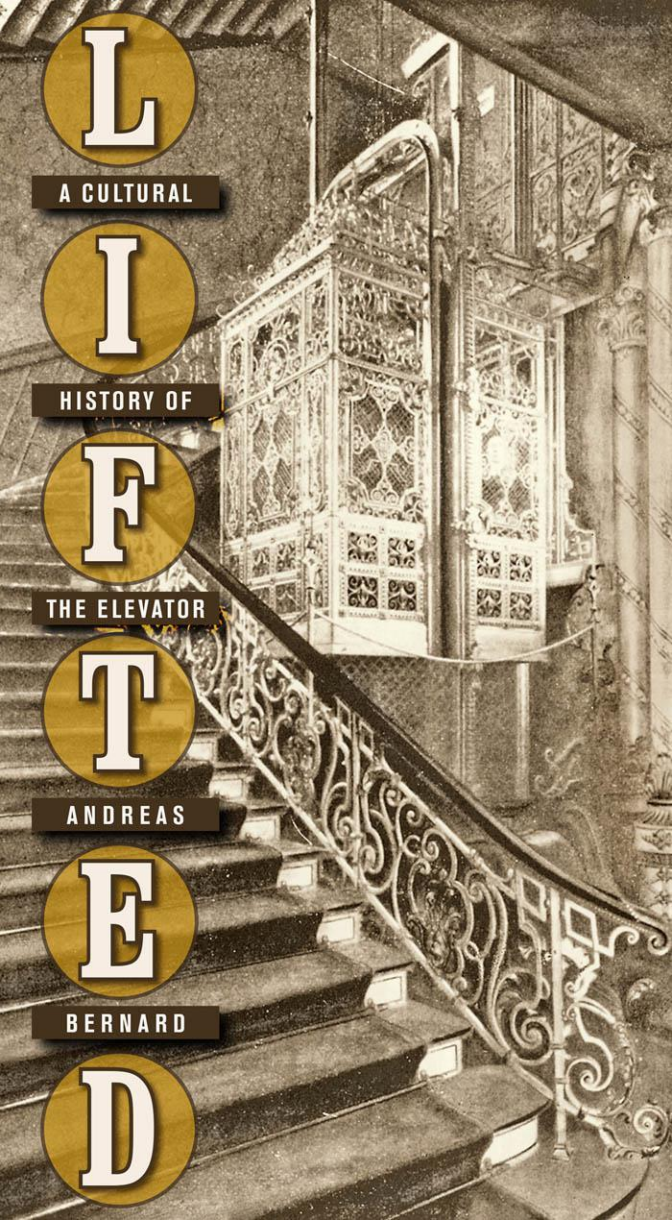

ANDREAS BERNARD

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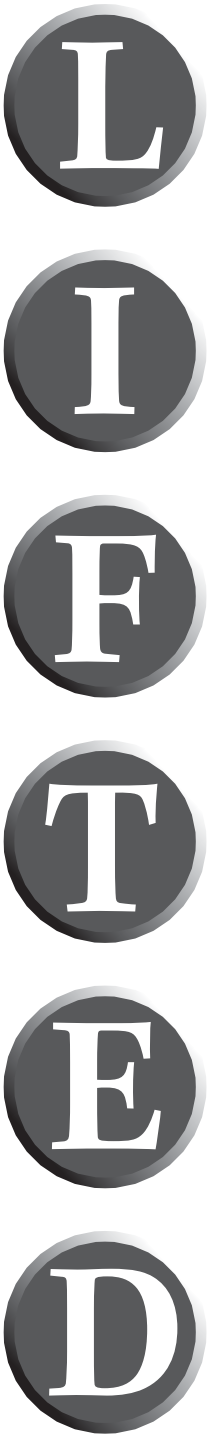

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ANDREAS BERNARD

TRANSLATED FROM GERMAN BY
DAVID DOLLENMAYER

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INTRODUCTION

THE HISTORY OF TECHNOLOGY: NEW YORK, 1854

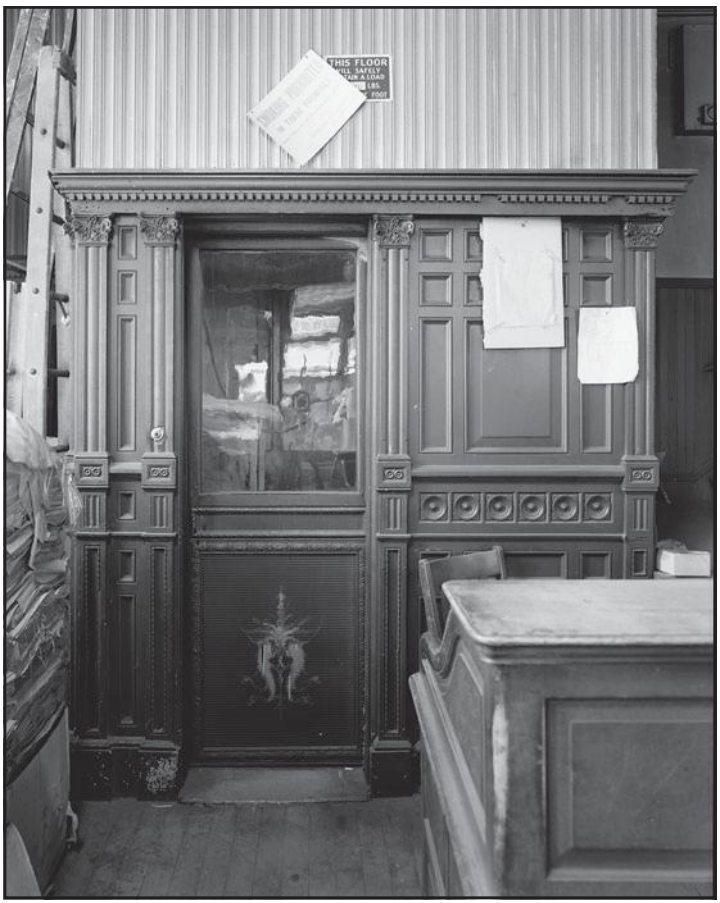
The history of the elevator begins with a piece of theater.

From May to October 1854, the mechanic Elisha Graves Otis gave repeated performances at the Exhibition of the Industry of All Nations in New York City, designed to demonstrate the effectiveness of a safety device he had invented. On September 20 of the previous year, Otis founded the E. G. Otis Elevator Company in Yonkers, New York. But having received only one order in his first seven months of business, he was happy to accept an invitation to introduce his apparatus to the public. In the Crystal Palace on Forty-Second Street (an imitation of the Crystal Palace built for the London World's Fair in 1851), he installed a platform on guide rails on which he had himself hoisted into the air before the onlookers. When the platform had risen to its maximum height, to their horror, he severed its suspension cable. But instead of plunging fifty feet to the ground, the elevator stopped short after only a few inches of travel. "All safe, gentlemen, all safe," Otis reassured the shocked fairgoers, and then explained his newly developed safety catch: a flat-leaf cart spring attached to the roof of the platform remained flexed as long as the elevator's hoisting rope was taut, but flattened out as soon as the rope is severed, engaging notches cut into the guide rails and holding the

platform in place. This experiment raised public awareness of the invention and in the following years resulted in numerous orders for freight elevators. Eventually, on March 23, 1857, the first passenger elevator was installed in the retail establishment of the New York porcelain and glass dealer Haughwout and Company.

Otis's 1854 performance is regarded as the primal scene in the history of the elevator. In every encyclopedia article and handbook of the history of technology, as well as in individual monographs and collections of essays on the topic, this event serves as a demarcation line, dividing the predecessors from the canonical figures, the mere curiosities from the fully developed, production-ready apparatuses. It was only "by executing this stunt, before a gasping crowd, [that] Otis had heralded the birth of the elevator industry," declared a publication about the development of the firm.[1] At first glance, the consensus that his experiment represents a historical caesura, "one of the authentic great moments in architectural history,"[2] stands in surprising contrast to the relatively modest scale of the innovation that Elisha Otis presented in 1854 and finally patented in January 1861, three months before his death. For the New York mechanic was by no means the inventor of the basic principle of the hoisting apparatus. His only addition to the machines already in existence was the safety device whose reliability he proved by using himself as a guinea pig.

A glance at the literature on architectural history reveals just how old the practice of vertical transport of goods and people is. In classical antiquity, hoisting devices appeared in the writings of Archimedes and Vitruvius. Isolated examples of passenger elevators also cropped up between the late seventeenth century and the early nineteenth century and are regularly mentioned in histories of technology. The Jena mathematician Erhard Weigel, for example, had a house built around 1670 in which he installed an arrangement of pulleys to convey him from one of its seven stories to another. In her final years, the ailing Austrian empress Maria



Ground floor-elevator, E. V. Haughwout and Company, 488 –492 Broadway, New York City, August 1970. Photograph by Cervin Robinson. From Historic American Buildings Survey, Library of Congress.

Theresa would be lowered into the Crypt of the Capuchins by means of an elevator to pray at the graves of her parents. In 1804, a freight and passenger elevator was built for a six-story cotton mill in Derbyshire, and in 1830, the English diplomat Charles Greville described in his memoirs an apparatus in the palace of the Sardinian royal couple in Genoa: "For the comfort of their bodies he has a machine made like a car, which is drawn up by a chain from the bottom to the top of the house; it holds about six people, who can be at pleasure

elevated to any storey, and at each landing-place there is a contrivance to let them in and out."[3]

Thus one wonders why the history of the elevator should rest on a single, canonical incident despite the multifarious data, a heterogeneity that only increased in the decades preceding Otis's experiment. From the 1830s on, there was a multiplicity of well-documented elevator installations, both planned and completed, in Europe and the United States. By about 1830, freight elevators had been installed in numerous British textile factories, as one can read in the seventh edition of the *Encyclopedia Britannica*. In European mines, moreover, the transition from hemp ropes and chains to the much greater load-bearing capacity of the iron-wire cable, invented in 1834, led to the rise of so-called rack-transport, a conveyance we can think of as the underground equivalent of a freight elevator. From then on, ore or coal was no longer hoisted to the surface in barrels dangling from a rope, but rather in multistory compartments running on guide rails and capable of carrying a large number of containers. (As we shall see, this development at first had no influence on the vertical transport of the miners themselves.) During the same period, however, there were increasing references to passenger elevators as well. The Bunker Hill Monument in Boston, a 221-foot granite obelisk erected in 1842, contains a steam-powered elevator that can carry six passengers to an observation platform. For the 1853 opening of the Exhibition of the Industry of all Nations (the very fair at which Elisha Otis would demonstrate his invention the following year), the architect James Bogardus planned a 325-foot tower whose top could be reached by a steam-powered elevator. That same year, the New York steel producer Peter Cooper had a nine-story elevator shaft added to the company's headquarters, although the mechanism was not installed until eleven years later. And finally, *Harper's New Monthly Magazine* reported in June 1853 the imminent "introduction of a steam elevator" into private homes in New York, by means

of which "an indolent, or fatigued, or aristocratic person" could have himself conveyed to the upper floors.[4]

One thing becomes clear from all these projects and installations: the dispersed and untidy beginnings of the elevator's history cannot be easily consolidated into a unified foundational narrative. Elisha Otis's "All safe, gentlemen, all safe" is less the "incunabular maxim of the modern passenger elevator"[5] than a single voice in a mighty chorus of mid-nineteenth-century mechanics. So how did his 1854 experiment achieve its unparalleled status? What was so epoch-making about Elisha Otis's invention if even a recently published official company history states that his elevator in the New York Crystal Palace followed "already existing models": "a platform set between vertical guide rails and raised and lowered on a rope wound around an overhead drum, the drum turned by belting that looped across the factory floor to the central, continuously turning steam engine."[6] Thus by 1854, both the propelling force and the mechanism itself were already well-known elements of the apparatus. The decisive difference, the detail that transformed scattered instances of the use of hoisting devices primarily for freight into the passenger elevator—an all but obligatory installation in every multistory building—consisted solely of Otis's invention of the automatic safety catch. As one historian of the elevator put it, "Although people had been building hoists for at least two thousand years before that, their hoists had the serious fault of falling to the bottom should the lifting cable break. But Mr. Otis invented something that no one had ever seen before. He built a hoist equipped with an automatic safety device to prevent the car from falling."[7]

In light of the unanimous opinion that the real history of this means of conveyance begins only with Otis's emergency brake, it is worthwhile to direct our attention to contemporary reactions to the event. In hindsight, the elevator experiment in the Crystal Palace appears to be the celebrated centerpiece of the Exhibition of the Industry of All Nations. In a 1911 biographical sketch in honor of the hundredth

anniversary of Elisha Otis's birth, his son Charles Otis remarked that the demonstration had been "one of the most interesting and attractive in the Fair," a judgment that continued to hold sway in the following decades.[8] Even the most recent publication on the history of the Otis Company states that by the end of the fair, the demonstration had "long since eclipsed the bigger show it was part of."[9] Apparently, the public was already aware of the historical dimensions of the scene.

However, if one sets out to look for evidence of the demonstration in New York newspapers and magazines between May and October 1854, a different picture emerges. While the *New York Times* carried almost daily reports on the Exhibition of the Industry of All Nations following its ceremonious reopening on May 1 (it was closed during the winter of 1853–1854), including enthusiastic full-page articles about main attractions such as the hot air balloon ascent from the fairgrounds on June 9,[10] not a single line was devoted to the epoch-making event in the Crystal Palace. One must comb painstakingly through the archives to find any trace whatsoever of the experiment. In its issue of June 10, 1854, in a sidebar entitled "Crystal Palace Notes," *Scientific American* presented some novelties to be found in the fair's "machine arcade." Between appreciations of a cigar rolling machine and a whaling harpoon, mention is made of a "new and excellent platform elevator, by Mr. Otis, of Yonkers, N.Y. . . . It is worked by steam power, and operates like some of the elevators in cotton factories. It has a plain platform, which runs up and down on guides. . . . It is self-acting, safe, and convenient."[11] There was no mention of the safety device or its spectacular demonstration. In the major American daily newspapers and magazines, the 1854 event showed up only in two marginal locations. In addition to the *Scientific American* article, a brief report appeared on May 30, 1854, in the *New York Daily Tribune*, which mentioned the daring of the inventor "who, as he rides up and down the platform occasionally cuts the rope by which it is supported."[12] No further

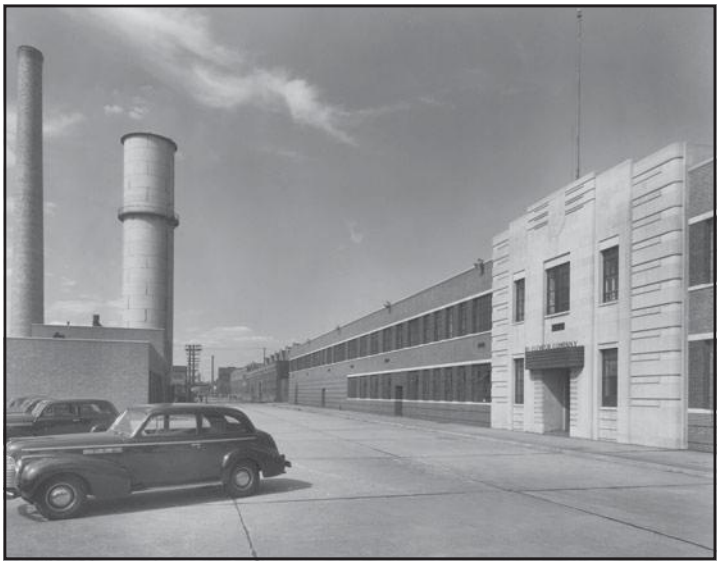
contemporary traces can be found (just as there were no obituaries of Elisha Otis in 1861). Thus it is no exaggeration to say that the demonstration in the Crystal Palace, that "authentic great moment in architectural history," went almost completely unnoticed by the public.

If one sets out to trace the contemporary perspective on the emergence of the elevator in the United States between 1850 and 1880, one is more likely to discover a different foundational narrative. Up to the beginning of the twentieth century, every account of the elevator's history credits another mechanic with a similar-sounding name, Otis Tufts, with its invention, although he is almost forgotten today. In 1859, Tufts patented an apparatus called a "Vertical Railway" or "Vertical Screw Elevator." It was the first to have a completely enclosed cab, propelled by a twenty-inch-wide steam-driven iron screw running through its center.[13] In the same year, the only examples ever produced of this slow and costly but extremely safe elevator were installed in the Fifth Avenue Hotel in New York City and the Continental Hotel in Philadelphia. While the proprietors of the Haughwout store had Elisha Otis's first passenger elevator of 1857 removed three years after its installation because the public refused to accept it,[14] the two elevators built by Tufts remained in service into the 1870s and for a while transformed the hotels into overrun tourist attractions.

It is instructive to realize how definitively the earliest texts on the history of the elevator ascribed the pioneering role to the Boston inventor, hailed after his death in November 1869 as "one of the most successful inventors of the last thirty years."[15] In 1880, the *American Architect and Building News* began its extensive article "Notes on Elevators" by remarking how recently these "now indispensable conveniences" were born. "Although steam freight-hoists have been known for forty years, it is about twenty since the first passenger-elevator or 'vertical railway,' as it was called, was constructed by the late Otis Tufts. . . . This cumbrous and costly apparatus kept the field to itself for some time."[16] Two

years later, Sloane Kennedy, writing for *Harper's Monthly*, made the not quite accurate claim to be the first historian of the new means of conveyance: "The story of the invention of the passenger elevator has never up to this time been told, and the present paper is therefore a new chapter in the history of inventions."[17] He too regarded Tufts's role as beyond question: "It is to the brilliant genius and energy of the Boston inventor (now deceased) that the credit is due of inventing and constructing the first passenger elevator in the world driven by steam power."[18] The name Elisha Otis appears in Kennedy's essay only once, in a sentence about "other early inventors and patentees of portions of elevator machinery."[19] His emergency brake, *the* decisive watershed in the canonical history of the elevator, was in 1882 still considered an inessential addition. Otis Tufts was the definitive historical figure, an opinion still held in the following decades. Thus the *New York Times* included the "vertical railway" (not the "elevator") in an 1891 article on epoch-making inventions of the nineteenth century, and one of the largest elevator manufacturers in Chicago, when queried in 1903 about the early history of his product, answered, "The first elevators for use as passenger lifts, of which I have any knowledge, were the screw-elevators built by Otis Tufft [*sic*], of Boston, in 1859."[20]

We need to grope our way back to the turning point at which a figure like Otis Tufts slipped into the background and the currently accepted foundational narrative began to take hold. When and why did an experiment that for fifty years was perceived as a subsidiary anecdote at best metamorphose into an epoch-making moment? How is it that for decades, all research on the history of the elevator referred to an event for which, because of the absence of contemporary interest, there is hardly any evidence? (In fact, it was falsely dated time and time again: according to Jeannot Simmen and Uwe Drepper, Otis's experiment took place "in the New York Crystal Palace in 1853,"[21] and Jean Gavois also wrote that "Otis demonstrated his safety elevator



Otis Elevator Company plant, main building. Photograph by Wurts Brothers. Courtesy of the Milstein Division of United States History, Local History and Genealogy, New York Public Library, and the Astor, Lenox, and Tilden Foundations.

. . . in 1853."[22]) Without doubt, the ex post facto valorization of this primal scene has to do first and foremost with the business interests of the world's largest producer of elevators. From the 1870s onward, Otis Brothers and Company, the business founded by Elisha Otis's two enterprising sons, developed into the leading manufacturer of elevators. With the founding of the Otis Elevator Company in 1898, it absorbed its fourteen leading American competitors.[23] In addition to its monopoly of elevator production, the company was also intent on establishing historiographic hegemony over the apparatus. It is no accident that the historical account that first places the experiment in the Crystal Palace at the center of the elevator's history was written by Elisha's son Charles. In 1911, he declared his intention to replace the "kindly intentioned but somewhat inaccurate notices"[24] honoring the hundredth anniversary of the worldwide enterprise's founder with the true story. His account included

a minute depiction of the demonstration that had excited so little notice in 1854 and declared it to be the birth of the passenger elevator. Otis Tufts, on the other hand, put in an appearance as a mere epigone who adopted the promising invention of Elisha Otis and wheedled the hotel owners of New York and Philadelphia into buying his shoddily constructed machines (Charles Otis mentioned a serious accident in the Continental Hotel, an incident for which no other evidence exists).

The influence of this text on the historiography of the elevator is obvious from the fact that after 1911, there was hardly a mention of the elevator's origins that did not begin by repeating the story of the event in the Crystal Palace.[25] At the same time Otis Tufts, whose contribution to elevator construction was by no means restricted to the exotic "Vertical Screw Elevator,"[26] was downgraded to a transient bit player of the early years. The most important producer of the conveyance was now regarded as its inventor as well, and one can trace how this narrative was cemented in place in the course of the twentieth century—especially, of course, by the Otis Company itself, whose publications in any case constitute a considerable part of the historical literature. On the 125th anniversary of the founding of the E. G. Otis Elevator Company, the firm even printed up a facsimile newspaper with imaginary historical articles, thereby creating out of whole cloth the contemporary interest in Otis's experiment that in truth did not exist. Under a masthead reading "New York, 1854" and in a layout reminiscent of the *New York Times*, one could read about a "young inventor" presenting his safety elevator "in a daring exhibition before thousands of viewers." "This reporter noted that as the platform went up, without question, everyone in the hall stopped to see what would happen next."[27] This "anniversary edition" also contained a striking iconographic embellishment of the event: next to the article was an illustration that was often reproduced in subsequent years. It purported to supply an impression of the excitement in the Crystal Palace.

According to the historian of the Otis Company, this illustration was based on a sketch made during the demonstration by an artist for the *New York Recorder*.[28] In all the older literature about the experiment, however (including that issued by the Otis Company itself), the event was sketched in a significantly more modest way. We are justified in assuming that the most famous and by now "official" illustration of the experiment was in fact drawn in 1978. The teeming, astonished onlookers as well as the assistant who has just severed the suspension cable are inventions of the recent past.

It is no surprise that the largest manufacturer of a technical apparatus has an interest in retroactively claiming credit for its invention. In the course of the last hundred years, however, the stage-managed event in the Crystal Palace was so consistently and unanimously depicted as the elevator's primal scene that there had to have been more at work in this consensus than just a public relations strategy of the company. It had to do, rather, with the question of how to construct a foundational narrative in the history of technology. If it is precisely this event among the dozens of possible candidates between 1840 and 1860 that establishes itself as the elevator's beginning, if after half a century of neglect it still retains the power to suppress competing dates, then one has to wonder what has made it so persistent. One answer lies perhaps in the way Otis's invention is presented. The theatricality of the demonstration (however unimpressed contemporary witnesses may have been) places this contribution to the elevator's development above the crowd of equally important but less dramatic turning points, such as the first installation of guide rails in a factory or the first construction of a completely enclosed cab. The concentrated format of a public demonstration satisfies the yearning for a clean, unambiguous beginning, a yearning endemic to the historiography of technology. The dramaturgy of the experiment in the Crystal Palace also contributes to this outcome: Otis focused his demonstration of the innovation on a radical moment—the assumed fatal severing of the

Illustration from Otis Elevator Company, *The Otis Bulletin: Special 125th Anniversary Edition*, September 20, 1978.

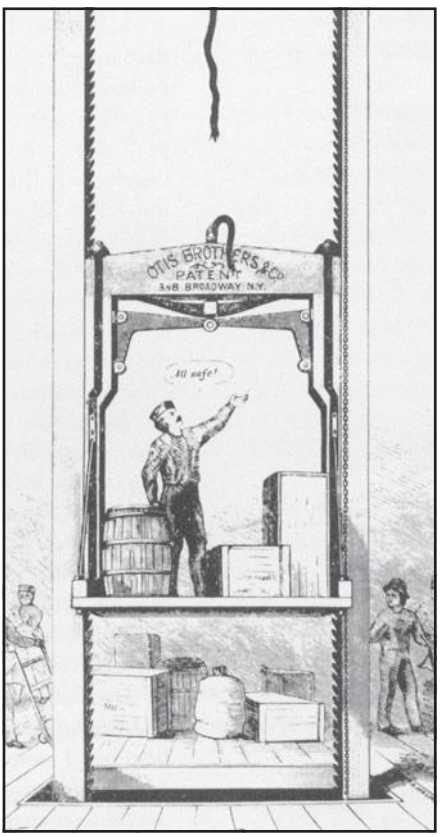


Illustration from Otis Elevator Company, *The First Hundred Years* (New York, 1953).

cable—and thus accommodated the interest of historians in locating the beginning in a single, visible moment. One must pay attention to the widely reproduced illustration of the experiment, drawn long after the event. It attempts to encompass precisely the historical moment: the cable has been severed, the witnesses freeze, yet the platform does not fall. Why then has the demonstration at the New York industrial exhibition established itself as the primal scene? Not because it is in fact clearly identifiable as the beginning, but rather for aesthetic reasons—because it makes the beginning tellable. Otis provides an appropriate narrative for the birth of the elevator, a classically Aristotelian narrative, in fact: the hero's rise into the air in the Crystal Palace moves toward a literal peripeteia, a tragic reversal[29]—until the safety catch interrupts his fall.

The epochal status of the event, at any rate, illustrates the discursive mechanisms by which the "origin of a technical fact" comes into being, to use the words of the historian of science Ludwik Fleck.[30] In his study of syphilis research around 1900, Fleck spells out how years of collective and anonymous work on serological experiments were retroactively attributed to a single investigator. A process of countless laboratory corrections and adjustments that in the end led to the reliability of the test was transformed into a datable act, an individual invention (the "Wassermann reaction" of 1906) in order to ensure a clear historical narrative. The "straight path to knowledge,"[31] which Fleck's discourse analysis exposes as a fiction, is preserved by all histories of the elevator that begin in the Crystal Palace in 1854; out of the "thinking collective" of mechanics in the middle of the nineteenth century, a single name and a single event are distilled. But the closer one examines this seemingly clear distillate, the cloudier it becomes.

INVENTING THE MULTISTORY BUILDING

In the second half of the nineteenth century, at the beginning of the restructuring process known as the era of

urbanization, the architecture of residential and commercial buildings changed in fundamental ways. Up to that point, a building as a rule represented a self-contained, straightforward entity with at most one or two stories above the ground floor. As the autonomous sphere of an extended family and the domestic servants included in its collective, the "house" evoked, for instance, that sentimental image of the "integral house" that the cultural historian Wilhelm Heinrich Riehl attempted to breathe life into one last time in his well-known work *Die Naturgeschichte des Volkes* (*Natural History of the German People*) of 1854.[32] But what appeared there as the evocation of a lifestyle already in the process of dissolution—in view of the first "sad, bleak apartment blocks of our large cities"[33]—lost its significance entirely by the end of the century. Riehl's defense of an economic and social community under one roof became irrelevant to the extent that the house intended for a single family all but disappeared in the burgeoning cities, to be replaced by a new type of building.

In several respects, the new five- or six-story tenement houses that became a defining architectural feature of European cities between 1860 and 1900 began to extend and diversify the image of the house. For one thing, their vertical extension led naturally to the individual building being divided into a multiplicity of units housing a great variety of residents, a practice that dismembered the model of an "integral house" once and for all. For another, this extension pointed in a less visible direction: the simultaneous appearance of advances such as central heating, sewerage, intercoms, elevators, and, a little later, electricity ensured that from the 1870s on, the interior of the building was crisscrossed by a complex of pipes, cables, and shafts. Beneath the visible surface there arose an invisible network that organized the circulation of energy, data, and people. In the end, this process of mechanization and electrification made it necessary for the formerly independent unit of the house to become networked with its surroundings, for only the

connection to external power sources and centrally regulated reservoirs and generators ensured the functionality of its technical installations. The demarcations between the individual buildings of a residential neighborhood became more and more porous.

The elevator played a major role in this profound reorganization of the building. Even the creators of the first multistory structures in New York and Chicago emphasized that above a certain number of floors, this means of conveyance was the basic prerequisite for further increases in building height. The installation of the elevator propelled the expansion and diversification of the building, and not just in the obvious sense that it is what made buildings of more than five or six stories possible in the first place. In the form of a cab closed to view from outside and moving through the middle of the building, it created a novel, hermetically sealed conduit. One of the most important characteristics of modern apartment and office buildings is that they consist to a large extent of previously unknown semi-public spaces such as stairwells and corridors. Suddenly, in the traditionally encapsulated family sphere of the residential building, it was possible to encounter strangers almost anywhere, and such encounters became even more focused in the elevator. Wilhelm Heinrich Riehl saw the incipient decline of the "integral house" in the contraction of the once generously proportioned communal spaces of urban middle-class houses "to a tiny corner."[34] The multistory apartment and office buildings that were standard by the end of the nineteenth century no longer had such spaces. The floor plan was divided into private residential or commercial parcels on the one hand and spaces devoted solely to traffic circulation on the other—a fragmentation vehemently criticized a century after Riehl by Gaston Bachelard in *The Poetics of Space*: "In Paris there are no houses, and the inhabitants of the big city live in superimposed boxes."[35] And precisely that fact raises a question that we will revisit in the following chapters: to what extent did the appearance of the new architectural

element "elevator" (a shaft that in equal measure domesticates and obscures verticality, a conveyance in which for the first time one can reach the upper levels of a building without the slightest effort, a cab that irritates its occupants with its cramped interior but is invisible from the outside) determine the organization and perception of multistory buildings or, especially in European cities, massively reshape an already existing order?

Emerging in New York in the 1850s, the elevator became established at different rates of speed in Europe and the United States. In the United States it was already a standard feature of large East Coast hotels by the early 1860s,[36] and by 1870 was installed in New York's Equitable Life Building (its first use in a multistory office building[37]), but this means of conveyance remained almost unknown in Europe well into the late 1860s, at the most occurring as a purely hand-operated device for moving freight between floors in a factory. Only with the development of the extremely safe hydraulic elevator first exhibited at the 1867 Paris World's Fair (with its cab attached to a piston located below ground level, which pushed the elevator upwards when filled with water under pressure) did the apparatus begin to find widespread use in France and soon thereafter in Germany. For instance, the acceptance of the hydraulic technique led to the installation of passenger elevators in Berlin hotels and commercial buildings in the 1870s. The earliest articles on elevators in engineering and construction journals, however, revealed how unusual the device still was. An 1874 article titled "Hydraulic Elevators for Passengers and Light Freight" in Berlin, for example, listed every single building equipped with the new conveyance.[38] "Up to now," according to an 1887 monograph, "the number of passenger elevators installed in Berlin is small. The majority are in hotels, a smaller number in buildings with many offices, etc., and finally, a very small number in purely residential buildings."[39] In large American cities of the time, there were hardly any multistory residential or commercial buildings that could get by without an

elevator. In Germany, by contrast, the vertical transportation of people remained an exception well into the 1890s, when elevators operated either directly or indirectly by hydraulics were replaced by installations with electric drives.[40]

Besides this difference in the speed with which elevators proliferated, there was also a difference in their location within buildings. In New York, Boston, and Chicago, the elevator soon functioned as the core of the building. From the 1870s on, every new multistory building was constructed around an elevator shaft. Open stairwells retrofitted with elevators, even today still frequently to be found in apartment buildings in Paris or Vienna, virtually disappeared in the United States by the end of the nineteenth century. Thus in large American cities, the verticality of the buildings was determined much sooner by the conduit of the elevator. In *Delirious New York*, Rem Koolhaas provides a particularly vivid image of this essential status of the elevator shaft when he describes the demolition of the old Waldorf-Astoria Hotel, beginning in 1929, and the start of construction on the Empire State Building on the same site. At a time when very few German buildings existed with a floor plan clearly determined by the elevator, it had long been utterly standard that the elevator shafts constituted the center of a building in the birthplace of this means of transport. "The destruction of the Waldorf is planned as part of the construction. Fragments that are useful remain, such as the elevator cores that now reach into the as yet immaterial floors of the Empire State." The supervising architect even mentioned the elevators in his autobiography, as quoted by Koolhaas: "We salvaged four passenger elevators from the old building and installed them in temporary positions in the new framework."[41]

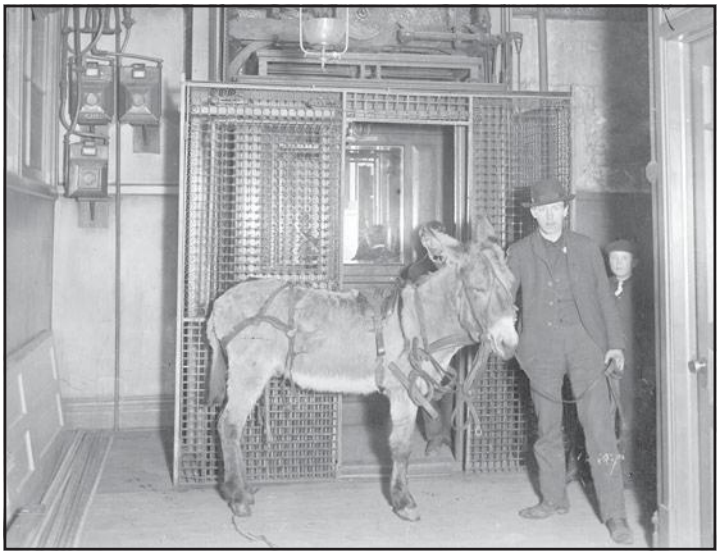
The inseparable link between the rise of the elevator and the vertical extension of the building, especially in the United States, is well documented in the literature on the history of high-rise buildings. As early as 1891, a New York architectural historian noted, "The perfection of elevator

work is the one fundamental condition for high buildings,"[42] and in the first monograph on the origin of the skyscraper, Francisco Mujica writes this lovely sentence: "The entire history of skyscrapers contains an homage to the inventors of the elevator."[43] This homage would need to point out that in the 1850s and 1860s, it would have been perfectly possible to construct hotels and commercial buildings with more than the prevailing six-story limit, but hotel guests or renters could not be expected to climb an even greater number of stairs. The author of an 1897 article addressed the increasing lack of space in the business districts of Manhattan: "Limited as to the ground, business sought in the air. It had to be done; but how? To pile up more stories on the sixth was useless, since no one would climb up to them. The problem became mechanical, and the financier and the architect were as helpless as the mason." The solution to the problem took the form of an automatic means of conveyance: "The passenger elevator was the solution. . . . It was to be to modern building what the steam-engine is to transportation, a revolutionary agent."[44]

In New York around 1875, the elevator enabled an increase in building height to about eleven stories. A series of insurance and newspaper buildings were constructed during those years and dubbed "elevator buildings," enshrining their *sine qua non* in their very name. Eleven or twelve stories, however, was their vertical limit, since for any additional stories the walls of the lower floors would have to be so massively expanded and stabilized that any gain in space and rent would be negligible. "There came a time," continued the same article on the commercial buildings of Manhattan, "when to go higher with the solid masonry method was to lose more income at the bottom than was won on the top."[45] This dilemma was famously solved at the beginning of the 1880s, in the wake of the great Chicago fire, by the development of steel frame construction, which greatly increased the potential number of floors by transferring the load-bearing function of masonry walls to a steel

skeleton.[46] For a period of ten to fifteen years, the elevator machinery itself—the previously obligatory hydraulic apparatus—suddenly seemed to be the limiting factor. Thanks to steel frame construction, it would already be possible to construct a fifty-story building,[47] but the hydraulic technique imposed a limit of eighteen to twenty floors. "To build higher than that would be entirely uneconomic, due to the slowness of elevators and the excessive space occupied by them and their voluminous machinery."[48] In the end, it was electrically powered elevators with their more modest space requirements and improved speed (from 5 feet per second of hydraulic elevators to 9.8 to 16 feet per second within a decade[49]) that cleared the way for almost limitless increases in building height, a jump whose extent is suggested by the fact that in the 1890s, the highest building in the world was the twenty-story Masonic Temple in Chicago, but the Woolworth Building, completed in 1913, stood at fifty-five stories. In the twentieth-century literature on the history of architecture, there have been frequent debates about which element—the elevator or steel frame construction—was decisive for the rapid increase in vertical expansion. Even if one doesn't adopt the consistent position of the earliest historian of the skyscraper, who accords the elevator exclusive credit for this development ("It is the elevator that is the initial cause of the skyscraper. Steel skeleton is a *consequence* of the elevator"),[50] there is no question of the fundamental role played by this means of conveyance. No one has expressed this more succinctly than a German commentator on the opening of the Woolworth Building: "It must be admitted that the possibility of a fifty-five-story building is founded primarily on the perfect operation of passenger elevators. (Climbing to the top floor on steps with risers of 4.7 inches would take about ¾ of an hour!)"[51]

It is not the ambition of this book to be either solely a study of technical and architectural history or an intrinsically literary study that extracts the "motif of the elevator" from fictional texts. Rather, it will attempt to use a



A donkey, wearing a harness and reins held by a man, in front of an elevator inside a building, Chicago, 1903. Courtesy of the Chicago History Museum.

heterogeneous corpus of texts that includes novels and plays as well as legal regulations, articles from professional construction engineering journals, medical treatises, and handbooks of public hygiene to come to grips with what one might call the "imaginative organization" of the building within a particular time period. Among my questions are these: How was the collective image of multistory residential and commercial buildings changed by the element "elevator" in the decades before and after 1900? What effect did the technical apparatus have on the conceivability and expressability of what happens inside the buildings, about the distribution of spaces and people? With Michel Foucault, one could call this enterprise an "archeology" of utterances about the building with respect to the elevator. In discrete cross-sections through the strata of legal, scientific, and artistic utterances, primarily between 1870 and 1930, this work hopes to illustrate the multifarious ways the elevator disrupts familiar standards for the organization and perception of buildings and how its appearance puts

its stamp on the principles of building codes as well as the concerns of the hygiene movement and the topography of the urban novel. Precisely because this book is concerned not just with the history of architectonic artifacts but also with the processes of historical imagination, it is essential that its textual material include both works of fiction and nonfictional documents. The structures and limitations of an epoch's topographic imagination leave traces in equal measure in building codes and the spatial conceptions of literary texts.

I am interested in the preconditions for the possibility of judgments or fantasies about the building, and a basic impulse for this book is the suspicion that the elevator fulfills the function of such a precondition, that one can understand it as a "technical apriority" for utterances about multistory buildings. This assumption, however, has consequences for how one treats the historical material and even how one understands historiography itself. The more we direct our attention to the preconditions for what is expressible, the more problematic becomes any reconstruction of "historical truth," any recounting of "what actually happened." On the contrary, in place of the most complete possible duplication of the past, we must attempt to extract those things about an epoch that it could not tell about or reflect upon itself—since for contemporaries they were far too self-evident, constituting as they did the unshakable foundation of their own words and deeds. Thus the following analyses will not necessarily be concerned to uncover the intentional core of scientific or literary texts, but will focus rather on what one might call their "unconscious" (to use a parlous term), those unspoken parameters of perception and imagination that can reveal themselves in the most marginal places—in the introduction to a monograph, for example, or in a dependent clause in a building description. In this context, it is important to always keep in mind the imaginative category of the multistory building before the advent of the elevator, a time that could not yet conceive of

a vertical shaft running right down the center of a building. For this study stands exactly at the divide between the old and the new organization of a building, a divide that opened up around 1900.

One look at how the chapters of current histories of technology are organized or how informational material is presented in historical museums reveals that the way technical innovations become established continues to be portrayed as a chronicle of triumphant progress, an unbroken series of adjustments and improvements: an apparatus that is at first imperfect and exotic becomes progressively improved, right down to the present day. Half a century ago, Georges Canguilhem countered such a strictly teleological perspective by directing attention to a completely different kind of knowledge. Although he was addressing historians of science, his words apply equally to the history of technology:

> The history of science is not a retrospective history of progress nor the depiction of outmoded stages leading to today's truth. Its aim is rather to investigate and illuminate the extent to which concepts, attitudes, or methods that appear outmoded today represented progress in their own time and the extent to which, as a result, the outmoded past remains the past of an activity that must still be called scientific.[52]

For our study of the elevator, this involves repeatedly highlighting those historic turning points when what is today obsolete or taken for granted made its first appearance and began to unleash its disruptive power. This is precisely the reason the primary emphasis of this book, with the exception of its final chapters, will be on the early history of the new conveyance, the time before 1920 or 1930. In the early years, the recalibration of the building's system was clearly evident. What Sigfried Giedion once said about the chronicler of "anonymous history" in *Mechanization Takes Command* is particularly relevant for someone writing about an object that is so omnipresent and unspectacular today (at most, only capable of provoking irritation by its spatial constriction): "He has to see objects not as they appear to

the daily user, but as the inventor saw them when they first took shape. He needs the unworn eyes of contemporaries, to whom they appeared marvelous or frightening."[53] The following pages will attempt to restore to the elevator, an object that has become dull and inconspicuous in the twenty-first century, the luster of strangeness.

ACCIDENTS

With respect to Otis's 1854 experiment in the Crystal Palace, there is another decisive circumstance besides the element of theatricality. The detail that the New York mechanic added to already existing elevator designs was an element of safety and the prevention of accidents. We must return to the sequence of events in the demonstration, about which Rem Koolhaas writes, "Otis introduces an invention in urban theatricality: the anticlimax as denouement, the nonevent as triumph."[54] The sentence structure of a description of the experiment by an Otis Company historian illustrates this pattern: "Those who had morbidly anticipated a leg-breaking crash, however disappointed, were nevertheless impressed with the effectiveness of the Otis safety—when, as a matter of fact, nothing happened."[55] The caesura marked by the strategically placed dash is followed by the punch line: nothing happened. Thus at the beginning of elevator history stands the elaborately staged prevention of a catastrophe, and when one asks why this experiment is retrospectively anointed a historic moment, one has to consider the central role played by the potential for accidents in the early years.

It was not just that the very first Otis safety elevator was installed in New York in the wake of a fatal accident involving the preceding apparatus (two workers died because the platform was equipped only with a manually operated catch mechanism, whose activation at the moment the cable broke would have required extraordinary presence of mind).[56] In the articles on passenger elevators in German and American journals of construction and engineering

between 1870 and 1900, it is repeatedly evident that the topic of accident prevention was at the forefront of concern. Paradigmatic for the approach to this new means of transport was Franz Reuleaux's assessment in his engineering report on the introduction of indirect-hydraulic Otis elevators in Germany: "The question of the safety of an elevator whose purpose is to transport passengers is without a doubt the most important of all."[57] The possibility of an accident served repeatedly as a catalyst for both technical improvements in the apparatus and the development of legal ordinances.[58] The problematics of accidents has been extensively studied in the last few years. The lack of forewarning stands in the way of portraying them, while their identity "gets lost between the poles of what precedes and what follows"[59]—that is, between statistical prognoses and traumatic consequences. This is particularly evident in the case of the elevator, in contrast to a train or airplane. Its enclosed shaft makes the moment of the accident impossible to witness, an invisible phenomenon. The result is the complete absence of graphic depictions of elevator accidents.

What is responsible for the development of such an acute sensitivity to potential accidents in the early years of the elevator? There are two answers to this question. First, it is a reflection of the quarter century dividing the establishment of the railroad from that of the elevator, the horizontal from the "vertical railways." People were completely unprepared for the shock of the first large-scale railroad disasters. An "accident" in this sense was a completely unknown type of occurrence and led to both a semantic adjustment in the meaning of the word itself and fundamental changes in medical diagnostics and the legal system. By contrast, the extraordinary precautions surrounding the introduction of elevators attest to the fact that in the decades after 1850, the destructive potential of modern means of transportation had completely permeated the collective imagination. Second, the fear of a cable breaking and the cab plunging to the ground is connected to another field

Elevated view of ambulances backed against a sidewalk to receive people injured in an elevator accident that took place in a building at South Wells Street and West Jackson Boulevard, Chicago. A crowd of people gathered on the sidewalk nearby. Negative DN-0005645. Courtesy of the Chicago History Museum.

in which the dangers of vertical transport had long been known, namely, mining.

Beginning in the late Middle Ages, when mineshafts in Europe first reached depths of more than just a few yards, mechanisms begin to be developed to bring the mined ore up to the surface. For centuries, cable winches powered by human, equine, or hydraulic power—and from the 1780s also by steam engines—managed the vertical transport of freight. As mentioned above, from the late 1830s, that

transport took place using baskets attached to rails running up the mineshafts, a technical ensemble that one could call a freight elevator.[60] In the mid-nineteenth century, at the time of the first aboveground elevators in buildings, the depth of mineshafts in the upper Harz and Ruhr regions already reached more than two thousand feet, and one can best understand how high the risk was of an accident caused by a cable break by the fact that until 1859, German mining regulations prohibited the transport of people by cable. Miners were forbidden to ride into or out of the mine in the baskets meant for freight transport. In the slanting and more shallow shafts, miners used stairs and simple ladders. In the deeper, vertical shafts, so-called man engines were in widespread use from the early 1830s. These were steam-driven pairs of reciprocating ladders moving up and down past each other in such a way as to allow the miner quick access into the shaft.[61] The reason for this method was lack of confidence in the reliability of the cables. What the inventor of the iron-wire cable, the upper Harz mining engineer Wilhelm Albert, said in 1834 about the hemp cables and chains in use up to then—"Not a quarter year went by without hundreds of cable breaks . . . being recorded"[62]—did not improve much in the following decades, as shown by the annual accident statistics in the *Zeitschrift für das Berg-, Hütten- und Salinenwesen* (Journal of mining, smelting, and saltworks). According to a "Statistical Study of Mineshaft Cables" commissioned by the Royal Central Mining Office in Dortmund, as late as 1872 no less than 19.3 percent of all 114 transport cables under its jurisdiction had suffered a sudden break during that year.[63] As a consequence, when the Prussian *Bergpolizei* (mining constabulary) in 1859 became the first such authority in Germany to permit on principle the transportation of miners in ore baskets because the increasing depth of the shafts made the use of man engines difficult, the safety regulations were extensive. Paragraph 7 of the Dortmund police ordinances for mines, for instance, stated that, "before being used for human transport, the

cable, its attachment to the receptacle, as well as the latter itself, must receive a thorough daily inspection of their durability by a responsible and capable person assigned to the task, before whose eyes the cable must be slowly wound and unwound down the shaft." And paragraph 11 required that "no worker may be forced to use the cable and a refusal to do so can never constitute grounds for dismissal."[64] In the 1860s and 1870s, most other German states followed Prussia's example, and one can trace in the pages of the *Zeitschrift für das Berg-, Hütten- und Salinenwesen* how extensive was the catalog of ordinances that every mine owner had to comply with if he wanted to obtain police permission to transport miners by cable.[65]

What this glance at the history of vertical transport in mines makes clear is that the remarkable focus on the possibility of a cab falling in the early years of the elevator was largely due to the precarious nature of the cables in mines and became more and more acute in the course of the nineteenth century. That the staged prevention of a fall, the presentation of an automatic braking device, retrospectively became the primal scene of elevator history is inseparable from this deeply ingrained mistrust of the cable, reinforced by numerous mining accidents. The suspension of containers for vertical transport represented a latent danger, and for an invention such as the passenger elevator to become accepted above ground, it first had to explicitly guarantee the safety of the unstable principle of suspension. It is important to note, however, that this "trauma of the cable" was more pronounced in Europe than in America. Since there was hardly any industrial mining to speak of in the United States before the first California gold rush in 1849,[66] the elevator cable was regarded with considerably less suspicion than in Germany, England, or France. How far-reaching the consequences of these differences in mining history were for the spread of the aboveground means of conveyance can be seen above all in the fact that the steam-powered elevators suspended from two to four cables that were standard

in the United States until the rise of the Otis hydraulic elevator were used in Europe solely for carrying freight. Not until the direct-hydraulic technique dispensed entirely with the suspension principle of the cable did the passenger elevator begin to catch on. Here the cab is mounted directly on the drive piston. Ludwig Hintz gave a characteristic summary of this development in his *Handbuch der Aufzugstechnik* (Handbook of elevator technology): "The feeling of not hanging in the air on cables but standing on a column—of having a support directly beneath you that goes right down to the ground—had something very reassuring for apprehensive souls."[67]

When one tries to clarify the role played by mining in the early history of the elevator, one finds an interesting simultaneity under and above ground. The prevention of a cab fall by a reliable catch mechanism—according to an Otis Company history an accomplishment that "promised to make the hoist safe for the first time in 2,000 years"[68]—was also one of the central concerns of European mining engineers in the mid-nineteenth century. The voluminous *Leitfaden zur Bergbaukunde* (Guide to mining engineering) of 1873 stated in retrospect that between 1850 and 1870, "There is hardly anything in mining engineering that produced a greater number of experiments and inventions than the search for a catch mechanism to protect transport in mines from the danger of a broken cable."[69] Apparently the first ore baskets to be equipped with an automatic catch mechanism went into operation in an anthracite mine in Liège, Belgium, in 1848,[70] and in the quarter century that followed, countless variations and improvements were made to this safety device in European mining centers. Their complete reliability became all the more essential with the increase in the use of the cable to transport personnel as well as ore. The basic design of these safety devices was identical to that of the Otis elevator in the Crystal Palace. As a German mining engineer described it in 1868, "All known catch mechanisms so far follow the same principle: in the case of a cable break,

the transport receptacle is designed to lock onto the rails or onto a special rod.[71] (In fact, the inventor of one of these devices, a mining technician named Philipp Lohmann, demonstrated the reliability of his catch mechanism in 1867 in exactly the same daring way as Elisha Otis thirteen years previously. He "was so convinced of the reliability of his invention that he placed himself and his wife on the platform and then severed the cable."[72] In contrast to the New York event, the spectacle in the municipal park in Essen did not become a date of world-historical significance but was consigned instead to oblivion, except for this mention in a 1902 history of mining in Westphalia.)

The Otis Company archives give no hint as to whether in the early 1850s Elisha Otis might have had knowledge of the achievements of European mining engineers. There is no documentary evidence of a relation between the beginnings of the elevator in New York—with the apparently singular invention of the catch mechanism—and the world of mining. In Germany, however, this relation is evident and frequent, and not just in the early dread of the suspension cable that hindered the introduction of passenger elevators. In the 1870s and 1880s, one can observe a productive relationship between underground and aboveground vertical transport, for during this time, building elevators also profited from the intensive efforts of mining engineers to improve the catch mechanism. One must again call to mind the fundamental difference in the number of subterranean and aboveground shafts in Germany. Around 1880, the highest elevator-equipped buildings did not exceed 80 feet, while the depth of shafts in the largest mines was already close to 2,600 feet. The cable-mounted ore baskets reached a speed of 26 to 33 feet per second at this time,[73] while even the most modern hotel passenger elevators still moved between floors at a speed of 1.6 feet per second.[74] Against the background of these comparative statistics, it is clear that the safety of aboveground elevator cabs could be quickly perfected. In the mines, the engineering challenge was to

develop complex catch mechanisms that would gradually decelerate the furious plunge of an ore basket following a cable break so as not to endanger the stability of the guide rails or the safety of the miners. To reliably secure a building elevator moving at a speed twenty times slower, the techniques available at the time were completely adequate. In the *Zeitschrift für das Berg-, Hütten- und Salinenwesen* one occasionally finds evidence of the perspective of mining engineers on cab safety above ground. As professionals, they had a hard time taking this topic seriously. After witnessing the demonstration of an advanced catch mechanism developed explicitly for building elevators, one of them commented succinctly that the mechanism "may be appropriate for hotel elevators and shafts of negligible depth."[75] In the view of a professional mining engineer, aboveground elevator shafts were nothing but insignificant "shafts of negligible depth."

As a consequence of this wealth of knowledge about how to ensure the safety of ore baskets in mines, the focus of elevator accident prevention clearly shifted around 1880. The subsiding concern about a cab falling after a cable break was more and more overshadowed by another worry, namely, people falling into inadequately secured elevator shafts. Optimized catch mechanisms, even activated by nothing more than increased cab speed or excessive stretching of the cables,[76] ensured the safety of elevator use from the 1880s on. Statistics in construction journals and the brochures of elevator manufacturers both demonstrate that travel in an elevator was many times safer than travel by horizontal means of transportation,[77] and that even using a stairway carried greater risk for pedestrians.[78] In any event, all published reports agreed that in Europe before the First World War, there was in fact only a single elevator accident in which the passengers were killed explicitly by the fall of the cab, and this incident did not even involve the cable suspension so long regarded with suspicion. It was the otherwise highly reliable direct-hydraulic technique that precipitated the worst

elevator accident in history in the Grand Hotel in Paris on February 24, 1878, a mishap in which three people died.[79] A broken casting connecting the piston to the undercarriage of the elevator at first caused the cab carrying the building superintendent, the elevator operator, and a guest to be pulled to the top of the shaft by the counterweight. There the cab's overhead suspension was ripped from its mounting and the cab plunged to the ground in free fall.[80]

The really dangerous part of an elevator installation, however, was less the cab itself than the access to it. The sliding doors that are obligatory today and "when they open disappear somewhere in the wall"[81] did not appear until after the Second World War; in the 1880s, manually operated hinged or folding doors of wire mesh on each floor still frequently misled careless passengers wishing to enter the cab into opening them and falling into the shaft. The Berlin elevator manufacturer Flohr boasted in a 1900 company publication of being the first to find a solution to this problem and portrayed the risky situation in the early years as follows:

> Until the year 1886 [when Flohr elevators were first equipped with a shaft door-locking mechanism], all elevators were manufactured with unsecured entrance doors. The frequent mishaps that resulted—people falling into the shaft through entrance doors that were too easy to open or being struck and killed by an arriving elevator—made the coordination of the shaft doors with the elevator cab an urgent necessity, so that they could open only when the cab had reached the same height as the doors, and on the other hand, would only allow the cab to resume its travel once they had closed.[82]

The reliable establishment of such "coordination" between cab and shaft doors represented the most urgent task of safety engineering in elevator manufacture in the early twentieth century. In the mechanically functioning hydraulic elevators of the 1880s and 1890s, this linkup usually consisted of a shackle that barred the door on the inside as soon as the cab left the floor in question. As one can regularly read in the news section of construction and engineering

journals, however, this method was notoriously unreliable and led again and again to fatal falls into the shaft. This "most urgent problem" of elevator safety, "the elimination of the possibility of operating the elevator with the shaft doors open as well as the elimination of the possibility of opening the doors while the elevator is in motion,"[83] Kennedy, Sloane W. "The Vertical Railway." *Harper's Monthly*, November 1882 was not solved until the late 1890s with the advent of electric controls, for electric contacts established a reliable link between the door's locking device and the position of the cab, as Ludwig Hintz explained in his 1908 *Handbuch der Aufzugstechnik*:

> The principle of all these door-locking devices consists in installing contacts on the door that are connected to the power line of the cab controls or, less frequently, of the motor, in such a way that the contacts are only closed, thus completing the circuit, when the door is shut, and that when the door is opened, the circuit is broken.[84]

With the almost universal adoption of electrically powered elevators by the early twentieth century, all traces of this kind of accident disappeared. The threat to users of an elevator shaft becoming a deadly abyss in the middle of a building in the absence of a door-locking device was eliminated for good by the simple binary nature of an electric circuit: closed or open. For that reason, elevator fatalities in the twentieth century occurred primarily as workplace accidents. By the time of a 1911 congress for domestic hygiene in Dresden, Germany, a speaker could say, "As statistics show, elevator accidents can be traced without exception to recklessness or carelessness during installation or repair."[85] The only monograph on this subject ever published in Germany was intended only for potential elevator personnel. Georg Urban's *Unfallverhütung im Fahrstuhlbetrieb* (Accident prevention in elevator operation), published in the middle of the First World War and addressed to the large number of "young, untrained, and female workers"[86] in hotels and offices in wartime Germany, listed the dangers that could

occur during installation, servicing, and repair of the machinery, when all safety devices were turned off. The eventuality that a passenger could be the victim of an elevator accident was hardly even mentioned in Urban's work. Its central concern (on fifty-two of its seventy-four pages), always with reference to workplace accidents, continued to be the improvement of the automatic locking devices for the shaft door. The protection of elevator workers prompted the author to invent a device that was destined to play a part in countless action and horror movies: the trap door in the ceiling of the cab. Apparently for the first time in the history of the elevator, Urban demanded that the "ability to open the roof" be obligatory, allowing installers and service personnel to work in the interior of the shaft without risk of accident.[87]

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THE BREACH THROUGH THE BUILDING

ORGANIZING THE VERTICAL

A THEORY OF THE ELEVATOR SHAFT

An early essay on multistory office buildings spoke of the "simplicity of arrangement" that should be observed when organizing their spaces in the future. "From the point where the elevators deliver in each story," the author declared,

> the door of every office on that floor should be visible; or, at least the corridors leading thereto should be plain and unmistakable. Nothing is more distressing than a labyrinth of halls and passages, with endless spurs and unexpected twists and turns, ending in culs-de-sac, mere nothing, or quite impartially in important offices or janitors' dust bins. Plain, straight, coherent, giving an idea of the whole scope of the building at first glance—such should be the ideal to strive after in arrangement.[1]

This 1891 essay by the New York architect John Beverly Robinson clearly illustrated the transformation in the interior design of multistory buildings that went hand in hand with the introduction of the elevator. The stairway as means of access to the various levels had to now compete with a vertical shaft cutting a breach through the center of the building; this in turn had far-reaching consequences for the floor plans of new buildings since, as Robinson insisted, the linearity of the transport channel was to be applied to the entire organization of interior space. In office buildings equipped with elevators, the old winding corridors and labyrinthine

stairwells replete with blind corners and dead-ends were replaced by a clear distribution of space comprehensible at a glance. "From the point where the elevators deliver in each story," all confusion ends. As Louis H. Sullivan wrote in his famous manifesto of 1896, "The Tall Office Building Artistically Considered," the multistory office building was to have "an indefinite number of stories of offices piled tier upon tier, one tier just like another tier, one office just like all the other offices—an office being similar to a cell in a honey-comb."[2]

In the debates on office building design that began about 1880 in the United States and thirty years later in Germany, we see the question of the transparency of spatial organization coming to the fore again and again. The floor plan of each story was to be organized as simply as possible, a specification that, in the wake of the introduction of steel frame construction, quickly led architects to dispense entirely with permanent divisions into individual rooms. As Alfred Wiener wrote in 1912 in the longest German treatise on office buildings, "Each floor of the building is initially treated as a single large space, which can then be divided into as many individual spaces and rooms as needed and sized accordingly."[3] There is no doubt that the increase in building height at the end of the nineteenth century was inseparable from an increasingly geometric configuration of the floor plan, a hollowing-out process that led one American architectural critic to note, as early as 1899, "There is . . . more of conformity and homogeneousness among the twenty-story buildings than there used to be among the five-story buildings."[4] The elevator is responsible for both of these developments. Its tractive force enabled the upper reaches of a building to be colonized, while the strict linearity of its movement ensured the rearrangement of vertical space in the building's interior. For the first time, people had access to a means of transportation that enabled them to take *the most direct route* from one level to another. While even the most uncomplicated stairwells represent a detour, a more or less winding and branching divergence from

the vertical, the elevator channel—in the form of a closed or at least screened-in shaft—cut a plumb swath straight through the building.[5] This shift had considerable implications for the image of the multistory building, since the elevator established a distribution system whose boundaries, openings, and closings were precisely determinable, in contrast to a system of stairways. From then on, the elevator lobby constituted the unmistakable nodal point of each floor, from which, according to Robinson, "the door of every office on that floor should be visible." It was therefore logical that the interior design of the office building could restrict itself to providing continuous routes of circulation. For although "the arrangement of individual rooms does not need to be planned before the building is built," as Alfred Wiener wrote, "a number of spaces and facilities for general use do need to be laid down from the outset. These are primarily all arrangements for traffic on and between the separate floors of the building: vestibules, entrance halls, large corridors, stairwells, elevators, paternosters. . . . In modern office buildings, the siting and physical form of spaces and facilities for traffic circulation receive special attention."[6] The stringency of vertical organization led to a similar stringency in the horizontal.

The elevator's early history is also interesting for the extent to which the formerly insignificant architectural element of the "shaft" evolved in importance. Only two or three decades separate the first factory freight lifts—pieced-together, free-standing iron racks accessible from all four sides—from the continuous, partially closed shafts of New York "elevator buildings" that were soon being designed as the core of the structure. In that short time, a fundamental reorientation took place: no longer was the elevator a mobile rack adapted to fit preexisting surroundings. Now it was an integral component of the building, which in turn determined the shape of the floor plan. We must note the historical turning points at which the verticality created by the elevator became visible and the apparatus was transformed

from a mere addition into a dominating swath cut through the building. In the United States, we can date this turning point to 1875 and the completion of an office building with a special claim to the designation "elevator building": the editorial offices of the *New York Tribune*. Although the Equitable Life Building of 1870 was the first to be equipped with elevators, it still concealed the fact of its seven stories behind windows that extended across two stories each. And the three passenger elevators of the Western Union Company's headquarters, completed shortly before the Tribune Building, ran between only some of its floors.[7] The floor plan of the ten-story newspaper building, however, was for the first time incisively oriented around the elevators' channel. The two public elevators, placed side by side, constituted the first "elevator bank" in history and regulated the heavy traffic in the rented office spaces on the middle floors. "There are some large buildings in this city," boasted a piece in the *Tribune*'s in-house organ shortly after the building opened, "in which two elevators are placed at opposite ends of a long hall so far apart that the impatient passengers who miss one and go to the other are very apt to miss that one too."[8] The centralized elevator bank, on the other hand, was logistically much more functional. Another sign that access to the building was now concentrated in the elevators was the novel installation of an express lift on the other side of the entrance hall, a cab in an enclosed shaft that travelled nonstop directly to the editorial offices on the upper floors.

To be sure, this emphatic siting of the elevator shaft, which occurred for the first time in the Tribune Building but in the course of only a few decades became a basic principle of all multistory office and residential buildings, was above all a strategy to prevent fire and accidents. On the one hand, the disappearance of the elevator behind enclosing walls was a reaction to devastating fires in which free-standing wood-frame elevator shafts contributed to the swift spread of fires. On the other, it responded to a frequently occurring accident of the early years, when passengers would lean out

of unenclosed cabs and collide fatally with stairwell pillars. This is why the engineering literature on elevator construction between 1870 and 1900 dwelled constantly on how to improve the enclosure and clearly demarcate the shaft. This development also quickly reached Germany, as is evident from relevant passages in the first set of regulations governing elevator construction in the German Reich, issued for Berlin and its suburbs in April 1893. Section 1, "Production of Elevators: Elevator Shafts or Tracks within Buildings," stipulates that "elevators connecting separate stories within building interiors must as a rule be enclosed by solid walls with openings only for the necessary access doors and skylights."[9] Exceptions to this rule applied to elevators retrofitted in stairwells. In these cases, "a shaft with solid walls is not necessary as long as the channel is enclosed by wire mesh with maximum interstices of 0.4 inches and moreover, all parts of the elevator are adequately enclosed to prevent injury."[10] In an architectural manual that appeared shortly before the Berlin regulations went into effect, this compulsory enclosure of the shaft was already described in detail: "The platform serving to convey passengers must be enclosed in such a way that no one can be injured by extending a part of his body out of the cab. . . . To this end, an iron frame is mounted around the edge of the rectangular platform of the elevator. As a rule it is sheathed on all four sides with solid walls, less often with narrow-gauge wire mesh."[11]

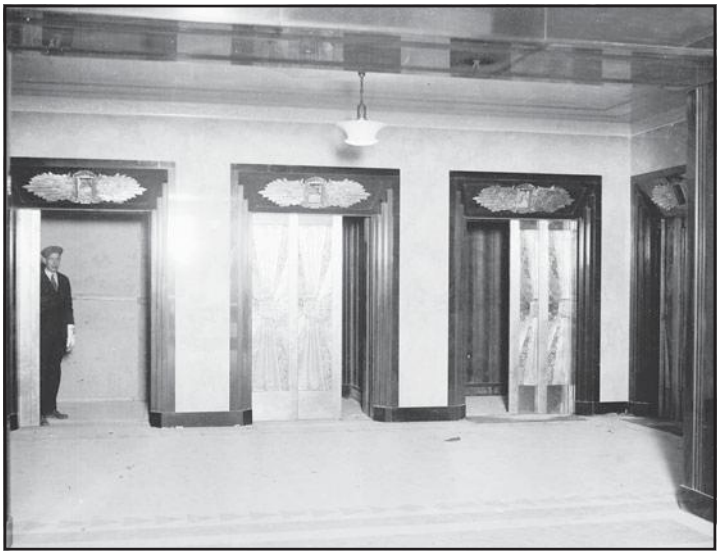
These excerpts from regulations and manuals allow us to discern a revealing historical confluence. The cultural assimilation of the elevator, the metaphoric "fitting in" of the means of transportation, was synonymous with the literal fitting of the initially ill-defined shaft into the vertical dimension of the building. As long as there was no clear demarcation between elevator and stairwell, the new apparatus represented a potential danger; hazardous overlap of the two regions led on many occasions to limbs being crushed or amputated.[12] By the end of the nineteenth century, however, the elevator had achieved its final form. At the same

time the disappearance of the cab behind the walls enclosing the shaft signaled the end of the defining pictorial representation of the new conveyance. The illustrations and photographs of luxurious elevator cars appearing in company prospectuses, advertising brochures, and technical manuals before the turn of the century became impossible as soon as there was nothing more to be seen of the cab except for its entrance door. A remark in a special publication in honor of the fiftieth birthday of the elevator manufacturer Flohr illustrated this iconographic disruption: at the end of an opulent twenty-page gallery of "predecessors"[13]—gorgeous wrought-iron Flohr elevators in open stairwells—came this succinct statement about the latest models: "The elevators themselves cannot be represented pictorially since they are located in walled-up shafts. Naturally, the decoration of such elevators is limited to the cab interiors, of which I shall present several types on the following pages."[14] One could say that the early history of the elevator lasted as long as there were still photographs of cab exteriors. The real Age of the Elevator began with the end of its representability (simultaneous with the introduction of floor indicators above the entrance doors and in the cab interior). From then on, the elevator's location was only indirectly perceptible to its occupants and those waiting to board.

How strongly floor plan configuration was focused on the elevator's conduit from the 1870s on was particularly apparent in the changing status of the stairwell in American buildings. In the course of only one or two decades, this traditional means of vertical access was pushed into the background, downgraded from a grandiose structural element occupying the center of a floor to a mere escape route. In the first multistory office buildings in New York, the stairwell was accorded the same location and relevance as the new means of conveyance. On all floors there was a "combined stair and elevator lobby."[15] When the establishment of steel frame construction in the early 1880s enabled buildings to rise to twelve or fourteen floors, this brief period of

Interior lobby with elevator, 1858–60 Seventh Avenue (112th Street–113th Street), New York City. Photograph by Wurts Brothers. Courtesy of the Milstein Division of United States History, Local History and Genealogy, New York Public Library, and the Astor, Lenox, and Tilden Foundations.

Elevator corridor to entrance, Warner Brothers Company, 90 Park Avenue, New York City. Courtesy of the Library of Congress.



View of three sets of elevator doors in the new Chicago Daily News building, 400 West Madison Street. Photograph by *Chicago Daily News*, negative DN-0089017. Courtesy of the Chicago History Museum.

equal treatment came to an end, a change documented by the carefully archived floor plan modifications of the Equitable Life Building. In the course of remodeling and adding extra floors in 1887, the space-consuming main stairway rising through all stories was removed and replaced by newly configured elevator shafts with a total of ten cabs. A stairwell was installed in a side wing of the building solely to meet fire escape requirements.[16] This 1887 renovation of vertical access in the Equitable Life Building is one of the oldest surviving examples of the relationship of elevator to stairway that from then on was obligatory in multistory American commercial and residential buildings. The appearance of a new space known as the "elevator lobby," now the only visible distribution point for vertical conveyance on each floor, ushered in the disappearance of the stairwell. As early as 1893, a New York architectural critic remarked as if in hazy recollection of bygone times, "Stairs in a twelve-story office-building are an untrodden tribute to the weary past, and, like those

of the cloud-piercing apartment-house, are likely to be used merely as interior fire escapes."[17] The American stairwell survived in the twentieth century as a forgotten rear view, the "dead appendage of a living building,"[18] as Klaus Mann once called it in the novel *Der Vulkan,* the story of an affair in a New York hotel for émigrés. In order not to be found out, the lovers mostly meet among bags of trash on the "almost forbidden stairway."[19]

As is still evident today, the stairwell was not so thoroughly replaced by the elevator shaft in Germany. However, the elevator was already being discussed in the 1880s, as in Franz Reuleaux's report on the safety standards of the Otis hydraulic elevator: "The advantage of elevator technology in general has been so accepted in the United States that in large buildings, the elevators are no longer simply welcome aids to traffic, but an essential, decisive element. . . . They are no longer sited like an afterthought in some obscure corner and seldom used, but are as open and accessible as possible."[20] In Germany, however, legal limitations on building height to five stories ensured that well into the 1920s, the installation of elevators, whether retroactive or part of the original plan, was always conceived of as merely an addition to the stairways. The formulations in architecture and engineering manuals around 1900 revealed that the traditional conception of the elevator as a mere extension of the actual transport system, that is, the stairs, was still unchallenged. "A passenger elevator in a building should be sited in such as way," recommends the manual previously cited, "that persons wanting to use the elevator will not have to traverse other rooms before entering it." The shaft "should be located either in the stairwell or in its immediate vicinity."[21] A 1908 introduction to elevator technology still stated, "Like the stairway itself, the elevator to be used in its place should be easy for a stranger to find."[22] To be sure, the fact that the stairwell continued to be regarded as the stable reference point for vertical movement within buildings began to come under fire at this time. Under the rubric "Miscellaneous" in

the Prussian *Zentralblatt der Bauverwaltung* (Official gazette of the construction administration) of December 1907, one can read this lovely passage:

> Elevators are now coming more and more into use even in Germany's public buildings. But it must be deemed curious that not only where the elevator is retrofitted in a building, but even when the elevator installation is intended from the first, the stairway is still regarded as the main connection between different floors and the elevators are treated as secondary. It is different in the United States of America, where the elevator constitutes the main connection between the various floors. There, it is easy to find the elevator and one can use it to reach any floor and all the rooms on that floor.[23]

Despite such remarks, the stairwell remained the primary space for vertical movement in early twentieth-century German commercial and government buildings. Not even in high-rise buildings of the late twentieth century did the demotion to neglected fire escape occur to the same extent as in American buildings.

The organization imposed on multistory buildings by the elevator shaft, a process completed around 1890 in the United States and around 1930 in Germany, was finally expressed in a complete equalization of vertical movement. Whether one's ride in the cab is up or down makes no difference at all with respect either to the energy expended by the passengers or to the value of those two directions. While Gaston Bachelard's *Poetics of Space* still devotes pages to the imaginative difference between one's direction on a stairway—"We always *go down* the one that leads to the cellar. . . . We always *go up* the attic stairs, which are steeper and more primitive"[24]—exactly the opposite goes for the ride in an elevator. It is no accident that elevators are used as a metaphor precisely to epitomize the lack of difference between up and down, their mutual cancelation. German sportswriters apply the term "elevator team" to a soccer club that shifts back and forth between leagues, playing one year in a higher league and the next in a lower one. It is remarkable,

Elevator bank. From Kerstin Englert and Alfred Englert, *Lifts in Berlin* (Berlin: Jovis, 1998).

however (and typical of its gradual integration into the building), that in the early years, the elevator's current metaphoric lack of direction was not yet firmly established. On the contrary, there is much evidence to show that well into the 1920s, at least in Europe, there was a clear directional priority—namely, upward—already etymologically manifest in the words *elevator*, *ascenseur*, and *Aufzug* (literally "up-pull"). In 1892, Philipp Mayer began the first comprehensive monograph on the elevator in German with the astonishing sentence, "Under elevators we understand those lifting mechanisms employed in multistory structures by means of which organic and inorganic material is transported in a vertical direction, *especially upward*."[25] And in the section on safety precautions, this statement appears: "Although in general there is no special need to use the elevator for descent as well, that possibility must in any event also be taken into account."[26] Statements like this give us an idea of how fundamentally the perception of this means of transport changed in the course of the twentieth century. A universally understood metaphor in the sportswriting jargon of recent decades would have still been puzzling at a time

when the new apparatus was just beginning to gain acceptance. Statistical information as well as literary works document the fact that at first, the downward and the upward rides were by no means equal undertakings. Thus, a 1908 article on elevators mentions that a survey of passengers using paternoster lifts in Hamburg "applied only to those riding upward; it yielded an annual average of ten million persons." The statistician in charge "assumes that only 3/4 of that number also use the elevator to ride downward."[27] Likewise, Paul Fechter's 1926 novel *Der Ruck im Fahrstuhl* (The lurch in the elevator), whose main figures are constantly riding the elevator to their apartments on the upper floors of a Berlin tenement house, lets us know incidentally, in subordinate clauses, that in the morning the residents prefer to "run down the stairs."[28] The fact that around 1900 the use of the elevator for riding downward was still something unusual and even potentially threatening was drastically illustrated by the second case study in Freud and Breuer's *Studien zur Hysterie* (*Studies on Hysteria*). Breuer explained a sudden neurotic episode in the patient "Emmy v. N." as follows: "When asked, relates that the pensione in which the children are living here is located on the fifth floor and can be reached by elevator. Yesterday she asked the children to use the elevator to descend as well and is now reproaching herself that the lift is not completely reliable."[29] Although the patient's story later is interpreted as having been made up to divert attention from more compelling catalysts, its truth content from the point of view of the history of technology lies in the fact that in 1890s Vienna, it could obviously make a neurosis-promoting difference if you wanted to use an elevator "to descend as well."

If one sets out to trace the conditions under which the privileging of the upward ride began to fade, it's not enough to refer vaguely to the public accustoming themselves to the new means of transport. The incipient lack of direction of elevators can be precisely dated to a specific change in its controls. With the advent of electric push-button controls

Old elevator. From Kerstin Englert and Alfred Englert, *Lifts in Berlin* (Berlin: Jovis, 1998).

around 1900,[30] there was now a single contact in the cab available for each floor, independent of whether the passenger was located below or above that floor when he boarded the elevator. With the crank and lever controls obligatory in the elevators of the 1890s, there was still a necessary connection between the operation of the controls and the direction of travel. One can observe the importance of the change in the engineering commentaries at the beginning of the twentieth century, such as this comment in a catalog

of the latest elevator models: "The remarkable thing about these designs is that the elevator controls use the same push button regardless of the direction of travel. The passenger does not have to figure out first whether from his location he needs to set the elevator in motion upward or downward. He simply presses the button that corresponds to the desired floor."[31] Push-button controls were the technical prerequisite for the equalization of vertical transport by elevator. Just as from then on, no distinction between upward and downward travel was necessary to set the cab in motion, the motion of the cab itself knew no difference.

ARCHITECTURES OF LINEARITY

The elevator shaft's important role in the structure of commercial and residential buildings becomes even more manifest when one considers how verticality was organized when this element was not yet imaginable. To make clear the whole scope of the changes at the end of the nineteenth century, we can compare the remarks of John Beverly Robinson, Louis H. Sullivan, and Alfred Wiener about the interior design of modern office buildings to a passage from one of the most successful and infamous novels in the history of German literature. In Gustav Freytag's *Debit and Credit* (1855), the principal setting of the novel, a multistory building housing the Schröter grocery concern, is characterized as follows:

> The building itself was an old, irregular one with additions, little outbuildings, and courtyards, replete with walls, small staircases, mysterious passageways where no one suspected them, corridors, niches, deep closets, and glass partitions. The whole structure was the centuries-old product of human ingenuity intent on making it as difficult and incomprehensible as possible for future generations.[32]

This description could be the model for a historical tradition that constitutes the gloomy background to John Beverly Robinson's plea for "coherent" traffic patterns. Before the late nineteenth century, there was no linear traffic corridor

through buildings. And even if in Berlin the central stairwell "has already developed all its essential features in the floor plans of better apartment houses built since the end of the [18]30s,"[33] according a chapter to the voluminous 1877 chronicle *Berlin und seine Bauten* (Berlin and its buildings), interior coherence was still compromised by problematic overlaps. For example, the same chapter refers to an 1871 census of Berlin residential units showing that in multistory tenement houses there were still a total of 1,176 "entresols"—mezzanines of extremely dubious livability—as well as a considerable number of residential buildings in which the main corridor of each floor ran right through the middle of all the apartments.[34] Such sources show that, especially in Europe, building structure around 1880 was still characterized by excrescences in both vertical and horizontal directions and by a lack of clarity about where to draw the line between one floor and another, as well as between private and public spaces. The art-historical study *Das Berliner Wohnhaus* (Residential architecture in Berlin), published in 1917, offers a concrete example of this state of affairs. Examining the floor plan of a residential building of the early nineteenth century, the author notes,

> Typical for the time is also the addition of a mezzanine in a side wing. The ground floor of the wing was used to house stalls or small apartments. The latter, however, had such low ceilings that between them and the second floor there was room for a so-called entresol. On the stall side, it contained rooms that could be used as additional space, as needed, by the ground-floor apartments of the main building. A stairway leading no farther than to the floor level of the entresol was built next to the passageway connecting the main building to the wing. The primary stairway of the wing was located at the far end.[35]

This description clearly reflects the incoherent vertical structure of early multistory residential buildings. The text even gives the impression that the convoluted spatial organization has seeped into its complex sentence structure. The floor still cannot be clearly identified as a structural feature

of verticality, a difficulty that the historian Clemens Wischermann described in a very similar way for the poor residential quarters of Hamburg and other Hanseatic towns in the middle of the nineteenth century. In these neighborhoods in the city centers, known as *Sähle* or *Gängeviertel*, "the greatest possible number of tiny rented rooms, often opening onto alleys only two or three yards wide, would be jammed behind the buildings on the wide main thoroughfares, or entire conglomerations of small living quarters on rear courtyards would often be connected to the street by only one narrow passageway through the front building."[36] The division into stories did not even occur in these jumbled neighborhoods with barely enough room for separate entrances to individual apartments, where movement between levels was mainly via crooked stairways. Wischermann drew attention to a telling administrative detail: the category "floor" did not even exist in Hamburg residential statistics before 1846, complicating the inclusion of all the inhabitants of the *Sähle*.[37]

It was a crucial characteristic of multistory buildings early in the era of European urbanization that their amorphous verticality had not yet found an adequate form. The hodgepodge of entresols, back stairways, and dead ends got in the way of the clear differentiation and classification of spatial units. We must examine the elevator shaft precisely with respect to its creation of improved comprehensibility. In this context, it is instructive to turn our gaze toward comparable construction projects that have received much more attention from historians. Looking back beyond the advent of the elevator's vertical breach, we see that primarily horizontal breaches were opened up around the middle of the nineteenth century in the form of railroad tracks, boulevards, avenues, canals, and subway tunnels. It is no exaggeration to call the decades between 1820 and 1880 the Age of Alignment. Perhaps one could even say that the project of modernism expressed itself in architecture and urban planning as a practice of opening breaches. The cultural and

political implications of this practice have been researched from many perspectives. In particular, Haussmann's reorganization of Paris (begun in 1853, the year the E. G. Otis Elevator Company was founded) has been the object of well-known analysts from Friedrich Engels to Walter Benjamin and Sigfried Giedion to Richard Sennett.[38] Recently, the Zurich historian of technology Daniel Speich has used psychohistorical categories to describe the taming of ramified and potentially rampant landscapes with the principle of linearity. His study of the straightening of the Linth, a river in eastern Switzerland whose flooding in the late eighteenth and early nineteenth centuries conjured up the threat of a natural disaster, concentrates on portraying two parallel developments, and analyzes the extent to which the taming of a landscape is always connected to the civilizing of the social order. The river project was a battle against both the riverside flood-plain marshes and the immoral behavior of the people who lived beside them. As the "wild flood plain with its meandering streams . . . [was] regulated into a geometrically ordered, cultivated landscape,"[39] the scattered bands—whom the construction supervisors at first referred to as "half-human"—developed into a domesticated unit. Thus the successful regulation of the river not only prepared "the ground for the technical and industrial modernization of the nineteenth and twentieth centuries" by bringing in its wake the construction of railroad tracks and telegraph lines along the river,[40] it also became an early foundational myth for the establishment of the Swiss Confederation in 1848. At the end of his work, Speich stresses that "the regulation of the Linth provides an excellent introduction to the genesis of some primary principles of modernism."[41]

But what precisely constitutes the connection between works of civil engineering and changes in the history of thought? What is the political function of linearity? To answer this question, one can turn to Michel Foucault's reflections on "disciplinary space" in the eighteenth century, when the creation of the greatest possible clarity and

transparency became the most important principle of spatial organization in such institutions as barracks and factories. In a much-cited passage from *Discipline and Punish*, he wrote that such institutions must "avoid distributions in groups; break up collective dispositions; analyse confused, massive or transient pluralities. . . . One must eliminate the effects of imprecise distributions, the uncontrolled disappearance of individuals, their diffuse circulation, their unusable and dangerous coagulation."[42] Against this background, nineteenth-century breaches in the landscape and above all in town planning become comprehensible. The replacement of a meandering stream or street with a dead-straight riverbed or boulevard tames the possibility of Foucault's "collective dispositions." As the myth of the regulation of the Linth proved, the barbaric "half-humans" of the flood-plain marshes became trustworthy citizens living beside a canal.

This disciplinary impulse of linearity can be observed with particular clarity in Georges Eugène Haussmann's urban renovations under Louis Napoleon. Nine times between 1827 and 1851, the convoluted streets in the old center of Paris became the scene of barricades and street battles.[43] The demolition of ten thousand buildings was therefore planned not just as a hygienic measure, but from the beginning also as a strategic defense against future civil unrest. Contemporary commentators already described Haussmann's three major road construction projects—the disentanglement of the dense network in the city center, the creation of broad boulevards radiating toward the city limits, and the streamlined connections between thoroughfares and secondary streets—in terms of their political function. Thus the German historian Theodor Mundt, in his 1858 *Skizzen aus dem französischen Kaiserreich* (Sketches from the French Empire), described the evisceration of the Ile de la Cité, in which fifteen thousand houses were demolished:

> Wherever the folk clumps together in resistant masses, the authorities find dangerous terrain from which at any moment they can be attacked. For that reason, Louis Napoleon has undertaken

> the reconstruction of the Cité according to the most radical plan possible. For in this infamous part of the city, which has always been a real labyrinth of misery and unrest, from now on almost all dwellings will disappear and only public buildings will remain or be built.[44]

At the end of the reconstruction project, only three large structures remained on the Ile de la Cité, and the square in front of Notre Dame Cathedral had grown to forty times its former size. It is important to take note of Mundt's diction, especially with regard to the masses "clumping together," clumps that would be broken up by Haussmann's breaches and the integration of the Ile de la Cité into the network of new boulevards. Again, it is linearity's job to sort people out. No wonder Foucault can write, "Discipline organizes an analytical space."[45] The breach, originally a term from military strategy, was an urgently needed instrument for this task. It entered into the fray against the impermissible heterogeneity that occurred in various metaphoric guises in the mid-nineteenth century: as a "swamp" in hydrologic engineering or a "primeval forest"—a frequent metaphor for Paris in the Second Empire[46]—in town planning. In the space of seventeen years, an architecture of transparency was imposed upon Paris as a guarantee of that "distribution of individuals in space" that Foucault calls the basic task of disciplinary society.[47] (Haussmann himself was so thoroughly devoted to linearity that he even had his own birthplace torn down to make room for one of the great arterial boulevards, which he then named "Boulevard Haussmann."[48] The swath itself, not the house it displaced, became the memorial to its creator.)

The corridors that were cut through landscapes and cities in the mid-nineteenth century are related to each other. Haussmann repeatedly emphasized in his memoirs how much his plans for the boulevards owed to the idea of railroad tracks; both function as "large arteries" for the circulation of traffic in the city.[49] From 1841 on, Paris was the official hub of the rail network, and the primary purpose of some of the newly conceived boulevards was to connect the train

stations as directly as possible.[50] In turn, the construction of tunnels for the London underground, begun in 1863, followed Haussmann's general principles.[51] The history of architecture documents how many European metropolises broke up and straightened out their centers on the model of Paris—Vienna for the world's fair of 1873, for example, or Rome in the 1880s. Thus we see that in the early years of urbanization, the organization of space was highly focused on the creation of straight, horizontal lines. Of significance for the history of the elevator is the extent to which, in the second half of the nineteenth century, this tendency began to have marked influence on the vertical structure of buildings as well. The incipient hygiene movement referred to large tenement houses in Germany with the familiar metaphors of amorphousness: their inhabitants were present in "abnormal density," their corridors filled with "swampy air" that must be ventilated.[52] In this sense, the elevator shaft cut a breach through the levels of a building in the same way the boulevard did through the streets of the city. It eliminated the proliferation of entresols and secondary stairways, setting in motion a vertical Haussmannization. But how exactly did the elevator-induced reorganization of multistoried buildings function? First of all, the category of the "floor" had to be stabilized. The elevator did not invent the category, but it did define it with hitherto unknown clarity. The *Sähle* in Hamburg, the entresol dwellings in Berlin, and the counting house described by Freytag in *Debit and Credit* all make clear that until the middle of the nineteenth century, the transitions between the vertical layers of a building could be confusingly labeled. The elevator, however, established the principle of floors clearly separated from each other, for it goes only to the "first," "second," "third," or "fourth" floor, eliminating any deviations or intermediate entities. The history of how multistory buildings are imagined cannot overlook the importance of this change. The fantasies of buildings without boundaries like the ones still elaborated in such early twentieth-century novels as *Golem*,

by Gustav Meyrink, or *The Trial*, by Franz Kafka,[53] came to an end in the age of the elevator, for the vertical swath with its regularly spaced openings tamed and distributed the interior space with nothing left over.

We need to investigate the elevator from precisely this perspective, as a vehicle for improved comprehension of multistory space. In commercial and residential buildings equipped with elevators, each spatial unit is assigned a precise location. In comparison with the featureless jumble of living quarters in the slums of earlier decades, there is a pronounced "partitioning" of space.[54] This aspect of comprehensibility emerges with particular clarity when we examine how the inhabitants are identified to the outside world. It is more than a coincidence that, at least in Europe, the establishment of the elevator occurred at the same time as the introduction of the bank of doorbells at the building's entrance. The convention of representing the human fabric of a building's interior by a list of names at the entrance began at the end of the nineteenth century and presupposed utter clarity about how the spatial units were distributed. Thus an 1897 manual titled *Haustelegraphie* (Building telegraphy) recommended newly conceived "pull contacts for 4 floors, ground floor and stories II-IV," which were to be

> installed at the building entrance with wires leading up to each floor. The pull contacts of genuine bronze possess small removable windows with panes of glass behind which either the name of the tenant or the floor and room number are inserted. . . . The main door is equipped with an electric door opener. When a signal is sent to any floor, the main door can be opened *without leaving the apartment* by depressing a button.[55]

This description is one of the earliest mentions of a bank of doorbells in a multistory building. Its existence, however, depended on the possibility of representing verticality. How could such a bank have existed in the Hanseatic *Sähle* or a building in Meyrink's Prague ghetto? The unchecked proliferation would not have been representable to the outside world, especially not in the form of that orderly listing of the

names that imitates the order of the apartments, from the very first so characteristic of banks of doorbells. In a building organized by its elevators, however, a miniature image of the interior distribution can be assembled and installed at its threshold with no trouble at all.

If the process of modernization is conceived from a topographical perspective as one of disentanglement, then the appearance of the bank of doorbells was an important event. It ensured the organization of diversity; there was complete congruence between sign and signified. Every person in a multistory apartment building was now identifiable at the entrance to the building. The bank of doorbells produced addressability and, for the identification of an individual dwelling, had a significance similar to the introduction of house numbers a century earlier for the entire building. The possibility of such a representation of multistory space, however, is linked to the establishment of the elevator and the image of verticality within the building that it generated. Even if not every tenement house in 1850 was laced with mezzanines and blind corners, only the conduit of the elevator introduced a regularity of floor structure and a more precise identification of location that from then on determined even the floor plans of elevatorless stairwells (there is no multistory apartment building of the last eighty years whose inhabitants were not represented by a bank of doorbells). At issue is the connection between an architecture of linearity and the creation of that form of modern individuality characterized by precise ascertainability. Georg Simmel described this relationship in his *Soziologie* using the example of house numbers: "The numbering of urban buildings," he wrote,

> means in a higher sense the localization of individuals, since it provides a mechanical method for finding them. The nature of this findability is obviously quite different from the medieval designation of special streets and quarters for particular classes and professions. . . . In contrast to the latter, the system of house numbering is eminently unhistorical and schematic—on the one hand

> much more individualized, on the other much more indifferent to the individual as a person. In this respect, too, the inner, sociological essence of city life expresses itself in spatial language. The more pure the development of city life, the more rationalistic it reveals itself to be—especially in its repression of everything idiosyncratic, accidental, sharply angled, or crooked in the layout of streets in favor of what is straight as an arrow, uses established geometric norms, and follows general laws.[56]

It is remarkable how seamlessly Simmel's comparison of two concepts of individuality—one "monumental" and the other "documentary," to use Foucault's terminology[57]—meshes with a comparison of two conceptions of space. Monumental individuality corresponds to the "sharply angled, or crooked"; documentary individuality to "what is straight as an arrow." Thus we see once more the political impulse toward linearity in the nineteenth century. The breach as a correction for everything random and organic is the architectonic signature of modernism pure and simple.

THE VOID BETWEEN FLOORS

The elevator can be understood as a disciplinary element in the history of the building to the extent that it makes verticality accessible and distributes spaces. We must not forget, however, that the conduit it opened up caused a second fundamental change in the interior structure of the building that had nothing to do with greater transparency (that "predilection for perspectives"[58] Walter Benjamin attributes to Haussmann's boulevards), and even in some sense contradicted it. For there is something connected to the linearity imposed by the shaft that could be called the fragmentation of the building. Thus the elevator created not only new visibilities but also new invisibilities. In order to describe this "obscuring" function of the apparatus, we must take a closer look at the stabilization of floor configuration already discussed. The discontinuous points at which the elevator stops, the restriction of accessible space to the "first floor," "second floor," and so forth, transformed the tiers of

the building into discrete units; whatever lies between those units in some sense no longer exists. In the vocabulary of signaling technology, the transition from stairwell to elevator could be described as a transition from the analog to the digital principle. According to Michel Serres, "In information technology, an analog signal is one that delivers its information continuously in a proportional relationship. . . . In contrast to the analog technique, digital technologies reduce the information to a series of whole numbers."[59] Precisely this structural shift applied to vertical access to buildings in the decades around 1900. Ascent in an open stairwell appeared as a continuous process. In the elevator building with its "discrete samplings, at equal intervals to the greatest extent possible,"[60] the region between the floors is forgotten space (so utterly nonexistent that it costs the protagonist in the most famous of all elevator stories, Louis Malle's film *Elevator to the Gallows*, his head because he has no alibi for the hours he has spent trapped in the shaft[61]).

It is telling that in the early history of the elevator, this element of discontinuity became more pronounced as push-button controls were developed. The mechanical forms of control by cable, steering wheel, or crank still moved the cab up and down in a continuous process. The movement of the cable or wheel controlled by the elevator operator bore no specific relation to the floor to which the cab was headed. The advent of electric push-button controls, on the other hand, not only caused the equalization of travel direction discussed above, but also created the impression that individual floors are distinct units from the way they appear on the control panel. From then on, each stopping place was assigned a button with the corresponding number, and pushing one of the buttons conveyed the passenger (thanks to the automatic precision stop mechanism introduced at the same time) to the exact threshold of the desired floor. It is not surprising that a 1909 booklet for elevator operators pointed out in what seems now an almost tautological formulation that the new control system needed "a number

of push-buttons in the cab that corresponds exactly to the number of possible stops."[62] But precisely this seemingly obvious correspondence had decisive implications for the perception of multistory buildings around 1900. The elevator with the electric push-button controls and enclosed shaft, which became obligatory at the beginning of the twentieth century, transformed the multistory building irrevocably into a series of separate platforms. It engendered a fragmentation of verticality whose irritations Rem Koolhaas thematizes in *Delirious New York* in connection with the earliest skyscrapers. He reproduces a contemporary illustration showing a fictitious eighty-four-story high-rise in cross-section. Every level of the building, outfitted with a country estate, trees, and animals, constitutes an autonomous cosmos all the way out to its very edges. "On level 82 a donkey shrinks back from the void, on 81 a cosmopolitan couple hails an airplane."[63] Each of these floors, Koolhaas writes, "is treated as a virgin site, *as if the others did not exist*. . . . Incidents of the floors are so brutally disjointed that they cannot conceivably be part of a single scenario. The disconnectedness of the aerial plots seemingly conflicts with the *fact* that, together, they add up to a single building."[64]

It's also possible to trace this disruption in the image of the building in literary history. What influence did the reconfiguration of verticality caused by the elevator shaft have on the narration of texts that take place mainly in multistory residential buildings? We can find out about the pre-elevator age, for instance, from two novels in Zola's Rougon-Macquart cycle whose main characters are the inhabitants of large tenement buildings: *L'Assommoir* (1877) and *Pot Luck* (1882). Gervaise, the heroine of the first novel, set among the working class of Paris, is introduced to the family of her future husband, Coupeau, in one of the early chapters. The two of them enter a seven-story tenement building located on the street where Coupeau has grown up. At this point, the gigantic building complex, which will be the main setting for the novel, is described in this way:

> The Lorilleuxs lived on the sixth floor—staircase B. Coupeau told her with a laugh to keep tight hold of the iron railing and not let it go. She looked up, half shutting her eyes, and gasped as she saw the height to which the staircase wound. The last gas burner, higher up, looked like a star trembling in a black sky, while two others on alternate floors cast long, slanting rays down the interminable stairs.[65]

The passage makes clear how explicitly the multistory building is perceived as a unity; it can be surveyed in its entirety from the ground floor all the way up to the "star trembling in a black sky." This homogeneity is evident in Zola's frequent use of organic metaphors to describe it. Gervaise was "as interested in the house as if it were a living creature," he writes at one point, and when she reaches the seventh floor and looks back down, "the smells, the turbulent life of this great house, seemed to rush over her in one tremendous gust."[66] With the first ascent to the top floor, the tenement house and all its inhabitants (who will have a decisive influence on the young marriage in the course of the story) are displayed as a completely open, interactive space, an openness that befits the portrayal of the relationships among them. We can see that the elevatorless stairwell in a multistory dwelling has specific narratological implications. If the various tenants and their embroilments are to constitute the content of the novel, they must come into regular contact with each other. The stairwell, as a continuous "spiral" through the building, guarantees such contact. All the characters live beneath the same "black sky."

This connection between vertical access to the building and the narratibility of its inhabitants' stories is revealed even more trenchantly in Zola's *Pot Luck*. The later novel, about the secret intrigues and affairs among the inhabitants of a luxury apartment building in Paris,[67] begins with the arrival of the main protagonist, a young provincial named Octave Mouret, for whom a family friend has arranged a rented room on the fifth floor of the building. One of the

first scenes in the novel describes how this friend, who lives on the fourth floor, accompanies Octave to his new room:

> Then, as they slowly climbed the stairs, he mentioned the names of the various tenants. On each floor there were two sets of apartments, one overlooking the street and the other the courtyard, their polished mahogany doors facing each other. He began by saying a word or two about Monsieur Auguste Vabre. He was the landlord's eldest son, and that spring he had taken the silk shop on the ground floor, and also occupied the whole of the entresol. Then, on the first floor, the landlord's other son, Théophile Vabre, and his wife lived in the apartment at the back, and in the one overlooking the street lived the landlord himself, formerly a Versailles notary, but now living with his son-in-law, a judge at the Court of Appeal.[68]

Considering that the six hundred pages to follow will be about nothing but Mouret's amorous and commercial relations with individual inhabitants of the building, this first ascent of the stairway has a special function in the economy of Zola's narrative, for in addition to introducing the protagonist to his new dwelling, it also gives readers an initial orientation. They gain insight into the configuration of the novel's cast of characters. The participants in the intrigues to come already pass in review on its opening pages.

Thus the stairwell appears as the armamentarium of a narrative tradition whose aim, like Zola's here, is to present the multistory dwelling as a microcosm. The question is whether such a panoramic novel about the fabric of relationships within a tenement house is still possible in the age of the elevator. There is a reason why no representatives of this genre are to be found in the twentieth-century literature of America or Europe. Perhaps it is not too much of an exaggeration to say that novels like *L'Assommoir* and *Pot Luck* could only have been written in the brief period between 1870 and 1920, the period in which there were already multistory apartment buildings but the elevator was not yet universally established as the means of access. The reason for the disappearance of this genre has to do with the walled-in shaft running through the building. If the path to one's own

floor is no longer associated with an ascent through all the lower floors, if one's knowledge of the building is restricted almost exclusively to that floor (as has been the case in elevator buildings for decades), then stories derived from the interaction of all the various tenants will necessarily peter out. The image of the multistory building that had been developing for a century in the United States and for at least half a century in Europe represented a completely different configuration. In place of the hollow tower and the seething organism, one is now confronted with a stack of unconnected levels. This abstraction has had a concrete effect on novels that present the story of a building. In recent decades, literary images of multistory buildings must take into account the inhabitants' ignorance of events on floors other than their own. A recent example is Paul Maar and Nikolaus Heidelbach's popular German picture book *Der Aufzug* (The elevator), which tells the story of a little girl who meets a mysterious dwarf. We are told at the beginning of the book that Rosa "lives with her parents in a high-rise, way up on the ninth floor. Every morning when Rosa goes to school, she gets in the elevator, pushes the button that says 'G,' and rides down. Every afternoon, when Rosa comes home, she pushes the button that says '9' and rides back up."[69] Here, the fragmentation of verticality is explicitly visible. In the child's imagination, the building consists of nothing but the ground floor, her own floor, and the connecting element of the elevator cab. To make this abstraction concrete, the first page of the book has a picture of a child's hand pushing a button on the elevator's control panel. The fantastic element of the story is introduced one night when the girl discovers a dwarf who has made the cab into his living room and invites her on a tour of the entire building. The travel time between floors suddenly lasts not mere seconds, but long enough for the dwarf to serve her cake and raspberry wine. And when they finally reach one of the other floors and the door slides open, a fantasy-landscape is spread out before them. On the seventh floor Rosa meets the Seven Little Goats, the Seven

Swabians (both from the Grimm brothers' fairy tale collection) and six of the Seven Dwarfs (the seventh being her tour guide). A week later they travel to the third floor, where they encounter "triplets on a three-speed tricycle," the Three Wise Men, and the Three Miller's Sons.[70] What, then, are the floors of a twentieth-century high-rise? Not communicating components of a spatial totality, but mere push buttons on an elevator's control panel. Their existence is so tied to the numeral on the button that in the imaginary order of a picture book, that numeral has programmed their very appearance. There are no longer other tenants on the various floors with whom in naturalistic novels one could have quarrels or affairs, but rather incarnations of the floor number itself. This is exactly what makes it possible for the elevator to become a magic machine in the literature of the twentieth century. It engenders imaginary spatial levels because it conceals the real ones.

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FROM ATTIC TO PENTHOUSE

THE VERTICAL HIERARCHY OF BUILDINGS

GRAND HOTELS

Gabriel Dan, the protagonist in Joseph Roth's 1924 novel *Hotel Savoy*, is on his way home to Vienna after spending several years in Russian POW camps. He arrives in a Polish town and takes a room in a hotel—on the sixth floor above ground level, where the prices are lowest. After a few hours' sleep he sets out on a tour of the other floors. As he closes the door of his room behind him, he finds a notice tacked to it by the hotel manager, Kaleguropulos:

> QUIET IS REQUESTED AFTER 10 PM NO RESPONSIBILITY CAN BE TAKEN FOR VALUABLES LEFT IN THE ROOM. THERE IS A SAFE IN THE HOTEL. . . . I go along the corridor to the main staircase and take pleasure in the handsome square flagstones of the hotel passage, in the clean red stone and the steady echo of my footsteps.
>
> I walk slowly downstairs. From the lower floors come voices, but up here everything is silent. All the doors are shut, one moves as if it were an old monastery, past the doors of monks in prayer. The fifth floor looks exactly like the sixth, one could easily confuse them. Up above and here, too, a standard clock hangs facing the stairs, but the two clocks do not tell the same time. The one on the sixth floor says ten past seven, on this floor it says seven, and on the fourth floor it says ten to seven.
>
> Upon the flagstones on the third floor lie dark red carpets with green borders and one no longer hears one's footsteps. The room

numbers are not painted on the doors but mounted on little porcelain signs. A maid passes with a feather duster and a wastepaper basket. They seem here to pay more attention to cleanliness. This is where the rich live, and the cunning Kaleguropulos lets the clocks run slow, because the rich have time.

On the mezzanine the two wings of a door were standing wide open.

This was a large room with two windows, two beds, two chests of drawers, a green plush sofa, a brown tiled stove and a stand for luggage. Kaleguropulos' sign was not to be seen on the door—perhaps the residents at this level were allowed to be noisy after ten o'clock, and perhaps the management did take responsibility for valuables—or did they already know about the safe, or did Kaleguropulos inform them personally?

A scented woman with a grey feather boa rustled out of a neighbouring room. This is a lady, I say to myself, and walk close behind her down the last few stairs, admiring her little polished bootees.[1]

There is perhaps no other passage in European literature of the time that so vividly describes the vertical structure of the traditional grand hotel. The interior of the building is revealed as if in cross-section; as he descends from top to bottom, Dan records floor by floor the subtle changes in the facilities, from the nature of the flooring to the standards of hygiene, from the font of the room numbers to the time shown on the clocks. It is no accident that Joseph Roth describes the new guest's foray through the hotel in such detail, for the hierarchical order of the floors reflects the post–World War I social divisions that he is portraying. Like the personnel of the novel—on the one hand the profiteers who have salvaged or even enlarged their fortunes, on the other the war's impoverished victims—the Hotel Savoy, their common dwelling, is also divided into two halves. The building's demarcation line runs between the third and the fourth floors. Those who live below it continue to be provided with the standard symbols of luxury. The floors above, however, lead by stages to the hotel's wasteland. The novel returns insistently to the leitmotif of this threshold,

speaking repeatedly of the distinctions in hotel service. In the case of breakfast, for instance, on the upper floors,

> a floor waiter came, wearing a green baize apron. His rolled up sleeves revealed his muscular forearms, dark with curly hair as far as his elbows. Evidently maid service was only for the first three floors. The coffee was better than might have been expected, but what was the use of that without a maid in a white cap? This was a disappointment and I wondered whether there were any possibility of moving to the third floor.[2]

Shortly after his arrival, Gabriel Dan discovers that some guests even live a floor above him. The attic story, actually the Savoy's steamy laundry, is even more sparsely furnished, without even so much as a "standard clock" on the wall. It houses a separate society of people thrown together by their shared destitution: a vaudeville dancer on her way to Paris, a consumptive circus clown and his wife and child, and finally, in the worst room in the entire hotel, a once prosperous factory owner named Fisch who now ekes out a living predicting winning lottery numbers for other hotel guests. ("Many people have become rich through Fisch's dreams and live on the first floor of the Savoy. Out of gratitude they pay for his rooms.")[3] The inhabitants of the attic floor are cut off from the normal life of the hotel. No room service comes to them; they prepare their own meals on illegal alcohol stoves. In the consciousness of the hotel employees, these guests do not exist, as evidenced by the fact that they don't even know their names: when the circus clown Santschin calls for a doctor, "'Number 748 has suddenly fallen ill,' say the floor waiters. There were no names whatever on the top three storeys of the hotel. Everyone was known by room numbers."[4]

In June 1926, two years after the publication of Roth's novel, the Ritz Tower, the tallest apartment house in the world, opened in New York. The forty-one-story building on Park Avenue, commissioned by the wealthy journalist Arthur Brisbane and designed by Joseph Roth's namesake Emery Roth, the chief architect of the New York skyline, was

an "apartment hotel," that is, it consisted of condominium apartments but with services typical of a luxury hotel. The architectural historian Steven Ruttenbaum described the building in his biography of Emery Roth:

> The second and third floors contained numerous maids' and servants' quarters; these rooms were separated from the tenants' living area, as was traditional in large single-family dwellings. These floors also housed private vaults for the tenants, a separate one for each apartment. The fourth through the eighteenth floors contained suites of two to four rooms connected to the elevators by means of a double-loaded corridor. . . . On the nineteenth and twentieth floors was located one of the most unusual duplex apartments in the city. Consisting of eighteen large rooms, it was designed specifically for Brisbane. The double-height living room was the most noteworthy feature of the apartment. It measured 20 feet high and 20 feet wide, and it ran the entire length of the Park Avenue frontage for 70 feet. . . . A narrow terrace surrounded the entire apartment at the nineteenth-floor setback, providing a sweeping panorama of the city in every direction. . . . Of the three passenger elevators in the building, one was designed specifically to stop at the nineteenth and twentieth floors for Brisbane's sole use. . . . The floors above Brisbane's apartment, from the twenty-first level to the top, contained apartments of four to twelve rooms each. They consisted of single-floor and duplex suites of one to four bedrooms, each with its own bath. Floors 21 through 24 were arranged with two single-floor apartments per level; floors 25 through 32 offered two duplex suites in each two levels; and floors 33 to 37 were designed with one apartment per level. The most unusual feature of the duplex suites was a large (16 feet wide by 40 feet long) double-height studio/living room with doors at each end leading to terraces set within the corners of the tower. The entrance to these apartments was gained through a single story foyer, above which was built a balcony overlooking the living room one floor below. These duplex studio apartments were designed for tenants who desired such unusual and luxurious space.[5]

Thus we see two cross-sections through hotel buildings of the 1920s. Both represent a continuous change, an

increase in luxury from floor to floor, but what distinguishes them from each other is the direction of movement. Gabriel Dan's foray through the Hotel Savoy—which is modeled on a mid-nineteenth-century grand hotel of the same name in Lodz[6]—proceeds from top to bottom, beginning on an unadorned upper story and ending with a reverential peek into the rooms of the *bel étage*. Ruttenbaum's description, on the other hand, begins with the lowest floors, where the servants' quarters and storage rooms for the residents are located, and from there lists the various strata of the apartment hotel in ascending order. What these two lengthy descriptions illustrate is a fundamental transformation in the vertical structure, a reversal of the hierarchic order. The best rooms have migrated from below to above, the most modest from above to below. One could say that the Hotel Savoy and the Ritz Tower stand on either side of an epochal watershed, the four decades between 1890 and 1930 (although in Europe it developed less quickly and consistently than in the United States). During those decades, a momentous shift occurred in the material and symbolic ordering of multistory buildings, in particular a shift in the significance of the upper stories, to which we will now turn our attention. The focus will be on two aspects of the process: one is the multifaceted nature of the readjustment (which occurred not just in hotels but also in tenement houses and commercial buildings), the other is the special role of the elevator, for it is no exaggeration to say that the introduction of this conveyance was the prerequisite for the recodification of verticality around 1900.

There can be no doubt that the hierarchical structure of buildings is inseparable from the problem of access. In the traditional grand hotels of Europe, for example, the reason the rooms became worse and worse the farther up they were was quite simply that only the most lowly guests and the hotel personnel could be expected to climb all those stairs. The elevator freed the upper stories from the stigma of inaccessibility and lent them an unheard-of glamour instead. At the same time, it resolved the old symbolic dissonance between

vertical hierarchy and social hierarchy that survived into the first years of the twentieth century. There is a lovely passage in *Hotel Savoy* in which Gabriel Dan muses on this architectural paradox:

> Those who lived on high were in the depths, buried in airy graves, and the graves were in layers above the comfortable rooms of the well nourished guests sitting down below, untroubled by the flimsy coffins overhead.
>
> I belong to those who are buried on high. Do I not live on the sixth floor and shall I not be driven by Fate onto the seventh? To the eighth, the tenth, the twentieth? How high can one fall?[7]

In the course of the twentieth century, hotel guests "buried on high" slowly but surely disappeared. Once the elevator established itself, the pyramid of society could be accurately reflected in the structure of multistory buildings as well, although we must not lose sight of a certain understandable delay. For even if we recognize the reversal of vertical order as an effect of the elevator, the construction costs of retrofitting the traditional grand hotels ensured that the installation of the new conveyance reorganized their interior space only little by little. In contrast to America, where hotels at the beginning of the twentieth century were built from the start around the core of the elevator shaft, there was a period of transition in Europe. A provisional, retrofitted elevator was already part of the better floors (as it is in the novel *Hotel Savoy* as well), but the ingrained, traditional hierarchy of floors remained in place. The Paris Hotel Saint James and Albany, where Thomas Mann's eponymous hero Felix Krull begins his job as an elevator operator, presumably shortly before the turn of the century, is still in this transitional phase.[8] The hotel has five stories above the ground floor, the first four of which are occupied by the guests, while the fifth contains cramped dormitories for the staff. Very similar to the Hotel Savoy, the attic floor in Mann's novel is described as a separate region of the building, as shown not least by the fact that the two modern passenger elevators go only as high as the fourth floor. Upon his arrival, however, Krull

is conveyed to one of the dormitories by the service elevator located at the back of the building, which goes all the way to the fifth floor. That meagerly furnished floor, with its "ill-lit, carpetless corridor,"[9] reminds Krull of the terrors of the halls in the barracks he had hoped to escape in the grand hotel in Paris. When he finally begins work the next morning and reenters the luxurious region of the hotel with another employee, his descent is clearly reminiscent of the corresponding passage from *Hotel Savoy*: "We walked down a flight of stairs to the fourth floor, where the corridors were much wider and had red carpets. There he rang for one of the guest elevators that came up that high."[10] Once again we get the details—the wider corridors and red carpets—that constitute the traditional demarcation line in the grand hotel of the nineteenth century. Although a guest elevator is already in service in the Saint James and Albany, only the prestigious floors have access to it. The attic floor, the hotel's drab backside, can be reached only by clandestine conduits: the back stairs or the service elevator.

Such was the situation in Europe around 1900. In the luxury hotels of New York, on the other hand, the avant-garde of twentieth-century hotel culture, conditions had changed, as the construction of the Ritz Towers shows. The new hierarchical order was most consistently realized, however, in another New York building, the Waldorf-Astoria Hotel, opened in 1931, whose two towers were long the hallmark of the Manhattan skyline. These towers, which rose from the twenty-ninth to the forty-third story, constituted from the beginning the hotel's unique appeal to which the American journalist Ward Morehouse devoted an entire book.[11] Below the demarcation line of the twenty-ninth story, the Waldorf-Astoria, although expensive, was accessible to everyone; above the line began an exclusive region of suites of as many as twelve rooms with private butler service. For many years, the Towers was reserved exclusively for politicians, diplomats, and other prominent long-term guests. "The Towers is really a kind of vertical Beverly Hills," writes Morehouse, "a

hotel within a hotel."[12] Here too, the upper floors were separated from the rest of the hotel, but now for the opposite reason. No longer did they serve to house makeshift extra rooms or dormitories for the personnel, but were instead an enclave of the elite. Whereas the shabbily dressed Gabriel Dan was immediately recognized by suspicious hotel employees as an inhabitant of the upper floors, Morehouse writes that Nicholas Racz, an early manager of the Waldorf-Astoria, "could spot the people who 'belonged' in the Towers at first glance."[13] This reversal was also evident in the changed configuration of the elevators. In the Waldorf-Astoria it was no longer the upper but the lower floors that had no access to the best elevator service; the express elevators for the Towers went directly to the twenty-ninth floor. No longer were the austere quarters for personnel kept hidden away on the upper floors: now it was the inscrutable sphere of power that was sequestered there. Not infrequently, politicians preferred to conduct important negotiations there rather than in the official institutions of the city.[14] In this regard, Ward Morehouse relates a revealing anecdote about postwar American foreign policy. At the beginning of his presidency, Dwight Eisenhower was forced to break with the tradition of his predecessors and give up the presidential suite in the Towers because his wife, Mamie, suffered from acrophobia. The decision to stay on one of the lower floors, where the hotel personnel was housed, threatened to become a political issue, because the president would be too far from the prestigious region of the hotel during the great United Nations conferences, for instance.[15] In order to at least ameliorate the negative effects, Eisenhower reserved a suite on the eighth floor, the only floor below the Towers where the express elevator was able to stop.[16]

The appearance of the elevator and its intervention in the structure of multistory buildings wrought a change above all in hotel culture in Europe, a culture that had already experienced a great advance beginning in the second half of the nineteenth century.[17] One can assess the significance of

this event in the precise traces it has left behind in the tourist guidebooks' descriptions of hotels during the decades before and after 1900. In various editions of the Baedeker guides, for instance, the infiltration of the momentous invention into hotels can be followed in detail. Into the 1880s elevators were not mentioned at all, either in the introductory texts about a region's hotels in general or in the lists of amenities at individual hotels. The prominent mention of the new invention in the recommendations of subsequent editions proves its enormous significance. In the 1896 edition of the London guide, for instance, the hotels on Piccadilly Circus "include some of London's most elegant and expensive hotels, with electric lighting, lifts, etc."[18] In the 1892 guide to northeast Germany and Denmark, the hotel Hamburger Hof was described as a "superb building with elevator and every convenience."[19] In 1896, the Grand Hotel de Rome in Berlin was "in the best location, with 120 rooms, elevator, electric lighting, bathhouse."[20] The order in which things were mentioned deserves attention. In their recommendations of the most luxurious hotels of the time, the Baedeker editors gave the existence of an elevator highest priority, even higher than other epoch-making innovations such as electric lights or central heating. In some guides—those for Belgium and Holland (1891) and Austria-Hungary (1898), for instance—the names of the best hotels in major towns are accompanied only by the phrase "with passenger elevator."[21] It is exactly from such marginal, abbreviated entries that one can glean what the establishment of the elevator meant in the history of the hotel. And when the 1893 North America guide made more extensive remarks about the new invention, there was a sense of awe at the exotic apparatus: "Access to the rooms on the upper floors is significantly improved by the splendidly functioning 'elevators' (lifts)."[22] You can read the author's sense of wonder in his use of scare quotes, which disappeared in subsequent editions. In 1893, however, they were the typographic precipitate of innovation. Just as the passengers still mistrusted this means of

transportation and anxiously gripped the railings in the cab, the author was not yet at liberty to use the term without cautiously enclosing it in quotation marks.

The period of adjustment, however, did not last long. From the Baedeker guides one can also gather how quickly the elevator entered the everyday life of the hotel; it took about twenty years. The assimilation process occurred in stages. At first, in the editions shortly after the turn of the century, the presence of elevators was still explicitly mentioned, although no longer separately for each individual hotel, but rather in the introductory commentary to the list of recommendations. Thus the Paris guide of 1900 stated, "The large first-class hotels are of course equipped with all modern conveniences, spacious dining rooms, smoking rooms and lounges, guest elevators, electric lighting, central heating, baths, often luxuriously appointed."[23] This wording can be found with almost no variation in most of the Baedeker guides for European metropolises between 1900 and 1910, but during the following decade, a change began to make itself felt. In the 1911 guide for northern Italy with Ravenna, Florence, and Leghorn, for instance, there was no mention of elevators at all in the luxury hotel category, but for several second-class hotels one finds descriptions such as this: "more modest, without elevator and central heating."[24] Expectations had already shifted by 1911; a feature worth mentioning in a second-class hotel was now not the presence of an elevator, but its absence. A decade later, the question of whether the modern conveyance belongs to a hotel's amenities had disappeared entirely from the discourse of the guides. In the editions of the 1920s, all specificities about luxuries had been removed from the standardized introductory sentence about the hotels. Now there was only the generalization, "The large first-class hotels in the metropolises offer the usual international conveniences."[25] In the hotel business, the elevator had become such a matter of course that its presence required no special mention.

The Baedeker guides provide evidence not just of the gradual establishment of the new technical apparatus, but also of its accompanying effect on the hierarchical structure of the hotels. The elevatorless order—the privileging of the lower stories—was still clearly evident in the early editions, as in this advice from the 1862 guide to southern Bavaria regarding guest services in Munich hotels: "If one needs information about anything, rather than approaching the subordinate staff it is better to turn to the hotel proprietor himself or the maître d'hôtel, since the former is occasionally available only to the guests on the *bel étage*."[26] In 1883, the authors of a guide book for hikers in Switzerland advised them to seek out the "inexpensive small hotels" rather than "the grand hotels in the latest style, where the better rooms are reserved for families or guests who can be expected to book in advance, while single travelers, especially in the high season, must climb to the fifth floor or get a small room giving onto the courtyard for the same price."[27] The vertical hierarchy of the hotels was especially evident whenever the Baedeker guides included a list of prices for the various floors in their recommendations. Thus the 1883 guide to central and northern Germany listed these prices for Berlin luxury hotels: "On the upper floors and facing the courtyard 2–2½ marks, ground floor and second floor 4–7 marks."[28] The price list for rooms in the luxury category in the 1885 edition of the Paris guide shows that the simplest rooms on the fifth and sixth floor would cost five francs, those on the second floor ten francs.[29] The most detailed information was provided by the fifteenth German-language edition of this guide, published in 1900, in the table listing the room prices for the two luxury hotels Elysée Palace Hotel and Hotel Terminus:

ELYSÉE PALACE HOTEL:	HOTEL TERMINUS:
Entresol: 12–20 F	2nd floor: 10–18 F (facing courtyard 8–12 F)
2nd floor: 8–40 F	3rd floor: 9–16 F (facing courtyard 7–10 F)
3rd–5th floor: 7–10 F	4th floor: 7–14 F (facing courtyard 6–9 F)
6th floor: 6–9 F	5th floor: 6–12 F (facing courtyard 5–8 F)
	6th floor: 5–7 F (facing courtyard 4–7 F)[30]

This table is one of the few detailed price lists still extant from the turn of the century. It is a valuable document, for the vertical and horizontal order apparently still obligatory for European hotels in 1900 would soon be a thing of the past. The fact that the rooms on the street side of the hotel were in every case more desirable and expensive than those facing the inner courtyard began to change with the increase in street traffic. The shifts in relationships among the various floors were a result of the elevator: the lists of differential prices gradually disappeared from the guidebooks, doubtless because from about the 1920s on, it was no longer possible to posit a direct connection between the floor and the quality of the rooms. The following edition of the Paris guide from 1905 dispensed with this kind of statistic. The formulation "Rooms are priced according to floor," basically repeated in the introductory note to all the early guidebooks, began to disappear in the editions of the 1920s and was gone completely by the 1930s. From that point on, rooms were differentiated by other criteria, such as whether they had a private bath. The hotels' vertical hierarchy disintegrated thanks to the elevator, whose explicit mention as a criterion of luxury disappeared from the guidebooks at precisely the same time that the lists of room prices became obsolete. By the 1920s, although the history of European hotels had not yet resulted in a total reversal of the hierarchical order as in the cities of the United States, one can at least speak of a leveling process.

GARRET ROOMS, 1839: POOR POETS AND ELOPING COUPLES

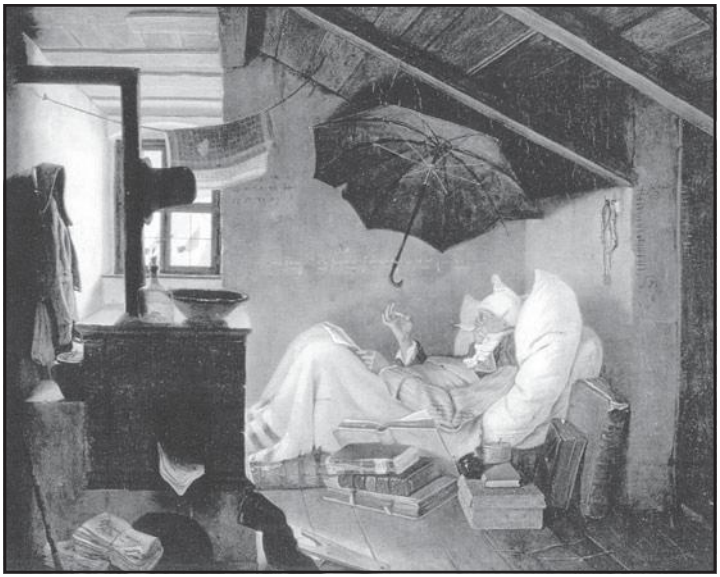
In his 1957 work *The Poetics of Space*, an attempt to construct a "psychology of the house," Gaston Bachelard introduced the idea of a "consciousness of verticality."[31] The house, he wrote, "differentiates itself in terms of its verticality" and can be divided into various levels from the cellar to the attic, each with specific semantic characteristics.[32] Precisely this "consciousness of verticality" is a touchstone for an

examination of the elevator in the history of domestic life. How did the perception and use of the rooms change because of the conveyance? What connections can we make between the history of technology and the semantics of spaces? The vertical extension of buildings proceeded in an identifiable sequence into the twentieth century, as we have seen from the history of the hotel. But in order to answer more or less adequately the question of the elevator's influence on the development of the "consciousness of verticality," we must broaden our investigation to include not just hotels, but other types of buildings as well. We need to analyze the structure of tenement and office buildings before and after the introduction of the new conveyance. Not surprisingly, Gaston Bachelard entitled the first chapter of his book "From Cellar to Garret." As the upper reaches of a building, attics and garrets were obligatory locations well into the twentieth century, both in one-family houses and—beginning in the second half of the nineteenth century—in multistory tenement houses as well. Until recently, these rooms have received almost no attention from historians; with the exception of Bachelard's (actually quite limited) interest, they are overlooked in works of cultural history although they repeatedly play a role, especially in literature and painting. Even if no compendium of literary motifs and themes grants them an entry, there are remarkable connections among the narrative and dramatic texts whose topography is structured by garrets. Thus to describe the vertical organization of late nineteenth-century buildings, we may find it useful to turn to literary images of the building and to the regularly recurring functions of garrets before the appearance of the elevator.

In the course of the twentieth century, these locations disappeared. It would be difficult to find a text from the last fifty years that is set in the present but takes place in an attic or garret room. Their sharply defined semantics, however, survive in clichéd metaphors such as the "artist's garret," which continue to remind us of a certain connection

between the dwelling type, the economic situation, and the orientation of the artwork. Where are the ur-scenes of this paradigm to be sought? Even today, without any doubt, the most enduring representation is Carl Spitzweg's 1839 painting *The Poor Poet*.[33] It presents the iconographic unity of the garret and artistic isolation in its most condensed form. All the details—the dying embers in the tile stove, the umbrella patching a leaky ceiling, the empty change purse hanging from the wall, the candle-end, the empty ink bottle on the floor—draw our attention to the material want of the solitary poet, declaiming his verses from his bed. Art historians emphasized that the painting's composition seized upon a "recent cliché"[34] and followed a contemporary "convention of the iconography of poverty."[35] In fact, the garret room and its poetically ambitious inhabitant belong with other motifs popular in early nineteenth-century European painting that illustrate a withdrawal from the world. Besides the scattered insignia of squalidness, Spitzweg makes this clear above all in the structure of the room. The bed is placed in its darkest possible corner. The window at the left, while serving as vanishing point, seems blocked off from the viewer, admitting hardly any light into the room. Looking out, one can barely catch sight of snow-covered roofs across the way.

In the same year *The Poor Poet* was painted, the Romantic writer Ludwig Tieck published a novella entitled *Des Lebens Überfluss* (Life's excess), in which the structure of space evinces a palpable similarity to Spitzweg's canvas. The novella tells the story of the socially unacceptable love between the bourgeois Heinrich and Clara, the daughter of a country squire. When their love letters are discovered, they flee across the border into the neighboring principality, marry in secret, and go into hiding in the capital city. They live clandestinely in the "narrowest and darkest street of the little suburb"[36] "in a little house"[37] whose garret they have rented under an assumed name. Tieck's novella, the "late summing up" of the Romantic era,[38] casts an ironic



Carl Spitzweg, *The Poor Poet*, 1839.

light on the essentialism of the Romantic concept of love, its mania for the natural that condemns even the slightest cultural embellishment of life as a falsifying "excess." (Not surprisingly, the eponymous word occurs fourteen times in the course of fifty-four large-print pages.) In a variety of ways, Tieck elaborates the situation of the couple, who have taken the precaution of cutting off all contact with the outside world. For months Heinrich and Clara don't even leave their room (a servant girl who has come along on their flight procures the necessities for them). They live in utter poverty; their only contact is with each other. They even lack books, paper, and ink, but Heinrich has kept his old diary, which he reads from back to front to recapitulate the history of their escape. They don't experience this situation as isolation, however, but think of themselves as "Adam and Eve in Paradise."[39] The authenticity of their love grows in proportion to the intensity of their outward deprivations. Like the course of the plot, the almost parodic tone of the novella indicates that at the end of the

era, Tieck was interested in the latent autism of Romantic inwardness. With regard to the present chapter, however, the question of topography is decisive. What location does Tieck choose to tell his story of withdrawal? Just like Spitzweg in the most famous painting of the Biedermeier period, he chooses a garret. In the early phase of European urbanization, poets and painters who wanted to illustrate seclusion within a city had recourse to attic rooms. The lighting alone offered them good opportunities. Thus the "poor poet" lies in near darkness, far from the narrow window, which doesn't afford much of a view in any case. The description of the view in *Life's Excess* is like a reminiscence of Spitzweg's painting:

> The builder of this little house must have been in a strange and almost unimaginable mood, for beneath the windows of the third floor the lovers inhabited there extended a fairly wide tile roof that made it completely impossible for them to look down into the street. If this roof completely cut them off from all contact with other people, even when they opened the windows in the summer, so did the smaller house across the street from theirs. For it only had apartments on the ground floor, and so they never saw windows or figures standing by them, but only the vast roof, black with smoke that began nearby and then angled up and away from them. . . . It is not easy for people in live in as complete an isolation as these two had achieved here.[40]

Thus we have the garret in 1839, an isolated room with the power to excite the imagination of its inhabitants. Twenty years earlier, E. T. A. Hoffmann, one of the first contemporary authors to make city life the object of his stories, had already recognized this correlation. The last tale published during his lifetime, "My Cousin's Corner Window," tells of an ailing poet whose only pleasure is observing a market square in Berlin from his attic lodgings and conjecturing about the biographies of the passersby. "It is necessary to mention that my cousin lives in a small room with a low ceiling, high above the street. That is the usual custom of writers and poets. What does the low ceiling matter? Imagination

soars aloft and builds a high and cheerful dome that rises to the radiant blue sky."[41] Even if the view from this attic window has no obstacles to take into account, Hoffmann is already emphasizing the connection between the height of the dwelling and the power of imagination, a connection reinforced by Tieck's characters. The upward flight of imagination in the garret is expressed in Heinrich's aspiration to make their solitude ever more absolute, until at last it occurs to him to dismantle the staircase between the attic and the ground floor and use it as fuel for their stove. This is the story's clever climax: their withdrawal from the world culminates in the gradual disappearance of the only stairway. A means of access is transformed into a means of survival, a connection into kindling. Exchange with the outside world is sacrificed for the comfort of the immobile body, a principle that the "poor poet" also takes to heart by burning his own works in his stove, thereby eliminating contact with his potential readership.

This extinguishing of literary and architectural means of communication exemplifies the fact that garrets are locations of precarious self-absorption. When Heinrich in *Life's Excess* finally admits to his wife where the fresh firewood is coming from, he prepares her for the fact "that for the time being, even more than before, we will have to be enough company for each other. For how would an invitation to an afternoon coffee ever reach you up here? No, I'm all you need and you're all I need."[42] To be sure, this insular existence is abruptly brought to an end when the landlord returns from a spa, unnoticed by his tenants in the garret. After discovering that the stairway is missing, he notifies the police, but at the decisive moment the lovers are found and rescued by a well-to-do friend of Heinrich's. This last plot twist has the gesture of a moral lesson. Heinrich, the enemy of the stairs, owes his liberation to a steadfast connecting link: an old volume of Chaucer's works he had sold to an antiquarian book dealer after their flight. To its flyleaf he had entrusted their story as well as the address of their

hideout. His friend, who had given him the book as a present, happened upon it in another antiquarian bookshop and thus learned what had happened. At the end of the story, he hands it back to him with the well-founded remark that the book is "amazingly enough the stairway that has brought us together again."[43] The epoch of emphatic self-isolation has been overcome, both in the life of the hero and in the biography of his creator.

THE HYGIENISTS' BATTLE AGAINST THE TENEMENT HOUSE

Spitzweg's painting and Tieck's novella illustrate the semantics of the garret on the threshold of a new era in which how people live would be profoundly reconfigured. Beginning in the 1840s or 1850s, in the wake of urbanization, a completely new form of construction became established: the multistory tenement house. The historian Clemens Wischermann described its increasing presence in Hamburg, for example: "Within a few years, the previously unknown tenement clearly becomes the standard for new home construction; this type of dwelling accounts for almost the entire increase in housing since the 1850s."[44] Heinrich and Clara's romantic attic room was still located in a building of only three stories in which the landlord also lived. The Biedermeier urban scenes of Spitzweg's early works also typically consist of narrow buildings of at most four stories. Around the middle of the nineteenth century, these conditions were fundamentally transformed, as a disconcerted contemporary of Spitzweg's recorded in his memoirs: "In place of well-built bourgeois dwellings for individual families, there arose on the linear streets barracks-like apartment cubes that piled story upon story, inhabited in place of families by groups of people, layered one above the other and alienated from their fellows."[45] In the largest German cities, statistical records of the distribution of apartments on various floors reveal that while a fourth floor was almost unheard-of in the 1840s, that was where the majority of the

population was living a scant half century later.[46] Between 1860 and 1880, the recorded average number of inhabitants per building multiplied in almost all German cities. The epoch-making transformation of European cities began in Paris under Louis Napoleon and Haussmann. Accomplished in barely twenty years, the metamorphosis of Paris was unmatched in extent and political energy. Nevertheless, all the rapidly expanding metropolises of continental Europe modeled their construction practices on the changes occurring in Paris. In the 1860s and 1870s, the construction of wide boulevards and ring roads between inner and outer districts, lined with continuous rows of multistory apartment buildings, emerged as the predominant principle of spatial expansion, a development that the urban reformer Rudolf Eberstadt, one of the most prominent German critics of tenement buildings, described at the beginning of the twentieth century as a pan-European contamination: "Paris was the widely admired modern metropolis. . . . Monumentality—grandly proportioned streets, squares, and building facades—became the fashion in city planning, adopted and further elaborated in Cologne and Berlin, in Amsterdam and Vienna. In continental urban construction, 'cosmopolitan' became synonymous with grand buildings and outward display."[47]

As soon as the first mass tenement houses were built, they came under criticism. As early as the 1840s, there were scattered studies of living conditions among workers' families in large cities, where they were housed in the newly built multistory buildings.[48] It is fair to say that the so-called housing question, an object of much academic and political discussion in the late nineteenth and early twentieth centuries, is inseparably coupled to the beginning of urbanization and the establishment of what the Germans called *Mietskasernen*, "rental barracks."[49] From the beginning, the indeterminate density of habitation within the buildings, their crowded multiplicity of apartments and lack of large courtyards and gardens were regarded as problems, and the

consequences for the inhabitants' physical and moral well-being were analyzed. This was the beginning of a long-running debate about the relative merits of mass-occupancy tenements and the British model of single-family houses.

One cannot exaggerate the role played by discussion of urban housing in the birth of the "public health" or "hygiene" movement gaining momentum in Germany in the second half of the nineteenth century. In the tradition of the "Complete System of Medical Policy" elaborated by the German physician Johann Peter Frank (1745–1821), but under the new conditions of urbanization, the public health movement attempted to influence not just the construction of slaughterhouses and morgues, the preservation of food, and the suppression of prostitution, but also the planning of sewers and the paving of streets. The establishment of what Foucault called a "bio-power," which "exerts a positive influence on life, that endeavors to administer, optimize, and multiply it, subjecting it to precise controls and comprehensive regulations,"[50] can be precisely traced in the hygiene movement, which arrived relatively late in Germany.[51] In the name of "public health," it sought to control urban living conditions in the most diverse areas, its touchstone being always the legitimacy and transparency of paths of circulation (be they for foodstuffs, sewage, or people). Acting hygienically meant establishing reliable channels and avoiding obstructions. In Germany, two factors accounted for the coalition of physicians, politicians, architects, and economists in an organ such as the *Deutsche Vierteljahrsschrift für öffentliche Gesundheitspflege* (German quarterly for public health), the hygienists' "central forum for discussion."[52] One factor was the problematic living conditions in the rapidly growing cities (Berlin doubled its population to a million between 1862 and 1876); the other was the susceptibility of the densely populated districts to the cholera and typhus epidemics that led to record-breaking mortality rates in the cities.[53] Against this backdrop, it is understandable that hygiene came into focus as the science of

prophylaxis. Given the transformed housing conditions in the cities, what was at stake was the creation of circumstances that would prevent the spread of future epidemics. As the great Berlin pathologist Rudolf Virchow wrote in 1868, "The great progress made by modern healthcare lies in preventing more and more illnesses. We must therefore direct our attention to the living conditions of the population."[54]

In order to ensure the most reliable prophylaxis possible—"such as inoculation against smallpox"[55]—the hygienists concentrated their attention from the beginning on so-called building hygiene, that is, the effort to correct inadequacies in the development of urban housing and above all, establish guidelines for the creation of new mass rental housing. As James Hobrecht, city planner and mayor of Berlin in the 1870s, stated in his pathbreaking work of 1868 entitled *Über öffentliche Gesundheitspflege* (On public health), "In the most important respects, our dwelling place creates the conditions for the weal or woe of our existence. Depending on circumstances, it either gives or withholds irreplaceable sources of life: air and light. Its qualities have such continuous and lasting effect on our health that it must be the chief object of attention for the concerned eye of public health care."[56] Hobrecht emphasized that "from the point of view of sanitation" there were as yet absolutely no legal regulations in the building codes for dwellings and thereby identified a gap whose closing would be one of the most important concerns of the Deutscher Verein für öffentliche Gesundheitspflege (German Public Health Association), which grew out of the quarterly journal *Deutsche Vierteljahrsschrift für öffentliche Gesundheitspflege* in 1873. In the 1860s and 1870s, as continuous rows of multistory tenements began to be built, there was no legal structure in place to deal with the new construction practices. Existing building codes (Berlin's, for example, was from 1853) addressed only questions of fire prevention and until the middle of the century focused primarily on single-family bourgeois residences. In

Berlin, where the new neighborhoods planned in 1862 on the model of Paris created the conditions for the wholesale construction of mass tenements,[57] there were no legal restrictions on the number of floors. In the 1870s, buildings sometimes reached seven stories in height. This was the situation facing the incipient German hygiene movement at the time the German Reich was founded in the wake of the Franco-Prussian War: in metropolises like Hamburg, Danzig, Breslau, Dresden, Munich, and above all Berlin, the concept of the mass tenement building was already established. The lack of regulations controlling the density of development or the number of stories ensured that living conditions in the vast, overcrowded buildings became increasingly dire. Thus hygienic criticism focused on living conditions in the tenement houses, which were identified as the breeding ground for repeated cholera and typhus epidemics, as well as the spread of tuberculosis beginning in the 1890s.

Dwelling-place hygiene is especially concerned with two areas: promoting and overseeing expanded sewer systems and sanitary facilities in the tenements, and combating increases in the number of stories. All the basic questions of public health—how to accurately document and then lower the high mortality rate in the big cities, how to identify the connections between urban living conditions and the occurrence of certain diseases—were from the beginning tied to the question of the vertical location of apartments. For example, one of the most frequently repeated demands of the *Vierteljahrsschrift* was the standardization and accurate completion of death certificates. In this discussion, the information value of the floor of the apartment was repeatedly emphasized.[58] The value of knowing the floor where the deceased lived should not be underestimated as one important piece of evidence in the "mortality statistics" that the hygiene movement used to formulate its diagnoses and recommendations. The head of the Berlin Municipal Office of Statistics, Hermann Schwabe, presented the data from the

capital at the second annual meeting of the Association for Public Health:

> The mortality rate is lowest in the *bel étage*, where 21.6 of every thousand inhabitants die annually. Above and below it, the rate increases: 22 of every thousand on the ground floor, but 25.3 in the basement. Continuing upward, mortality is 21.8 per thousand on the third floor, 22.6 on the fourth floor, and 28.2 from the fifth floor up.[59]

This listing is eloquent in several respects. First of all, it reflects the vertical order that remained in effect in mass tenements into the twentieth century, with its center on the second floor, the so-called *bel étage*, and a continuous decrease in value the closer one approached the outer limits of basement and garret. This hierarchy was extensively documented in the essays and manuals of the housing reformers, and also clearly reflected in the precise statistics of rental prices, which unanimously document that in the time between the founding of the German Reich in 1871 and the start of the First World War in 1914, the most expensive apartments were on the second floor, the moderate-priced ones on the first, third, and fourth floors, and the much cheaper ones in the basement or on the fifth floor or higher.[60] As early as the Berlin census of 1867, this structure was being described in the drastic terminology eagerly adopted by the hygienists: "One can . . . describe the apartments on the first three floors as normal, those in the basement or on the fifth or higher floor as abnormal."[61]

The fact that around 1870, apartments were already being discussed in the categories of pathology suggests that the hierarchical order of the tenement houses had consequences beyond simply a certain distribution of income level. As Schwabe's statistics made clear, at stake was the existential danger of certain "abnormal" dwelling levels. It was above all infant and child mortality in the large cities, already identified in the first volume of the *Vierteljahrsschrift* as "one of the most important topics for public health to address," that was repeatedly connected

to floor of the dwelling.[62] For differing reasons, apartments in the basement and on the upper floors were the most problematic areas of the tenement building, those in the basement because of their dampness and darkness, those on the upper floors because of their stuffiness, lack of protection against the heat of the summer months, and difficulty of access. From the beginnings of public health to the high-water mark of the housing policy debate before the First World War, the condemnation of apartments on the upper floors did not cease. Rudolf Virchow, for example, also exploited the statistics mentioned by Schwabe in his 1873 report *Reinigung und Entwässerung Berlins* (Purification and drainage of Berlin) and attempted to clarify the salient mortality rates: "Among the conclusions that clearly emerge from the analysis of conditions in dwellings on the upper floors, we must mention above all the number of stillbirths. Their frequency in the women who must climb up so high is frightening."[63] In contrast to 1.3 stillbirths per thousand among the inhabitants of the *bel étage*, among inhabitants of the fifth floor or higher the rate was 1.7. "These numbers," Virchow wrote, "speak for themselves."[64] But the focus was not just on excessive stair-climbing for pregnant women, but also on the fact that children and older people living five or six stories up went outside much less often. In 1886, the Berlin hygienist Hermann Wasserfuhr wrote, "because of the difficulty of stair climbing, apartments just under the roof condemn their inhabitants—especially weak or sickly persons—to much more indoor air than is the case for families living on the lower floors."[65] And that was so dangerous precisely because the temperature and air quality became worse the higher one climbed in the tenement house. Precarious access lengthened the time spent in precarious rooms, a vicious cycle the housing reformers tried to break by demanding that housing construction be reoriented on the English model of the single-family house. "If children and baby carriages have to be carried up and down three or

four flights of stairs every time one goes outside, it becomes a rare occurrence. In small houses spread out over more area, going in and out of the house is so easy it can be done numerous times per day."[66]

The unhealthiness of some floors of a tenement house had become such an urgent problem by the end of the nineteenth century that the newly founded health insurance funds commissioned surveys on the connections between living conditions and susceptibility to illness.[67] The largest and longest-running among them was conducted by the Berliner Ortskrankenkasse für den Gewerbebetrieb der Kaufleute, Handelsleute und Apotheker (Berlin health insurance fund for merchants, tradesmen, and apothecaries)—after 1914 renamed Allgemeine Ortskrankenkasse (General health insurance fund). From 1901 until 1920, an annual report was published on the living conditions of members who had fallen ill (mainly from tuberculosis). Extensive questionnaires and photographs documented in detail their living conditions, and the question of floor number always appeared as a separate category in the forms, which offered the options "ground fl.," "_____ floor," "attic," and "basement apt."[68] For the housing inspectors as for the statisticians of mortality, the vertical location of the apartments played a central role, a fact still reflected in the title of the 1982 reissue of Berlin photographs from 1901 to 1920: *Hinterhof, Keller und Mansarde* (Rear courtyard, basement, and attic).[69] Almost without exception, the chronically ill in the tenement houses lived in the locations featured in this title, and eighty years later, it was symptomatic of the vertical organization of apartment buildings around 1900 that a book title meant to attract maximum attention continued precisely this identification of above and below. Until about 1920, basement and attic apartments were both condemned in hygienic discourse.

It is instructive to observe the success of the public health movement in the nineteenth century as it strove to eliminate dwellings in these locations. A glance at the

revision of urban building codes, for instance, shows that from about 1880 on, hygienic demands were transformed into judicial facts. The initial failure to regulate the number of stories was corrected, as one can see from the revised building codes of Munich (1879),[70] Vienna (1883),[71] Prague (1883),[72] Berlin (1887),[73] and Breslau (today's Wroclaw, 1892).[74] All these regulations had been supplemented with almost identically worded clauses restricting to five the number of stories in new apartment buildings, and the influence of the hygiene movement on the change in the law frequently received explicit mention. Thus the introduction to the new Prague building code referred to the annual meeting of the Public Health Association in 1875 and expressed gratitude for the "food for thought"[75] that it had provided "in the area of sanitation."[76] The annotator of the Breslau building code, on the other hand, lamented the relative tardiness of the revisions of 1892: "A large number of apartment buildings of more than six stories owe their existence to this fact."[77] Thus the vertical increase in building size, occurring in a virtually unregulated environment in the early phase of urbanization, was prohibited from the 1880s on, and tough restrictions on the habitability of the attic story were formulated. The Berlin building code of 1853, for instance, gave no attention to this question. By 1887, on the other hand, article 37 specified that apartments were permitted only as high as the fifth floor.[78] Wording added in 1897 added the explanation that "attic rooms" above that level were not to be regarded as "rooms meant for long-term human habitation."[79] By the end of the nineteenth century, laws were in place in Germany that prohibited rental apartments on upper stories, at least in newly constructed buildings. The regulations in some other European metropolises were even stricter. According to the revised statutes of 1883, within the city limits of Vienna and Prague, "the installation of dwellings in attic rooms is forbidden without exception."[80] Only small single-family houses at the edge of the city were not affected by

this regulation: "Living spaces in attics are permitted only in single-family houses and villas."[81]

Why is it necessary to include these hygienic and judicial attacks on upper-story dwellings in a history of the elevator? Because they are imaginable only in an era whose image of the apartment building did not yet include the still largely unknown conveyance. From about 1910 or 1920 onward, the battle against the fifth floor was largely abandoned. In the diction of the public health movement, one could say that the upper stories became "normalized" (and beyond that, even glorified). But how exactly shall we describe the elevator's reprogramming of "apartments on abnormally high floors"?[82] What influence did the technical apparatus have on the arguments of the hygienists? One could say that it played both a direct and an indirect role. For one thing, the elevator quite simply made it possible for the inhabitants of the upper floors to avoid the hardship of climbing stairs and so ensured that pregnant women no longer had to "climb up so high" and children "going outside" was no longer a "rare occurrence." Thus the elevator directly put an end to many of the public health objections by making vertical access to all the apartments in a tenement building equally available. For another thing, however, it indirectly set something in motion that is more difficult to localize. One could call it a change in the "imaginative potential" of the top floor. For as the elevator became established, it is remarkable that even those unhealthy aspects of apartments on the upper floors that remained unresolved by the installation of the new conveyance lost their urgency. We must wonder why the hygienic ambition of a "pathology of the upper stories" in the early twentieth century subsided, although the heat and stuffiness of the apartments in fact continued. Without ignoring other relevant factors such as techniques of thermal insulation or air conditioning, we are still left with the suspicion that beginning in the second decade of the twentieth century, a changed perception of upper-story dwellings—a

new "vertical consciousness"—was created by "the elevator" as a concept of the collective imagination, as well as by the organization of newly constructed apartment buildings with their rooftop gardens and penthouses. It is no accident, for example, that in his famous chapter about spaces in *The Structure of the Artistic Text*, Yuri Lotman chose the following examples of "binary semantic opposition" in nineteenth-century novels:

> The world is divided up into rich and poor, natives and strangers, orthodox and heretical. . . . In the text, these worlds, as we have said, almost always receive spatial realization: the world of the poor is realized in the form of a poor suburb, the slums or *attics*, while the world of the rich is realized as Main Street, a palace, or the *dress circle of a theatre*.[83]

In the age of the elevator, Lotman's binary oppositions could no longer be maintained. The scope of this transformation in the early twentieth century becomes especially clear when we reflect that from the beginning, hygienic discourse about the upper stories included both physiologic and moral aspects. Along with the quality of the rooms, the behavior of their inhabitants was always simultaneously subject to scrutiny as well—the day laborers, messenger boys, widows, and proletarian families who populated "the two extremes of dwelling location"[84] (especially the upper stories, since the relatively well-to-do proprietors of ground-floor shops often lived in the basements beneath them). Numerous hygienists leave us in no doubt that the unacceptably high mortality rate on the upper floors had to do not only with the unhealthy conditions of the apartments or with the poverty of the renters, but often with irregularities in their family life. Thus Carl Flügge, one of the most vehement advocates of the single-family house, speculated that the high rate of infant mortality on the attic story could be connected to the fact "that there are, for example, usually more bottle-fed or more illegitimate children there who are more likely to succumb to gastro-intestinal illnesses."[85] The ease with which the connections between apartment location, family composition,

and disease susceptibility were posited here demonstrates how the top floor was still being interpreted in the early twentieth century. The appearance of the elevator severed these connections. Beyond the creation of healthier access, it domesticated an entire region of the building in both an architectonic and an ethnologic sense, as it were. It engendered a completely different upper-story "ethic." For this reason, the decades-old association of basement and attic was radically split apart beginning in the 1920s. As a concrete result of the hygiene movement, the basement as a dwelling level disappeared from the cities. The top floor, on the other hand, entered its heyday.

THE SEMANTICS OF THE ATTIC AROUND THE FIN DE SIÈCLE

The problematic status of the upper stories that emerged in hygienic and judicial discourse at the end of the nineteenth century was also discernible in literary images of apartment buildings. To better understand the topographical structure of texts in which attics play a central role, one must bear in mind that in the 1880s, the revised building codes in Berlin and Prague prohibited attic apartments "without exception." Four major literary works from turn-of-the-century Europe use attic rooms as settings: Henrik Ibsen's play *The Wild Duck* (1888), with the photographer Hjalmar Ekdal's strange attic studio whose back room is revealed to be an artificial nature preserve; Robert Musil's short novel *Young Törless* (1906), set largely in the secret attic hideout of a group of military school students; Gerhart Hauptmann's play *The Rats* (1911), set in the attic of a Berlin tenement that the failed theatrical director Hassenreuter has converted into a costume rental agency; and finally Franz Kafka's novel *The Trial* (1914), with its famous court offices in attic rooms on the outskirts of a city. What function do these locations have in their respective texts? How does their artistic deployment relate to contemporary hygienic caveats with regard to buildings? Over and above the obligatory bleakness and

poverty of these attic rooms, we can perhaps define seven characteristics they share:

STUFFINESS

When one recalls that poor air quality was one of the most important arguments of public health advocates against the attic region, a story like *Young Törless* sounds almost like an experiment to prove their thesis. At one point the boys are entering their secret hideout: "From inside the attic came a breath of warm, stale air, like that in small hothouses. . . . On one side of them were some large water-tubs for use in case of fire. It was obvious that the water in them had not been changed for a very long time; it had a sweet, sickly smell. The whole place was oppressive."[86] The mention of the climatic conditions in attics always signals the importance of their effect on those present. The lack of fresh air is exactly the reason for the "oppressive" atmosphere. This same association is also established in *The Rats* when Hassenreuter's mistress, arriving in the attic for a secret rendezvous, immediately notices that the air is "a bit heavy."[87] And in *The Wild Duck*, before a decisive conversation with his wife about whether their daughter was actually fathered by another man, Hjalmar Ekdal sends the girl out of the apartment with the words, "All these fumes in here aren't good for you; the air here under this roof is bad."[88] In attics, both the climatic and the communicative conditions are oppressive; sluggish circulation befalls both oxygen and fresh, independent thought. Especially those still unaccustomed to the stuffiness of attic rooms must fear loss of control.

This constellation is a frequent theme in Kafka's *Trial*. When Josef K. is overcome by dizziness during his first visit to the court offices, a woman who works there says,

> "Well, you see then, it's nothing at all unusual. The sun beats down on the attic beams and the hot wood makes the air terribly thick and stifling. That's why this isn't such a good location for the offices, in spite of the many other advantages it offers. But as far as the air is concerned, on days when the traffic of involved parties

> is heavy you can hardly breathe, and that's almost daily. . . . But in the end people get quite used to the air. When you come here the second or third time, you'll hardly notice the stuffiness at all."[89]

Helplessness in the face of the impalpable court is demonstrated by the fact that the accused's ability to breathe is literally reduced. In the attic, Josef K. begins to stagger, although, as he says, he is "an official myself and I'm used to office air" (75). In his office on a lower floor, however, with its "huge plate-glass window" (66), the climatic conditions are completely different, as is repeatedly emphasized. Obviously the location of the court even changes the body's constitution, for we learn that since the lungs of the court officials have grown used to the stuffiness of the attics, they can no longer cope with conditions outside the offices. When Josef K. is helped to the exit by two workers after his attack of vertigo, as he bids them farewell he notices "that they were unable to bear the comparatively fresh air from the stairway, accustomed as they were to the air in the offices of the court. They could hardly reply, and the young woman might have fallen had K. not shut the door as quickly as possible" (79). Something similar happens to Musil's Törless, who has been so thoroughly initiated into attic existence by his comrades Reiting and Beineberg that he can no longer stand the "vigor" and "man-of-the-world confidence" of the boys returning from vacation (133). The outside world "shamed him, who now cared only for the stuffy air between four narrow walls" (133). Thus the climatic conditions in the attic create a disturbance in perception repeatedly emphasized in *The Trial*. The atmosphere in the court offices give rise to *Schwindel* in both of its senses in German: dizziness and deception. Both Josef K.'s balance and his sense of reality are put to the test. The location of the court engenders vertiginous sensations as well as illusions. That's why the oppressive atmosphere is referred to throughout the novel every time Josef K. comes into contact with the court, and above all when he visits the studio of the painter Titorelli. One could say that in the attic, the subject's sense of self is endangered. Lack of access to

the free circulation of breathable air drastically increases the feeling of being at the mercy of powers already acclimatized to it. In this respect, it is not surprising that the experiments in hypnosis practiced on the weak-willed Basini in *Törless* take place in the attic. Conditions there are declared "favorable" as the boys prepare the hypnosis session: "the stale air, the foul, brackish smell emanating from the water-tubs, all this generated a feeling of drowsiness, of never being able to wake up again, a weary, sluggish indolence" (147). There can be no doubt that the stuffiness of the attic threatens to blur the border between reality and illusion.

UNCANNINESS

The attic twilight is above all the product of insufficient lighting. In place of the equally spaced windows typical of the apartments and offices on lower floors, the garrets under the eaves contain only slanted skylights, isolated "small windows," or no source of natural light at all. Vision is obscured in these locations. Thus according to the first stage direction in *The Rats*, the "prevalent gloom" of Hassenreuter's windowless costume collection makes it hard "to decide whether the place is the armour room of an old castle, a museum of antiquities or the shop of a costumer" (325). When Hassenreuter's daughter has an attic assignation with her lover, she experiences the riskiness of moving from daylight into the twilight of the attic. Unexpectedly, she stumbles upon the cleaning lady:

> WALBURGA: Why, dear me! Who is here? [She has cried out and is about to run away]. . . . But you do look like a ghost, Mrs. John.
>
> MRS. JOHN: How do you say I looks?
>
> WALBURGA: Oh, it just seems so when one comes out of the vivid sunlight into the darkness, into these musty holes. It seems as though one were surrounded by ghosts. (339–40)

In Hauptmann's drama, this comment is to be understood literally, for the inhabitants of the former cavalry barracks are convinced that the ghost of a soldier who hanged himself from the roof beam is still haunting the two-story attic.

When Hassenreuter discovers some costumes missing from his collection (they are being used for the clandestine delivery of the servant girl Pauline's illegitimate child on the attic's second floor), he summons the concierge, who immediately suspects the undead soldier. Everything that advances the plot (which revolves around Mrs. John's purchase of Pauline's infant) takes place in the attic: the first conversation between Mrs. John and Pauline in which the terms of the purchase and handing over of the child are settled; the acquaintance of the servant girl with Mrs. John's brother Bruno, her subsequent killer; and finally the death of a second infant whom Mrs. John has stolen from a neighbor's apartment in order to show it to an official as Pauline's child. It almost seems as if this location becomes a kind of catalyst for the spreading tragedy. In the words of a famous interpretation, the "dark, uncanny atmosphere" of the attic contaminates the other rooms and irrupts "directly into the sitting rooms of the upright bourgeoisie."[90]

The uncanniness of upper-story rooms unfolds precisely in contrast to the well-lighted "sitting rooms" on the floors below, the classrooms of Törless's boarding school, Josef K.'s office, or the villa of the merchant Werle in *The Wild Duck*, whose rooms are "brightly lit by lamps and candelabra" (393). Like the stuffy air, the diffuse light also ensures that the familiar coordinates of reality become confused. Thus when Törless would return from the attic room, "what he also liked was afterwards coming back into the daylight, walking among the other boys, and being back in the midst of their jollity, while he could still feel the excitements of solitude and the hallucinations of darkness trembling in his eyes and ears" (48). Especially in the case of Kafka's *Trial*, the question often arises whether one can really trust one's eyes in the sphere of the attics or whether they produce "hallucinations" instead. From the beginning, the action of the novel occurs on the threshold between reality and illusion, in the "twilight that falls between dream and wakefulness," as Gerhard Neumann puts it.[91] The focus is on the "anxious

question of whether the hero of the novel awakens from a dream into the reality of a world of laws or on the contrary, whether he steps from the world of wakefulness into the realm of bad dreams."[92] The entire novel is obviously organized by the "riskiest moment" when Josef K. wakes up in the morning, as suggested by his often-quoted first defense plea, which Kafka excised from the first chapter.[93] You could say that *The Trial* plays out the consequences of an unsuccessful act of waking up, the fate of a man whose presence of mind at the moment of opening his eyes was not sufficient to negotiate the precarious transition between the spheres. What is the consequence of this fluid borderline for the spatial structure of the novel? It gives rise to that impenetrable labyrinth of attic offices of which it's impossible to say whether it is a hitherto overlooked part of the familiar environment or in fact a completely different world.

EVOCATION OF THE PAST

One of the German words for attic is *Speicher*, which also means storehouse, warehouse, or granary. This points to one of the attic's primary functions, the conservation and storage of objects. The furniture of the attic stands unresolved between eras, belonging neither completely to the past nor to the present. Although not in immediate use, it hasn't disappeared or been destroyed either. Whoever shifts a great part of his existence to an attic like Ekdal in *The Wild Duck* or Hassenreuter in *The Rats* is reacting to some flaw in his present biography. In the attic, a happier phase of one's life survives. That's why the rooms in which Harro Hassenreuter gives acting lessons and runs his costume rental are furnished in the spirit of his earlier triumphs. Photographs of him as leading man, laurel wreaths, and red ribbons bearing texts extolling his art hang from the walls. Besides the three hundred crates full of old costumes, the only thing left over from better days is a love affair with one of his former actresses. The retreat to the attic as evocation of the past appears even more radically in Ibsen's *Wild Duck*. In

the topography of the play—the confusing domicile of the Ekdal family—a photography studio in the attic that connects the rooms for living and working to a sort of artificial wilderness with trees and small animals, is the antithesis of the imposing villa of Old Ekdal's former business partner, Werle. An unsuccessful real estate speculation accounts for the course of their contrasting biographies: Werle survives the mistake unscathed, while Ekdal, "a broken man, beyond any help" (405), after serving a long term in prison, is being cared for in the attic apartment by his son Hjalmar and daughter-in-law Gina, formerly a maid in the Werle household. As he does so often, Ibsen stages the eruption of a long-concealed conflict in *The Wild Duck*, putting the crumbling pillars of bourgeois existence to the test. In this play it is Gregers, Werle's recently returned son, who takes it upon himself to reveal that the familial happiness of Hjalmar Ekdal is based on lies. Apparently, Hjalmar and Gina's fourteen-year-old daughter, Hedvig, is in reality the product of Gina's affair with her former employer, Werle, who had arranged for Gina to approach and quickly marry the son of his sometime business partner so that he would think the child was his. *The Wild Duck* plays out the catastrophic effects of revealing these facts after fifteen years of concealment. The Ekdals' delusional order—both the old man's long-standing mental imbalance and the festering lie of his son's marriage—finds its exact counterpart in the spatial order of the play: the pretend wilderness of the attic, whose décor is supposed to remind Old Ekdal of a more intact phase of his biography. For the former "tremendous hunter" (423) Ekdal, the artificial forest stocked with wild animals has the same significance as the framed theatrical photographs and laurel wreaths for the director Hassenreuter. They compensate for their present incapacitation with an elaborate attic reenactment of their past.[94] As in *The Rats* (and to a certain extent also in *Törless*, where the schoolboys indulge in spiritistic fantasies in the attic room decorated to look like a thieves' den), the attic functions as a surrogate

space where present reality can no longer intrude. This sealing off becomes explicit when Gina and Gregers talk about the attic's furnishings—the cupboards full of old books a sailor once left behind:

GINA: And then there's . . . a huge clock with figures that are supposed to come out. But the clock doesn't go anymore.

GREGERS: Even time doesn't exist in there—with the wild duck. (436)

Clearly, the eponymous bird is introduced as a sort of heraldic animal of this illusionary world; it lies wounded in the attic just like its human inhabitants. Thus it is only logical that Hedvig commits suicide at the end of the play after Gregers has suggested euthanizing the bird. Annihilating the damaged "symbol of illusion and the lie they are living"[95] is equivalent to annihilating the damaged family itself.

Bearing in mind this temporal overlapping in attics, we return to the question of their uncanniness. For you don't need to have your entire biography tied up in attic rooms like Hassenreuter or Ekdal to know that what is stored there is never entirely stashed away for good. Even in those seldom-visited attics that serve as real storage rooms without being remodeled as places of permanent exile, it can happen at any time that the past forces its way into the present and supposedly superfluous objects prove to be significant. What a remarkable inventory of putatively lost paintings, documents, and posthumous works could be drawn up from the "sensational finds" discovered in attics in the nineteenth and early twentieth centuries (and continue to be made occasionally right up to the present). This location seems so predestined for the appearance of forgotten things that one would think the oppressive atmosphere actually brought them into existence rather than just preserving them. In the images of fantasy literature, this latent independent life of the attic plays a recurring role. The borderline between animate and inanimate material is called into question. One must entertain the possibility that there are still remains of life hidden among the objects, that the whole mixture might

begin to ferment. The conditions in attics are ideally conducive to the creation of monstrous entities. We need only think of perhaps the most famous of them all, the Golem of Prague, the figure of clay that, according to an old Jewish legend, Rabbi Loew both called into being and laid to rest in the attic of the Old New Synagogue.[96] The latent threat of this location results precisely from the close relationship between what is one's own and what is foreign; the monstrous thrives on the formerly familiar. To that extent, the "uncanniness" of the attic paradigmatically confirms the most famous definition of this concept. In his 1919 essay "The 'Uncanny,'" Sigmund Freud famously begins with the semantic ambivalence of the word *heimlich* (originally "belonging to the house, secure, snug," but currently "secret, concealed") and he explains why the same adjective can mean two diametrically opposed things by defining the uncanny as "that class of the frightening which leads back to what is known of old and long familiar."[97] In the logic of language and of emotions the same rules apply. The uncanny, Freud says, "is in reality nothing new or alien, but something which is familiar and old-established in the mind"[98] and the prefix *un-* in the German *unheimlich* ("uncanny") is "the token of repression" of what was once familiar.[99] There is good reason to apply it to a space that is defined by its function of storing the old-established. An uncanny atmosphere dominates the attic because the objects jumbled there preserve some hint of an incompletely processed relationship to their owners.

INACCESSIBILITY

Musil describes in detail the location of the secret attic room in *Törless*. To get there, the boarding school boys have to climb to the third story of the building.

> From there on the stairs became narrow and went up, in short flights at right-angles to each other, to the attics. And—as old buildings are often whimsical in plan, with an abundance of nooks and crannies and unmotivated steps—this staircase actually went a considerable way above the level of the attics, so that on the other

side of the heavy, iron, locked door, which blocked the way further, it was necessary to go down again, by a flight of wooden steps, in order to reach the floor of the attic.

What this meant was that on this side of the attic door was waste space some yards high, reaching up into the rafters. In this place, which hardly anybody ever entered, old stage-scenery had been stored, dating from school theatricals in the remote past. (45)

The imperfect "logic" (in the quote above "whimsical" is a translation of the original "unlogisch"—illogical) of old buildings results in the attic region's double remoteness. For one thing, it is located on the highest and most inaccessible level of the building. For another, this level itself is complexly ramified, divided into different chambers, fragmented stairs, and subsidiary levels. Musil describes precisely how much caution and concentration are required each time the three boys enter their dark hideout, protected as it is by snares stretched across the path. The ritualized ascent to the attic region leaves no doubt that it is not accessible to just anyone. Only at the end of a convoluted and booby-trapped path do the boys reach their chamber, where Beineberg and Reiting hatch their plots, keep a diary, and hold séances.

It is especially the obscure approaches to attic rooms that make them locations of voluntary isolation, a situation we see repeated in the dramas of Hauptmann and Ibsen. Hassenreuter's lover once remarks that his costume collection is reachable only by "questionable ways" (351)—in the original "auf Schleichwege" (on secret paths, surreptitiously)—and thus fortunately completely inaccessible to his asthmatic wife. When they hear a pistol shot from back in the artificial wilderness in *The Wild Duck*, Hjalmar says to a startled Gregers, "We're very lucky in the way the loft is placed—nobody can hear us when we're shooting" (440). There, as in Musil's boarding school building, the attic is not simply a single lofty room, but an "illogical" (in the Wilkins and Kaiser translation, "whimsical") network. Hauptmann's stage directions mention "an adjoining room" and "stairs" (325);

Ibsen describes the imitation wildlife sanctuary behind the studio as "an extensive, irregular loft room with many nooks and corners, and two separate chimney shafts ascending through it" (425). And of course, the labyrinthine complexity and inaccessibility of the attic rooms in Kafka's *Trial* are of special significance. Josef K.'s disorientation already begins during his first progress through the outer corridors of the court ("'Surely you're not lost already,' asked the court usher in amazement" [72]), even before he learns from his lawyer, Huld, that the remoteness of the offices only increases the more influential their official inhabitants are. "The gradations and ranks of the court are infinite, extending beyond the ken even of initiates. The proceedings in the courts of law are generally a mystery to the lower officials as well; therefore they can almost never follow the progress of the cases they are working on throughout their course" (118). From a certain point on, not even the lawyers have access to the seats of power: "The trial has entered a stage where no further assistance can be given, where it is being handled by inaccessible courts of law, where even the defendant is no longer within reach of the lawyer" (121). Scholarship on *The Trial* has clearly established that the power of the court can be neither located physically nor slotted into a hierarchy. There is no legitimizing authority to which all statements are referred as evidence, just as there are no rooms in sight to which the work of all the others leads. The "highest court, which is totally inaccessible to you and me and everyone else" (158) as Titorelli says to Josef K., ensures a constant fragmentation and shifting of responsibility that express themselves in the topography of the novel in two primary ways, both in the steadily increasing inaccessibility of the center of power and equally in a certain kind of expansion of the sphere of the court that one could call the "dissolution of space."

LIMITLESSNESS

Among the vexing characteristics of the architectonic order in *The Trial* is the fact that the attic court offices are

interconnected in completely unexpected places. What is true of the confusing personnel structure ("'So many people are connected with the court!' said K. with bowed head" [134]), is also true of the topographic structure. The reach of the institution cannot be determined. The threshold between its inner and outer aspects is constantly shifting. This uncontrollable proliferation of rooms is most conspicuous during Josef K.'s visit to Titorelli, "who lived in a suburb that lay in a completely opposite direction from the one with the law court offices" (139–40). The ascent to the painter's attic studio is explicitly described as an approach to a space that marks an end point: "The stairway that led to him was particularly narrow, extremely long, without a turn, visible along its entire length, and ended directly at Titorelli's door" (141–42). Nothing about its location in the city or in its building suggests that the studio could be a component of an extensive series of rooms. However, in the course of their conversation, Titorelli mentions a "second door" (155), barely visible behind the bed. Josef K. decides to leave through it, since the usual exit is blocked by the girls listening outside the door to the stairwell. As K. "looked through the open door" he is brought up short.

> "What's that?" he asked the painter. "What do you find so surprising?" he asked, himself surprised. "Those are the law court offices. Didn't you know there were law court offices here? There are law court offices in practically every attic, why shouldn't they be here too? In fact my atelier is part of the law court offices too, but the court has placed it at my disposal." (164)

Thus the "topography of power"[100] precisely mirrors the endless ramifications that also characterize the judicial process according to Titorelli and Huld the lawyer. Under the best of circumstances, indictments can be continuously "postponed" but never end in a decisive dismissal. As Huld tells him,

> "Try to realize that this vast judicial organism remains, so to speak, in a state of eternal equilibrium, and that if you change something on your own where you are, you can cut the ground out from under

> your own feet and fall, while the vast organism easily compensates for the minor disturbance at some other spot—after all, everything is interconnected—and remains unchanged." (119–20)

Like the series of trials, the series of rooms is never-ending. But in the context of this chapter the important question is this: in a European novel written in 1914, why is the attic the best possible setting for such a fantasy of limitlessness? Apparently it is exactly the upper regions of residential buildings whose comprehensibility cannot be guaranteed. In the imaginative ordering of a turn-of-the-century building it is still possible that in its remotest corners, just under the roof, an uncontrolled growth could begin, that rooms and corridors could proliferate unnoticed, overrun the walls dividing rooms and then those dividing buildings as well, establishing an extensive, ramified system. Kafka's novel is perhaps the most impressive evidence of a topographic imagination belonging to the age just before the final establishment of the elevator. The new conveyance put an end to precisely the remoteness of the upper stories, that is, the prerequisite for producing such fantasies of unlimited growth. To the limitlessness of the attic—the horizontal proliferation at the top of crooked wooden stairways—the elevator shaft opposes the clearly defined channel described in chapter 1.

ILLEGITIMATE RELATIONSHIPS

What kind of social relations emerge in the four attic texts? In Ibsen's play, the attic rooms are inhabited by a family whose blood relationships are in question. Hauptmann makes the attic the location of several love affairs as well as the place where the housemaid Pauline gives birth to her illegitimate child. Kafka houses his unofficial court offices in attics, and in Törless, the attic room is introduced as the secret hideout of a group of schoolboys. Bastards, foundlings, secret lovers, and clandestine organizations: attics are always places of suspect relationships. They are the place for assignations forbidden in legitimate spaces—the marriage bedroom or the authorized office. Whereas the

airy penthouse suites of late twentieth-century hotels will become the preferred location for honeymoons—the place where the privileged consummate their marriages—the attic story of elevatorless buildings around 1900 is where you cheat on your spouse. Thus on that Whit Sunday in Hauptmann's Berlin tenement, two pairs of secret lovers get in each other's way: Hassenreuter and the Viennese actress, his daughter Walburga and her tutor. Dubious familial relationships, illegitimate sexuality: the attic is the focal point not just for unmarried lovers and pregnant housemaids, but for the family in *The Wild Duck*, whose conjugal existence has been contrived by their child's actual father, and in *Törless*, for the homoerotic experiments of boarding school boys.

In the topographic structure of Musil's story, the attic has an especially important function because it represents an explicit counter-world to the school's official study hall, refectory, and dormitory. Its atmosphere is even capable of steering the course of one's thoughts in unusual directions, as Törless remarks after listening to Beineberg's spiritualistic musings:

> "Would you talk just the same if we were sitting downstairs among the others, who are doing their geography or history or writing letters home, where the light is bright and the usher may come round between the desks? Wouldn't this talk of yours seem a bit fantastic even to yourself there, a bit presumptuous, as though we were not the same as the others, but were living in another world?" (144–45)

One of the most remarkable aspects of the story's composition is that it consistently takes spatial and psychic systems into simultaneous account. Discovering a hidden level of the building means discovering a hidden layer of one's own consciousness, and by overstepping the boundary between legitimate and illegitimate space, the schoolboys inevitably also overstep the one between secure and insecure identity. The "confusions" of Musil's title character (the original title is *Die Verwirrungen des Zöglings Törless*—The confusions

of the pupil Törless) are topographically predetermined. The "narrow, winding passages of sensuality" (140) and the "weird alleys" (173) that Törless's imagination invades have their exact correspondence in the spatial structure of the school. Again and again, Törless's erotic and cognitive crises (such as Kant's "walls in the dark" [114]) are described in metaphors that also apply quite literally to the difficulty of getting one's bearings in the attic. Especially in the conversation with Reiting in which he first learns about the humiliations Basini is subjected to in the attic, Törless realizes that ruptures in life histories and in buildings are congruent. Because, Törless reasons, if it is possible that the intact biography of a fellow pupil can be destroyed from one day to the next, then

> this narrow little room was possible. . . . Then it was also possible that from the bright diurnal world, which was all he had known hitherto, there was a door leading into another world, where all was muffled, seething, passionate, naked, and loaded with destruction—and that between those people whose lives moved in an orderly way between the office and the family, as though in a transparent and yet solid structure, a building all of glass and iron, and the others, the outcasts, the blood-stained, the debauched and filthy, those who wandered in labyrinthine passages full of roaring voices, there was some bridge—and not only that, but that the frontiers of their lives secretly marched together and the line could be crossed at any moment. (56)

The borderline between an existence grounded in the office and the family—the "transparent and yet solid structure, a building all of glass and iron"—and the porous world of the attics is suddenly breached. What is true of the "confusions" of the schoolboy Törless goes for the bank clerk Josef K. as well, at least for one pillar of this metaphoric building. Until his arrest, glass and iron are also the defining materials of the rooms he occupies day in and day out. The bank building is repeatedly described as having a flight of exterior steps, and its offices have large windows through which K. can gaze down onto the town square. The

location and architectonic design of the bank display all the insignia of an imposing institution—things the arrestee at first also expects of the "court." Thus when K. is first summoned to "a street in a distant suburb" (36) one Sunday for his first examination, he tries to "recognize the building, even at a distance, by some sign he hadn't visualized precisely" (38), but the absence of any official emblem, as well as the unusual location and business hours, awaken some initial doubts about the legitimacy of this institution. Finally, with his discovery of the offices "where tenants who were themselves among the poorest of the poor tossed their useless trash" (65), he loses almost all respect for the court. "Now K. could see why they'd been ashamed to invite the defendant to these garrets for the initial interrogation, and chose instead to pester him in his lodgings. What a position K. was in, after all, compared to the judge who sat in a garret, while he himself had a large office in the bank, with a waiting room" (65). Comparable to the topographic structure of *Törless*, the attic rooms of *The Trial* are introduced as a counter-world to official spaces. In contrast to the city's "Palace of Justice," for instance, the offices of this court have no clear entrances or identifying marks. Kafka's novel sharpens the confrontation of the two institutions by introducing the lawyer Huld, who in his first conversation with K. and his uncle mentions that he already knows about the case and obviously stands between different judicial authorities.

> "You move in those legal circles," K. asked. "Yes," said the lawyer. . . . "With whom should I associate, if not my professional colleagues?" the lawyer added. It sounded so irrefutable that K. didn't even answer. "But you work at the court in the Palace of Justice, not at the one in the attic," was what he wanted to say, but he couldn't bring himself to actually do so. (101)

The "court in the Palace of Justice" and the "one in the attic" stand for two different forms of justice in the novel: the public and the hidden, the legitimate and the illegitimate, the central and the peripheral. (It is indeed remarkable that

Kafka and his family were themselves witnesses to the incipient recodification of the upper stories by the elevator, as one can read in Klaus Wagenbach's travel book about Kafka's Prague. In 1907, due to his father's expanding business, the family moved into one of the "newly built luxury apartment buildings" in the Old City, which meant a "definitive rise in social prestige." It was "a new building with an elevator, where the family lived on the top floor with a view of the Moldau."[101] Perhaps Kafka sited his elevatorless tenements in "suburban streets" seven years later because the success of the new invention was already perceptible in the center of Prague. In the better neighborhoods the top floor was no longer a place "where tenants . . . tossed their useless trash," but rather the luxurious refuge of upwardly mobile retailers of ladies' notions.)

IDENTIFICATION WITH THE CELLAR

According to Gaston Bachelard, the "psychology of the house" is characterized by a

> polarity of cellar and attic, the marks of which are so deep that, in a way, they open up two very different perspectives for a phenomenology of the imagination. Indeed, it is possible, almost without commentary, to oppose the rationality of the roof to the irrationality of the cellar. A roof tells its *raison d'être* right away: it gives mankind shelter from the rain and sun he fears. . . . Up near the roof all our thoughts are clear. In the attic it is a pleasure to see the bare rafters of the strong framework. Here we participate in the carpenter's solid geometry.
>
> As for the cellar, we shall no doubt find uses for it. It will be rationalized and its conveniences enumerated. But it is first and foremost the *dark entity* of the house, the one that partakes of subterranean forces. When we dream there, we are in harmony with the irrationality of the depths.[102]

It would be a stretch to say that Ekdal, Törless, and Josef K. take any pleasure in seeing "the bare rafters of the strong framework" in the attic, and their thoughts "up near the roof" are anything but clear. These texts are remarkably

unanimous in presenting the attic and the cellar not as a polarity, but rather as closely related spaces. On a building's highest level, the connotations of its lowest level return. Hedvig calls the attic "the depths of the sea" (438), Hassenreuter speaks of his "catacombs" (344), and Törless thinks of himself as "deep inside a mountain." In their book on Kafka, Gilles Deleuze and Félix Guattari draw our attention to the "almost subterranean offices" in *The Trial*.[103] Thus in the topographic structure of these novels and plays we can discern the same association of especially lofty and especially lowly rooms that is also decisive for the hygienic overseers of tenement buildings.

Bachelard's invocation of the attic as a place of rationality has to do with the fact that, as he says himself, his phenomenological approach has only one kind of building in mind, namely, residences with no more than three levels: cellar, ground floor, attic. "One floor more, and our dreams become blurred. In the oneiric house, topo-analysis only knows how to count to three or four."[104] But to do justice to multistory tenement houses or "illogically" ("whimsically" in the English translation) labyrinthine boarding school buildings, topo-analysis would unavoidably have to learn how to count to five, six, or even seven. Bachelard's semantics of the attic, first published in 1957, is restricted to the exurban architecture of the single-family house. Accordingly, he denies urban dwelling places phenomenological consecration.[105] He dismisses those lofty attics and garrets that determine the collective image of this type of room and its reflection in literature and painting in the second half of the nineteenth century. These attics, however, contradict Bachelard's analyses in all respects. They are refuges of irrationality, cellars turned on their heads. It is no accident that the theater historian Joachim Hintze, in his comprehensive study of interiors in modern German drama, connects the two ends of the vertical axis when describing those interiors that represent significant "contrasting scenarios to the prosperity of the bourgeois way of life" in turn-of-the-century

plays: "Although they appear in various guises—as cellars, flophouses, or attics—these types of settings form a semantic unity that banishes them to the periphery of society."[106] The upper reaches of buildings at the turn of the nineteenth to the twentieth century are the opposite of the rationality Bachelard attempts to invoke. They evoke instead associations with imprisonment or even death, as the remark from Roth's *Hotel Savoy* about the residents of the upper floor suggests: "Those who lived on high were in the depths, buried in airy graves."

PENTHOUSES, ROOF GARDENS, AND THE EXECUTIVE SUITE

By the beginning of the twentieth century, the hasty and unconsidered building practices of the first phase of urbanization had been eliminated in central Europe. Strict control over vertical growth had been imposed by precise limits on building height as well as the so-called *Staffelbauordnung* (graduated building code) adopted in numerous towns to lower both building height and population density in newly built suburbs.[107] The building codes in Vienna and Prague, for example, left no doubt as to the reputation of the upper stories: "In a four or five story building with a main stairway there are also one or more auxiliary stairways, the latter may also be used as the main stairway to the two highest floors."[108] The line of demarcation in buildings is clearly drawn, just as we have seen in Joseph Roth's and Thomas Mann's depictions of hotels. In the first years after the turn of the century, however, when the elevator was still largely unknown in tenement buildings, a complete reordering was already being depicted in promotional material such as a 1910 brochure from the Berlin firm Moosdorf and Hochhäusler:

> As we enter the building Am Treptower Park 24, a passenger elevator, operated by the concierge but which residents may also operate themselves, takes us up to the fourth floor in just a few seconds. Here a painter friend of ours is planning to pitch his tents (as he

> modestly expresses it) after his wedding. Nine rooms with access to extra space in the attic as well as a rooftop garden will constitute the magnificent domicile of this modern Raphael—rooms, each more beautiful than the last, furnished with the most refined amenities. . . . One can see across the Treptow Park all the way to the tower and Bismarck Lookout on the Müggelberge.[109]

We can assume that this brochure is promoting one of the very first penthouses in Germany. The singularity of such an apartment in 1910 is especially clear when we reflect that the war against the fifth floor was still being waged. At the International Congress for Residential Hygiene held in Dresden the following October, for instance, top-floor apartments continued to be directly connected to high urban rates of infant mortality.[110]

Yet, beginning in the second decade of the century, there were increasing indications of a revalorization of living spaces on upper floors. From its inception, the new Berlin magazine *Bauwelt* (Construction world), whose first issue featured what amounts to a programmatic advertisement of an elevator company on its flyleaf,[111] was a leading advocate of liberalized building codes, as demonstrated by the title of its very first editorial, "The Seventh to the Ninth Floor: A Challenge for the City Center."[112] In the years before the First World War, the magazine regularly reported on the construction of new luxury apartment buildings like the one on Treptow Park. For example, the summer 1910 issue carried an article entitled "Villa Apartment on the Fifth Floor" about a nine-room apartment in the Charlottenburg neighborhood that could be reached via a "self-operated elevator."[113] One year later, the notice of "Luxury Apartments on the West Side of Berlin" in a building under construction at Kurfürstenstrasse 87 announced,

> The building will contain two eight-room apartments on each of its four floors. . . . There are also extensive facilities for the children of the house. A gymnasium has been installed on the top floor. Rooftop gardens have also been planned as playgrounds. In addition to the most modern passenger elevators for the residents, elevators

will be installed in the rear stairwells for service personnel. This is the first time that elevators in this form and for this purpose are being constructed in Berlin.[114]

At the end of 1911, the magazine laid out its fundamental principles in the article "Apartment with a Rooftop Garden," which focused primarily on a newly constructed building at Kurfürstendamm 70. After praising the luxurious interior décor of its eight- to ten-room apartments, the author noted that "the building attracts attention especially with its singular application of the new motif 'rooftop garden,' which has been evident for quite some time in certain areas of the 'new west' of Berlin, but seldom in such an energetic configuration."[115]

Compare the direction of such articles and advertisements with the frightening images conjured up just a few years earlier—and to some extent, at the same time—in the publications of the hygienists and housing reformers. In 1901, the physician Robert Dölger explained once again in the *Vierteljahrsschrift für öffentliche Gesundheitspflege*, "why we hygienists must be opposed to large buildings." It is on account of the upper stories, "because stale air, tainted by the breath of the residents, by odors from the kitchen or the water closet, rises from the lower stories to the upper ones and it is impossible that the air even in the corridor or the stairwell, which supplies the upper floors as well, can remain clean."[116] By contrast, how did the company Moosdorf and Hochhäusler promote its apartments? It too used the vocabulary of the hygienists, stressing the increasing difficulty of finding a healthy apartment in the big city of Berlin:

> The home gardens that used to be so frequent have been almost entirely replaced by factories or rear buildings. A spot of grass in the courtyard or by the front door is a rarity! Yet how important a bit of nature is for the modern big-city dweller! Since he can't avoid the nerve-wracking hustle and bustle of the metropolis in his everyday work life, he must think about securing a little "happy corner" for himself, where he can withdraw from the heat and burden of the day.[117]

This sphere of quiet, brightness, and transparency is offered by the apartments with rooftop terraces on the fourth and fifth floors, and the brochure makes clear from the outset that the elevator is the decisive prerequisite for the existence of these apartments by beginning its description of them with the statement that the conveyance reaches "the fourth floor in a few seconds." It is clear from the construction and marketing of such apartment buildings around 1910 how effectively the elevator intervened in the hygienic and aesthetic discourses of urbanization and transformed the image of the apartment house. If Dr. Dölger described the vertical dimension of the tenement building as an increasingly clogged canal in which the stale air threatened to collect just beneath the roof, the elevator, rooftop terraces, and expanded top floors created a kind of exhaust system. It is surprising therefore that in their tracts the health advocates almost never mentioned the significance of the elevator in the development of urban housing. In 1912, in one of the first German histories of the hygiene movement, Wilhelm Gemünd recapitulated the success of his discipline and above all of "healthful technologies on which the hygiene and convenience of the modern residential building primarily rest, e.g., the various forms of central heating, plumbing, flush toilets, drainage."[118] There is no mention of the technical apparatus that makes these conveniences available on all the floors of a building. The elevator, too, was a healthful technology, and not just because it replaced the ascent of the stairwell, which posed risks "especially for the feeble, those suffering from cardiac and pulmonary diseases, convalescents, girls and young women especially during menses,"[119] but also to the extent that the elevator reshaped the conditions of the large apartment building, both meteorologically and socially.

From about 1910 on, it was the upper stories of new buildings that attracted the most attention. Detailed description replaced the obfuscation noted by a contemporary hygienist with respect to early Berlin housing censuses: "Externally

and internally, everything is avoided that would draw attention to the fact that an apartment is being rented on the top floor."[120] In promotional brochures for the new two-story luxury apartments, everything possible was done externally and internally to draw attention to the fact that an apartment was being rented on the top floor. Pre–First World War Berlin offered a perfect venue for observing the European birth of a type of dwelling that would later come to be called a penthouse. Gradually, in the week-to-week reports of the construction industry journals, a hierarchy of apartments began to emerge that would become anchored in the collective imagination in the following decades and achieve a social significance that remains unassailable to the present day. A particularly nice example of this occurs in the film *Pretty Woman*. The businessman Edward Lewis (Richard Gere) brings the hooker Vivian Ward (Julia Roberts) to his hotel for the first time, where he has rented the penthouse suite as usual. The first thing Vivian does is to walk out onto the large terrace, where the following conversation takes place:

VIVIAN: Wow, great view! I bet you can see all the way to the ocean from out here.

EDWARD: I'll take your word for it. I don't go out there.

VIVIAN: Why don't you go out there?

EDWARD: I'm afraid of heights.

VIVIAN: You are? So how come you rented the penthouse?

EDWARD: It's the best. I looked all around for penthouses on the first floor, but I can't find one.[121]

This is the situation in 1990: a wealthy entrepreneur has to suppress his acrophobia because the only appropriate place for him to stay is the penthouse. The social class-consciousness of a late twentieth-century businessman, however, harks back to the early years of the century, when brochures like that of Moosdorf and Hochhäusler were at work for the first time on a typology of the penthouse inhabitant. Not for nothing was the artist who was "planning to pitch his tents . . . after his wedding" in Treptow described as a "modern

Raphael." There was hardly another painter who embodied the sovereignty of art so well. Everything in the prospectus signaled an exalted atmosphere: the professional success of the tenant, his well-ordered private life, his view of the "Bismarck Lookout." In the interplay of artistic lifestyle, economic standing, and living conditions, the painter occupied a position directly opposed to Spitzweg's and Tieck's poor poets. The unworldly garret of 1840 had been transformed into the urbane rooftop terrace apartment of 1910.

Of course we cannot forget that this recoding of verticality at first applied only to the dwellings of the most well-to-do. One can gather this, for example, from a table of real estate values published in 1908, which listed five building categories in Berlin and its surroundings, from "manorial" to "constructed with little care and inferior materials."[122] Only the first category included the element "elevator" as an obligatory amenity. The descriptions in magazines like *Bauwelt* left no doubt that the newly built apartments were among Berlin's most luxurious. Siegfried Ascher's statistical study *Apartment Rents in Berlin from 1890 to 1910* vividly showed what an exception elevator installations were in Germany before the First World War. It's not just that the criterion "elevator" did not even appear in the apartment statistics until 1905.[123] The same study listed 782 marks as the average annual household income in Berlin,[124] which makes clear the exclusiveness of this means of transportation, whose production and installation were estimated at 10,000 marks.[125] According to Ascher, of 554,619 households in Berlin, between 1890 and 1910, only 1,579 had access to elevators.[126] By comparison, in the same period, 318,543 households had running water.[127] In these years, it was not yet imaginable that the elevator would one day be a self-evident component of new multistory construction. Nevertheless, the emancipation of the upper floors was beginning.

In American metropolises like Chicago and New York, of course, there were luxury apartments on the upper floors much earlier than in Berlin. In the well-documented history

of housing in Manhattan, the beginning of the multistory "apartment house," which would all but eliminate the single-family house within half a century, is dated to the year 1869.[128] Moreover, the second such house ever built—the eight-story Stevens House of 1870—was already equipped with an elevator.[129] We will discuss the development of the New York apartment house in chapter 4. In the present context, it is revealing that for a surprisingly long time even in New York, the floors directly beneath the roof were considered unrentable and were used as laundry rooms or employee housing. The architectural historian Elizabeth Hawes quotes from a chronicle of the Dakota Building, erected in 1884 on the then largely unbuilt Upper West Side and planned as one of the first apartment houses for decidedly well-to-do tenants. The initial design of Henry J. Hardenbergh, the architect of the ten-story building, situated

> the largest apartments in the lower two floors . . . because elevators were still something of a novelty and not entirely trusted. . . . Also, Hardenbergh reasoned that lower-floor living would seem more familiar to New Yorkers who were accustomed to living in town houses. The eighth and ninth floors were to be used exclusively as laundry rooms, service and storage rooms, and servants' rooms.[130]

For the builder himself, however, an eighteen-room apartment had been planned on the seventh floor "in the hope of popularizing upper-story-living."[131] But in New York City this hope was at first in vain. At the beginning of the twentieth century, servants' quarters in new luxury apartment houses were as a rule still located just beneath the roof.[132] "In the first decade of the twentieth century," writes Elizabeth Hawes, "only architects and artists seemed to want to live at the top of the buildings,"[133] an astonishing diagnosis when one considers that at the same time, the first rooftop terrace apartments were being built in the well-to-do neighborhoods of Berlin. Thus the history of the penthouse did not necessarily begin in the city where the first multistory apartment houses were located, as one might expect.

Even if apartments in prewar Berlin were not permitted any higher than the fifth floor, the fact that the largest and most expensive of them were directly under the roof, surrounded by terraces, obviously happened sooner than it did in New York. A glance at the façades of New York apartment houses erected before the 1920s shows that the highest floors are not designed to stand out. Around 1915, for instance, before war and economic crisis interrupted construction activity for several years to come, the buildings of Emery Roth, the most active New York residential architect in the decades around 1900, still presented utterly regular façades, just as the apartments within followed no vertical hierarchy.[134] An apartment house on West End Avenue "originally contained a total of thirteen apartments, one per floor. Each had nine rooms."[135] In the 1920s, however, this inner and outer uniformity was ruptured, and increasing emphasis was placed on the upper stories. The English word "penthouse," which up to then had designated any sort of "appendage" or after-the-fact addition, now was redefined as a luxurious rooftop terrace apartment, the meaning it would have in German from the beginning when it was adopted from English.[136] So even if the phenomenon may have had European predecessors in Charlottenburg and Treptow, the origin of the word in its present meaning was obviously New York in the early 1920s. In these years, the first apartment houses with the most exclusive apartments on the top floor were built. In 1922–1923, Emery Roth built the fifteen-story twin buildings Myron Arms and Jerome Palace at Broadway and 82nd Street, and it was for these buildings that Roth's biographer Steven Ruttenbaum introduced the word "penthouse" for the first time.[137] Ruttenbaum provided this description of an almost identical apartment house built only a few months later:

> What made it special, however, was the penthouse apartment he designed at the top for himself and his family. . . . One of its special features was a terrace wrapped around it on all sides. . . . Roth took a great deal of pride in the apartment, for it symbolized the

fulfillment of his . . . youthful aspirations for a house with a garden, even though it was atop a city building."[138]

Historians of New York architecture are unanimous in designating the 1920s as the turning point in vertical design. Elizabeth Hawes, for instance, identifies Roth's Ritz Tower of 1925, with its numerous rooftop terraces and the two-story "duplex" apartments on the top floors, as the watershed: "It effected a new attitude toward an aerial city and an aerial home. . . . Penthouse and terrace apartments became fashionable and proliferated; style-conscious tenants staged parties on terraces and planted gardens in the air."[139] Manhattan, too, had a modern Raphael with a brand-new wife: "Alfred Stieglitz and Georgia O'Keeffe took a top-floor apartment at the thirty-four story Shelton Hotel and sketched the sights from the window."[140] No apartment house of the 1920s was still designed in the uniform style of the previous decade. The most prestigious apartments were routinely situated on the top floors, a fact reflected in the exterior design of many buildings, with their upper stories a series of receding stepped terraces. Interestingly enough, this characteristic physiognomy of the most luxurious apartment houses between 1920 and 1930 also owed its existence to a restriction in the building code, the Setback Law of 1916, which attempted to mitigate the threat of decreased sunlight posed by multistory buildings. The law stated that the height of a new building could exceed the width of the street only if from that point on, its higher stories successively receded. At any rate, the significance of the new type of apartment was best illustrated by a column about recent apartment houses in the *New Yorker* magazine, which was founded in 1925. The column was alternately entitled "Duplex" and "Penthouse."[141] Thus early on, there was a conviction that the sound of the word "penthouse" would help to raise circulation; forty years later, it was still responsible for the success of a men's magazine.[142]

Although penthouses did not take hold in New York until the 1920s, the transformation of the upper regions

of buildings had already been under way there for quite some time in the form of roof gardens. In 1883, four decades before the earliest rooftop terrace apartments, the Casino Theatre was erected at Broadway and 39th Street. In the summer months, its rooftop became the venue for concerts and operettas. The conductor and impresario Rudolph Aronson hoped to import to New York the European tradition of open-air concerts in gardens and parks, but was stymied at first by real estate prices in crowded Manhattan until he made a virtue of necessity, as he related in his memoirs:

> Why not utilize for garden purposes the roof of the building I hope to erect and thus escape the enormous cost of valuable ground space? In other words, I mentally transported the Ambassadeurs from the ground floor of the Champs Elysées in Paris to the roof of a building on Broadway. Already, I christened it in my mind the Roof Garden.[143]

The success story of New York roof gardens as venues for concerts, vaudeville, and dances lasted from the 1890s into the 1920s, as Stephen Burge Johnson writes in his study *Roof Gardens of Broadway Theatres*. The region of the roof attracted interest not as a place to live but rather as a place to be entertained, inviting precisely the "long-term human occupation" that the revised European building codes prohibited. Johnson's description of the Casino Theatre and the other Broadway rooftops, most of which opened in the 1890s, re-creates the excitement these buildings engendered. Their façades and gardens were among the earliest locations in New York to be illuminated by electric lights, making the new theaters identifiable as attractions even from a distance.[144] But the central novelties were the concerts sixty-five feet above street level, at an elevation offering not only "the coolest, most comfortable breezes" in New York's summer heat, but also "a view of the city that no one had ever seen."[145] Such amenities made the roof gardens the center of social life during their first years of operation. The opening of Madison Square Garden's rooftop in 1892, for example,

was attended by 3,500 guests, which led a contemporary reporter to write that New Yorkers were "roof garden daft."[146] All the customary connotations of the upper reaches of buildings in the late nineteenth century were contradicted by the sunlight, coolness, and panoramic views from the open rooftop. In contrast to the secluded attic where one wallows in memories and solitude, Aronson's rooftop concerts, following the dramatic performances in the theater below, opened up a contemporary and explicitly accessible space. As Johnson writes, "A large elevator near the main entrance carried patrons to all levels, including the roof."[147] In his description of the heyday of roof gardens at the turn of the century, the historian of the roof gardens leaves us in no doubt that it was the elevator that made the vertical relocation of cultural events possible:

> Within twenty years of Aronson's idea New Yorkers were to make common use of their rooftops. Strengthened foundations, the use of steel, and the development of the elevator allowed easier access to the upper story of ever taller buildings. Hotels, apartment buildings and even schools made their rooftops into gardens, playgrounds, or refreshment areas. But in 1881 [the year construction began on the Casino Theatre] the elevator was still an oddity, used only in a few commercial buildings and as a novelty ride. Without it, rooftops with any clear view were inaccessible, and the tallest building of any kind in a neighbourhood was likely to be a church or a theatre.[148]

The elevator was the technical prerequisite for the Broadway roof gardens, and the question of accessibility in fact determined their entertainment offerings. Johnson describes in detail how the performance focus shifted several times during their thirty years of existence—from concerts to vaudeville and circus performances to the large dances of the 1910s. Although for a short time at the turn of the century complete plays were on the program, they were not a success because the elevators could not handle the simultaneous arrival of the entire audience, and waiting for them cost too much time. Vaudeville, on the other hand, lacking

a continuous plot, resulted in "constant traffic to and from the roof" and became established as the preferred genre.[149]

In 1913, the German author Bernard Kellermann published a hugely successful science fiction novel entitled *Der Tunnel* (*The Tunnel*), which was translated into twenty-five languages and sold over a million copies. It narrates the construction of a railroad tunnel under the Atlantic connecting America and Europe. The decisive negotiations on the project take place in the roof garden of the fictitious thirty-seven-story Hotel Atlantic in New York. There Mac Allan, the engineer who initiated the tunnel project, has assembled a group of entrepreneurs and bankers to persuade them to underwrite the construction. The novel emphasizes that Allan has chosen this site for its symbolic value, since its elevated location illustrates the engineer's own rise from impoverished beginnings. The easily persuaded captains of finance "knew that at twelve years old he had been a stable boy in a coal mine who in the course of twenty years had worked his way up from a subterranean depth of 2,500 feet to the roof garden of the Atlantic. That was something."[150] Roof gardens were the summits of both buildings and biographies, a congruence Stephen Burge Johnson also notes. Practitioners of such dubious arts as dancing or vaudeville saw their reputations immediately enhanced when their performances gained literal elevation; according to a 1902 newspaper article quoted by Johnson, "Until the stage went up with the elevators vaudeville may be said to have stood on the ragged edge of society."[151] Social acceptance began with the move to the roof. Here the symbolic ordering of verticality no longer included an affinity between its highest and lowest extremes. "Coal mine" and "roof garden" appear in Kellermann's novel as decidedly antonymous, not synonymous locations as they are in Hauptmann's play *The Rats* when Hassenreuter calls his attic rooms "catacombs." What has already been said with regard to the earliest penthouses is also true for the public roof gardens: they freed the upper region of the building from the suspicion of seclusion. A

comparison between the contemporaneous novels *The Trial* and *The Tunnel* would bring out these symbolic shifts. Two topographies: uncontrollably proliferating attic rooms as the seat of an illegitimate court on the one hand, the well-ventilated and easily accessible environs of the roof garden (one of the invitees has even landed his plane there[152]) as the meeting place of legitimate power on the other. "She would never forget this moment," declares *The Tunnel*'s narrator about Allan's wife, Maud, "how they all were sitting there in a circle! The *names* she had been hearing since she was a little girl, names whose very sound conjured up an atmosphere of wealth, power, genius, daring, and scandal."[153]

While roof gardens also became an element of numerous New York apartment buildings shortly after the opening of the Casino Theatre in 1883,[154] interest in the novelty in Germany had to make do mostly with utopian novels about the American metropolis. According to the magazine *Bauwelt*, for instance, the first roof garden in Berlin was not dedicated until 1909, and even then as part of a sanatorium in Charlottenburg.[155] The rarity of this event in Germany, thirty years after Aronson's invention, led a reader of the magazine to write a melancholy letter to the editor:

> Why can't we have roof gardens as well? How refreshing it would be to dream away warm summer evenings on the roof of one's building—high above the noise of the streets, under the twinkling stars! What an amusing sensation it would be for our cafés to elevate their guests up onto the roof in the summer, where strings of colored lights cast their romantic beams. . . . In the middle of the city, where expensive real estate no longer allows space to be wasted on gardens, the roof garden with arbors and walls of ivy could provide a modest surrogate for the lost paradise of the private garden.[156]

This suggestion from a *Bauwelt* reader, whose use of the neologism *emporliften* ("elevate" up) suggested the significance of the elevator for the success of the project, ignited an exchange of opinion in the magazine on the "burning question of roof gardens for Berlin," but the fire died down after only a few letters.[157]

Obviously the idea of roof gardens did not take hold in Berlin except for the terrace gardens of luxury apartments, a missed opportunity that would be criticized a few years later, during the war, for unforeseen reasons. Suddenly this location gained positive attention "from the standpoint of public health."[158] Construction industry journals now publicized the idea of building convalescent centers with roof gardens for returning soldiers. They were also promoted as playgrounds for children. The rooftop region, for half a century the object of the most vehement hygienic attacks, was now introduced as a location for the "promotion of good health."[159] "After all, it must be admitted," declared the Prussian *Zentralblatt der Bauverwaltung* (Central journal of building inspection) in 1915, "that roof gardens in Berlin are not yet as widespread as would perhaps be desirable for public health."[160] And the rooftop region, opened up and freely accessible, also induced a shift in ethical considerations. No longer were latently promiscuous relationships or "illegitimate children more susceptible to gastro-intestinal diseases"[161] at issue, but rather the rooftops' beneficial influence on mankind: "Perhaps moral advantages would also result from the integration of roof gardens into neighborhoods with many children, since the children would not be as exposed to all the influences of city life as when the street is their playground."[162] What would have been impossible in the debates between 1870 and 1900 now appeared in these wartime pleas; the rooftop region of tenement houses had become an important element in the strategies of public health advocates. Now, in a reversal of the decades-old argument, "for the prevention of infant mortality in tenement houses . . . the utilization of the buildings' roofs is recommended."[163] The fact that there were no roof gardens in Berlin was regretfully recorded and attributed to the strictness of the building code. Thus the hygienic discourse of 1915 came into conflict with that of 1887, when the law restricted the vertical extension of buildings to six stories. The installation of a roof garden (and the sublayers necessary to protect the

building from rain and heat) would exceed that limit. In the age of the elevator, public health advocates ran up against out-of-date principles. Whereas the collective image of the rooftop region had already been transformed, the law was still at the stage of early urbanization.

The "refreshing" prospect of public roof gardens in Berlin continued to be a vain hope despite an increasing number of advocates—at a time when their history in New York was already winding down. Stephen Johnson describes how in the years after the turn of the century, it was primarily legal disputes about whether roof gardens were to be officially regarded as theaters that began to cause economic problems for their proprietors. The increasing number of rooftop vaudeville and theater performances led officials to decide that roof gardens needed the more expensive theater license rather than just a concert license. The former involved both stricter fire regulations and a prohibition on the sale of alcohol.[164] As a consequence of this decision, roof gardens began to cancel their shows. Despite their brief and regionally restricted existence, the early New York roof gardens marked a decisive turning point in the history of the elevator and the imaginative ordering of verticality. For the first time, they presented the rooftop region, if you will, as a location of unfettered circulation—of people, of air, of social energy. The roof garden proprietors were so conscious of the effect of their location that some of them even heated the elevators in order to heighten the refreshing effect of emerging onto the rooftop.[165] No one fainted anymore beneath the roof like Kafka's defendants. Stuffiness was even artificially induced during the brief elevator ride so that the pleasure of cooler air could be enjoyed to the full. One thing, however, remains to be said: however antithetical the relationship between attic and roof garden may have been, it was not a pure dichotomy. We must not forget that the program on the Broadway rooftops often had an experimental character. Contested forms of performance were given a trial run to see whether they could also play in the big street-level

Broadway theaters during the winter months. In addition, rooftop cabaret and freak shows caused recurring scandals and lent the roof gardens a louche and illegitimate air also characteristic of the attic. One wonders to what extent the rooftop region of buildings was always an invitation to dubious productions and destabilized identities, no matter how easy it was to access, no matter whether an elevator was present or not. After all, implicitly or explicitly, there's playacting going on in the attics of *The Rats* and *The Wild Duck*, and of *Young Törless* and *The Trial* as well. But such constants are less obvious and harder to pin down than the semantic transformations set in motion around 1900 by improved access to the rooftop region.

In Germany, the emancipation of the upper stories, the creation of a few roof gardens and penthouses *avant la lettre*, coincided with the first calls for a relaxation of height limitations in the building codes. The united front formed during the last quarter of the nineteenth century against the unlimited vertical growth of the cities was beginning to crumble. Periodicals such as *Bauwelt* offered a forum for the proponents of multistory buildings. From the inaugural editorial of its first number on, the prewar issues of *Bauwelt* repeatedly took up the cause of legalizing additional stories. On the one hand, the goal was to increase the allowable height, at least of commercial buildings, from five to eight or nine stories—"ensuring, of course, the preservation of all hygienic aspects."[166] On the other hand, the continuing prohibition of rooftop additions above the fifth floor (even the penthouses in Wilmersdorf and Charlottenburg were not allowed to go higher) was being put to the test. For almost a decade after 1914, however, these forays took a sudden change of direction. In the years of war and hyperinflation, while the editorial staff of *Bauwelt* still advocated the exploitation of higher stories, their pages no longer featured plans for high-rise offices or elegant penthouses, but rather suggestions for simply increasing available housing. In 1922, for example, there were regular appeals to Berlin landlords

to begin enlarging their top floors "to alleviate the housing shortage."[167] Every three or four issues, the magazine published an extensive list of builders who had already answered the call. What made *Bauwelt*'s campaign possible was a bylaw to the Berlin building code issued in August 1918 that gave temporary approval to apartments above the fifth floor in order to combat the "shortage of housing."[168] After the first signs of a recoding of dwellings on the upper floors in the prewar years, from 1918 on the status of attic apartments as temporary emergency housing reestablished itself, an image that persisted until after the Second World War as the bylaw was regularly renewed.[169] What all the architectural debates about a liberalization of the building code could not achieve—permission to install dwellings on the sixth floor—was enabled by the consequences of the First World War. A history of the semantics of upper-story dwellings must thus bear in mind the ambiguous connotations of the top floor in the first half of the twentieth century. On the one hand, luxurious penthouses gradually came to outshine the decades-old images of the top story. On the other hand, housing shortages and economic instability ensured that the traditional image of the garret persisted in the interwar and postwar years.

An important milestone in the history of multistory architecture in Germany occurred during the economic crisis following the First World War, possibly as an enticement to increased construction: on January 3, 1921, by order of the Prussian minister of public welfare, the building code was modified to allow construction of high-rise buildings:

> I have no fundamental objections to permitting the construction of multistory buildings (high-rises) for commercial and governmental purposes in locations where a need for them can be established. Such high-rises, however, are subject to review in each individual case in view of the deleterious influence on their surroundings through blockage of sunlight, etc., but especially with respect to traffic circulation and the preservation of an aesthetically satisfactory urban image. It is therefore not advisable to insert into the

> building code general guidelines for the permitting of such structures. It is advisable instead to grant permission only case by case and by way of a variance. Because of the importance of this issue for the general public, I must insist that plans for high-rises be submitted to me for my opinion before being sent on to the Board of Appeals.[170]

For the first time, the struggle to lift the restriction on building height, begun in the years prior to the First World War, had consequences reflected in the legal code. From then on, buildings of more than five stories could be planned, but the authorities continued to stress that this applied only to commercial and government buildings. The 1928 *Handwörterbuch des Baurechts* (Compact dictionary of construction law) demonstrated that in 1920s Germany, the high-rise was essentially synonymous with the commercial building. The entry for "high-rises" consists only of a cross-reference: "Cf. office buildings, multistory."[171] In 1928 the builders of the Europa-Haus, one of Berlin's first high-rises, decided on short notice to convert what was planned as an eight-story office building into a more profitable hotel, and the Welfare Ministry revoked their building permit, explaining that

> as a basic principle, the ministry is not at all opposed to the construction of high-rise buildings in large cities, as is shown by the Welfare Ministry's permits for high-rises in Cologne, Hannover, Düsseldorf, Dortmund, and other cities. It is however a well-known fact that it continues to defend the position, widely recognized as correct by experts, that residential high-rises should not be permitted.[172]

The Europa-Haus was not completed until 1930 as a thirteen-story office building. In the history of German high-rise buildings, there were only three exceptions to this ruling during the 1920s: a ten-story luxury apartment building in Düsseldorf in 1927, a ten-story apartment building in Hannover in 1928, and two twelve-story apartment buildings in Düsseldorf in 1929.[173] In the last years of the Weimar Republic and during the Third Reich, air-raid ordinances put an end to construction of high-rise apartments altogether.[174]

In the more than thirty years between the beginning of the Great War and the end of the Second World War, multistory dwellings played too small a role to figure in contemporary building codes. In the revisions of the building codes, for example (in Berlin in 1925 and 1929, in Munich in 1927), the sections regulating the number of floors mentioned the possibility of a variance for office buildings,[175] but the restriction to six stories continued to be the rule: "In apartment buildings, however, more than six stories are never permitted."[176] One must also remember that the battle against "tenements" and the ideology of the single-family house, revived in the late 1920s, received a powerful impetus after the National Socialists came to power in 1933 and was now integrated into their racist argumentation. If one assumes that National Socialism arose basically as a logical consequence of biopolitical (and therefore hygienic) thought, one can find revealing support for this thesis in the area of building hygiene. For it is astonishing how easily the well-known objections of public health advocates to tenement buildings and their occupants could turn racist and anti-Semitic. Thus in 1937, the editor of the magazine *Der Neubau* (New construction) turned earlier essays that were free of explicit political utterances into a manifesto entitled *Rasse und Wohnung in der großen Agglomeration* (Race and residence in large urban areas). In it, he came to the conclusion that the single-family house was the typical "Germanic" dwelling, the tenement building typically "Latin." In summary, "The struggle against the Latin life style can only be won as a battle for one's own home."[177]

At what point was the elevator first mentioned in German building codes as an explicit component of multistory buildings? Although it was mentioned in the building-magazine portraits of luxury apartment buildings in Düsseldorf and Hannover,[178] there were no regulations governing the installation of elevators in the permits for high-rise buildings, not even for the numerous office buildings. The author of a 1928 article entitled "The Elevator in the Modern Apartment

Building" opined that "if in the future buildings grow even higher, the elevator will become a necessity and an integral component of apartment buildings"; this meant that it had not yet achieved that status and could be ignored by the building code.[179] A 1926 report on "guidelines for the construction of high-rise buildings," issued by the German Association of Cities and Towns, suggested that "an adequate number of safe and speedy elevators should be planned," but this recommendation had no impact on building codes.[180] In fact, not until after the Second World War, in the early 1950s, were binding regulations issued for the first time for the interior facilities of multistory buildings. In December 1954, a working group of the federal states issued "Guidelines for Supervising High-Rise Construction" in order to prepare the legal ground for the "constantly increasing number of building permit applications for the construction of high-rises," as the introductory text states.[181] This ordinance was adopted as an appendix to regional building codes,[182] and stipulated that "high-rise buildings must . . . be equipped with elevators."[183] Thus from 1954 on, every building in Germany with more than five stories had to contain an elevator, or more precisely, "Every residence must be accessible by at least one elevator with enough space to accommodate a stretcher as well as freight, with a cab measuring at least 3 feet x 7 feet. In residential buildings, the cabs must have doors."[184] In the history of vertical organization, that meant that from then on, the building codes themselves put an end to the hierarchical structure that had dominated hygienic discourse since 1870. The equalization of access to all floors in the multistory buildings of the Federal Republic of Germany was now prescribed by law. When we look back for a moment over the semantics of upper-story dwellings between 1840 and 1920, from the garrets of Spitzweg and Tieck to the pathologized fifth floor of tenement buildings to Kafka's and Hauptmann's attic rooms, we can say that the slow establishment of the elevator and its influence on the inner structure of new buildings reached a sort of

conclusion in these government guidelines, which now explicitly allowed residential high-rises as well. To the extent that the equality of access to apartments became legally prescribed, the discourses and images of inaccessible, uncanny, upper stories where illegitimate relationships flourish gradually disappeared. The familiar residential high-rise of the last forty or fifty years is characterized by a certain vertical neutrality, unless—thanks to penthouses, roof terraces, and swimming pools—it obeys a hierarchy from high to low. The penthouse became the *bel étage* of the twentieth century.

Any discussion of the reconfiguration of upper-story spaces in the decades around 1900 must include a third variation in addition to the penthouse and the public roof garden, namely, the top-floor executive suite. Here the focus is not on domestic life or culture, but on work. The history of the office has been extensively studied in recent years.[185] These analyses have concentrated above all on the following aspects: the spatial concentration of government administration beginning in the early nineteenth century and the establishment of the word *Büro* (bureau, office); the transition from the old-fashioned, patriarchally run "counting house" to modern, highly differentiated business administration; Taylor's concept of "scientific management" and the variety of streamlined procedures in the early twentieth century; and finally the debate about the most efficient way to configure work space, which reached a high point in the 1960s with the concept of the "office landscape."[186] There is one question, however, that is either mentioned only in passing or neglected completely by all these studies: how the vertical hierarchy of space changed from the last third of the nineteenth century on with the development of the multistory building.

In order to characterize the typical spatial organization of a counting house that prevailed into the late nineteenth century, we can return to Gustav Freytag's economic bildungsroman of 1855, *Debit and Credit*. The hierarchic structure of

commercial spaces in the mid-nineteenth century is exemplified by the detailed description of the counting house of the Schröter grocery concern, where the central character, Anton Wohlfahrt, is trained and finally becomes a partner. The general organization of the building is dominated by the commingling of working life and private life still characteristic of businesses in the nineteenth century.[187] The ground floor of the main building contains the business offices and on the floor above them the residence of the head of the firm, the "principal" in nineteenth-century terminology, and his family. There, the communal midday meal is also eaten. Bedrooms for the dozen or so employees are in the rear building. The hierarchy of the business spaces is purely horizontal in arrangement, as Freytag's first description of the counting house makes clear. When the young Anton Wohlfahrt arrives in the city following the death of his parents and prepares to enter the building with a letter of recommendation to the principal in his hand, he encounters a clerk at the entrance:

> With a brief gesture with his paintbrush handle, he directed Anton to the offices off the rear part of the main hallway. Hesitantly he approached the door. It cost him a great effort to decide to turn the knob with his hand—later, he would often remember this moment—and as the door silently opened and he saw the twilight of the great workroom, he was so fearful that he could hardly cross the threshold. His entrance attracted little attention. The pens of half a dozen clerks were hastily scribbling across blue sheets of letter paper to get down their final lines before the office and the post closed. Only one of the gentlemen sitting near the door stood up and asked in a cool, businesslike tone of voice, "How may I help you?"
>
> In reply to Anton's bashful explanation that he wished to speak to Mr. Schröter, a tall man with a lined face, a starched collar, and very English-looking demeanor emerged from the second office. Anton quickly pulled out his letter, said who he was, and explained in a solemn voice that his father had died and had sent Mr. Schröter greetings from his deathbed.

The principal welcomes his visitor and immediately hires him as an apprentice. "After these words," the novel continues, "he gave a slight nod and returned to the second office, where six more gentlemen were also bent over their sheets of blue paper."[188] Thus Wohlfahrt's first visit to the business runs its course as a progression through a series of rooms: entrance, central hallway, first office, second office. The series does not come to an end here, however, as the novel makes clear in a subsequent chapter when the apprentice learns of his accelerated promotion to full-fledged clerk. Schröter invites him for the first time into his private office: "On the following morning, the principal called the new clerk into the small room beyond the last office, the Holy of Holies of the business, and listened with a smile to Anton's expressions of gratitude."[189] The "Holy of Holies," the place of power and responsibility in a mid-nineteenth-century business, is at the far end of a horizontal line.

Our basic question—how much elevators transformed the vertical structure of buildings—is easier to answer for the office building than it is for the tenement. For the precise point at which the elevator enters the history of the office building is well documented, as are the consequences of its installation. It makes sense to first follow the development of the office building in New York before returning to the situation in Germany. In 1870 the Equitable Life Assurance Society of New York, the largest insurance company in America, inaugurated its new eight-story headquarters. As mentioned above, it was the first commercial building in the world to install elevators.[190] This building was Equitable Life's answer to the increasing lack of space in the business district of Manhattan; in the 1860s this crisis even led to brief consideration of moving the entire financial district uptown. Building higher than four or five stories was not yet widely recognized as a possibility. "When a ground-floor firm found its business really flourishing, it would expand sidewise, knocking passages through the walls of adjacent structures."[191] Finally Henry B. Hyde, the founder of Equitable Life,

became the first to expand his business vertically (perhaps on the basis of his earlier friendship with Elisha Otis),[192] and the two elevators in his headquarters on Broadway reinvigorated the proliferation of the elevator, which had stagnated during the Civil War. It is manifest that unlike elevators in multistory residential buildings, elevators in commercial buildings led rather quickly to a reordering of verticality. The *New York Times* obituary for Hyde in 1899 already stated that the elevator in the Equitable Building "revolutionized the construction of office buildings throughout the city."[193] The founder of the company had to overcome his board of directors' opposition to the unusual height of the new headquarters,[194] not least because the cost of installing the two elevators was close to $30,000, a fifth of the total construction costs.[195] Hyde obviously took personal charge of renting out the fifth, sixth, and seventh floors (the insurance company at first occupied only the third and fourth floors), since it involved persuading people to move into office spaces whose location at the time was the equivalent of a social stigma. "Nobody but an occasional slave or a miserable bell ringer was expected to ascend regularly to the upper reaches," as an essay on the early history of the company has it.[196] Victor Hugo's Quasimodo thus strikes Civil War–era New York attorneys seeking office space as the typical denizen of an upper-story workplace. In the Equitable Life Building the hunchbacked outsider, alone among the tangle of stairways, is replaced by the self-confidant businessman, familiar with the advantages of an office high above the streets of the metropolis. Hyde, the same essay continues,

> persuaded Equitable's own attorneys . . . that it was their duty to establish themselves in the upper reaches of 120 Broadway. He then turned his winning eyes on other lawyers. . . . A decade or so later, the *Tribune*, proudly commenting on New York's transformation from a horizontal to a vertical city, declared, "The lawyers were the first to appreciate the upper floors, full of light and free of dust and far above the noise of the street; and bankers are now following their sensible example."[197]

By 1897, an article entitled "The Modern Business Building" confidently stated, "There are men called 'high livers' who will not have an office unless it is up where the air is cool and fresh, the outlook broad and beautiful, and where there is silence in the heart of the business."[198]

The image of a certain type of room has been burned into the twentieth-century imagination by countless films and television shows: the top-floor executive suite with wide windows affording a magnificent view of the city below. The view from the headquarters of the Equitable Life Building is a perfect example of an image that has become so self-evident that a popular book about the history of the office can contain the simple sentence, "In Europe as in America, the office of the CEO is usually a corner room with a beautiful view on the highest floor."[199] The famous architect George B. Post, technical advisor for the headquarters' construction, provided the most important impetus for upgrading the value of the upper floors: "Post, convinced of the wisdom of the decision to install passenger elevators, rented offices on the top floor of the Equitable Building for his own use, which he was able soon thereafter to sublet at a much higher rate of rent than what he had originally engaged himself."[200] Yet in 1870, the insurance company itself still took no part in a fundamental vertical reorganization; except for the offices of the corporate lawyers, its own offices—which occupied just under half the total floor space—were on the lower floors and still completely in the tradition of the nineteenth century. The custodian's apartment was on the eighth floor.[201]

In the history of office building architecture, the Equitable Building had to relinquish its title as the largest and most modern commercial building in the world soon after its opening. In New York and after 1871 in Chicago as well, insurance companies, newspapers, and communications firms built office buildings that were even taller and—unlike the building at 120 Broadway—did not attempt to conceal the number of floors with windows that extended

across several stories. The eleven-story Tribune Building and the twelve-story Western Union Telegraph Building, both built in New York in 1875, were "much more visibly than the Equitable the products of the elevator," in the words of the contemporary architecture critic Montgomery Schuyler.[202] But it was obviously Equitable Life's ambition to keep up with the competition. Already in 1875 the building was enlarged by the addition of three more stories. In 1887, after the purchase of almost the entire block between Broadway, Cedar Street, Pine Street, and Nassau Street, a general renovation was carried out. The resulting twelve-story building—no longer the tallest, to be sure, but in the words of Henry B. Hyde "the best building in the world"[203]—perhaps deserves the title of the real birthplace of the top-floor executive suite. The vertical distribution of offices, still a combination of their own and those of other firms willing to pay the very high rents, had changed. The lower floors were still occupied by the insurance company, but a brochure on the internal structure of the building emphasized that the eighth floor offered the most attractive of all available office space:

> On this floor the arrangement of offices differs materially from that of the other floors. . . . The windows of the larger rooms will have window-seats and book-shelves on either side. The views from these windows will be especially interesting and extensive. The wood-work will be quartered oak, of attractive design and richly paneled, and the rooms will be particularly attractive.[204]

Moreover, the installations on the upper stories were led by the firm's founder himself, who in addition to the expanded executive suite on the fourth floor occupied two further offices, one on the eighth and one on the twelfth floor.[205] The in-house magazine of the rival Mutual Life characterized Equitable's twelfth-floor suite as "the highest and most sumptuous boudoir in town," a resentful reference to the illegitimacy of upper-floor rooms, an illegitimacy now dissipated by buildings like the Equitable Life.[206] In his office of 1887 at least, Henry B. Hyde figured as the pioneer of the concept

of an executive suite, cementing the alliance between commercial success and lofty office by founding the exclusive Lawyers' Club with a restaurant and social rooms on the sixth and seventh floors of his building. It opened with 400 members and within a few years had grown to 1,400. Shortly after the Equitable Life Building opened, it had the "greatest concentration of lawyers to be found in any building in the city."[207] From then on, the sphere of power was irrevocably located in the upper regions.

Within twenty or thirty years, the criterion for rentability of office space in New York had been reversed, as noted by a later chronicler of Equitable Life: "The downtown tenant population had indeed followed the lawyers upstairs in the elevators, and thus ushered in the skyscraper era, but large blocks of space on the lower floors had then become unrentable."[208] Rents in New York also reflected the new hierarchy that became all but obligatory in the twentieth century. While an article of 1897 declared that the average annual rent was approximately eight dollars per square foot for ground-floor offices but only three dollars for offices on the top floor, this ratio was soon reversed.[209] By 1933, at the beginning of the Great Depression, the Sheridan-Krakow Formula (named after the two construction engineers who developed it) went into effect in an attempt to control the increasingly arbitrary nature of rents for commercial real estate. Under the supervision of Sheridan and Krakow, guidelines were developed for uniform and mandatory valuation of office space. The criteria were size, story, proximity to a corner of the building, and amount of direct sunlight. The benchmark against which variations were calibrated was an eighth-floor office of eighteen by twenty-five feet facing the street. Office rents were calculated based on their deviation from this standard.

> Percentage factors were adopted for variations. For instance, 1 per cent was added for each story above the eighth floor, and 1 per cent deducted for each floor below. . . . By adding and subtracting the percentage points of an office, say on the 20th-floor street front,

> a rating of 120 per cent might be obtained. This signified that the space was worth 120 per cent of the standard eighth-floor area.[210]

Thus from 1933 on, the vertical hierarchy of offices in New York was officially codified. The eighth floor was the semantic zero point, and the value of space increased with each subsequent story.

It is evident that with the advent of the loftily situated executive suite, the relationship of space and power structures within a company changed fundamentally. The purely horizontal gradation of the nineteenth-century counting house offered the principal the privilege of privacy; his work was shielded from outside eyes, in contrast to that of his clerks in the front offices.[211] The executive suite of the twentieth century was distinguished by additional spatial factors. Commercial power in executive suites furnished with great expanses of glass was now associated with foresight, overview, and grandeur. One could say that the establishment of the elevator in office buildings and the new location of the executive suite made possible a modern variation of that well-known fantasy of insight that for centuries was to be gained only on a mountaintop or a tower. The history of this gesture has been written; consider the famous article by Joachim Ritter on Petrarch's ascent of Mount Ventoux in 1336 and the problem of modern subjectivity. Ritter asks whether the view of landscape from a great height precipitates insight into or obliviousness to oneself.[212] Literary history provides us with numerous examples of figures whose crises of identity take place at the top of towers and mountain peaks, from Goethe's Wilhelm Meister to Ibsen's master builder Solness and Professor Rubek. For the modes of representation of social power at the turn of the nineteenth to the twentieth century, it is important that this gesture—earlier confined to the ritual ascent of a mountain or tower—now suddenly also gained relevance within the everyday life of business establishments. Someone who has made it looks down on the world; the mountaintop and the top floor offer the same perspective. That was not always the case, as the

hygienic discourse on the top story has demonstrated: the lofty regions of a building were at first rather thought of as the antithesis of the mountaintop experience of grandeur. In 1901, at a time when the lower offices in Chicago and New York were already going begging, the physician Robert Dölger wrote of the multistory tenements of Berlin:

> On the other hand we must also remember that the stairwells represent conduits for bad air in general, and that the effect of climbing the stairs is necessarily the opposite of climbing a mountain wafted by good air, i.e., an ongoing slackening of energy that increases the higher the floor to which one ascends.[213]

The elevator made the highest floor the urban equivalent of the mountain peak—or something even more impressive, as Henry B. Hyde wrote during a trip to the mountains shortly after the opening of the Equitable Life Building: "I put my head at the base of a perpendicular rock six thousand feet high, and looked ever so far into the clouds; but somehow the sight did not impress me so much as when I saw the last cornice stone of the Equitable put in its place."[214] Foucault remarked incidentally that "sometime or other, the history of spaces must be written, which would be at the same time a history of power."[215] The birth of the top-floor executive suite would be an important chapter of that history.

In his investigation of American magazine advertisements from 1920 to 1940, the cultural historian Roland Marchand devotes a section to the motif of office windows. The image of the businessman looking down from the window of his lofty office, the telephone within easy reach, was so widespread in the 1920s that it became a "visual cliché" for advertisers.[216] Marchand asks why it was telephone companies like AT&T who emphasized the connection between having one's own personal telephone (in offices of the first half of the century still a great privilege) and the view from the window:

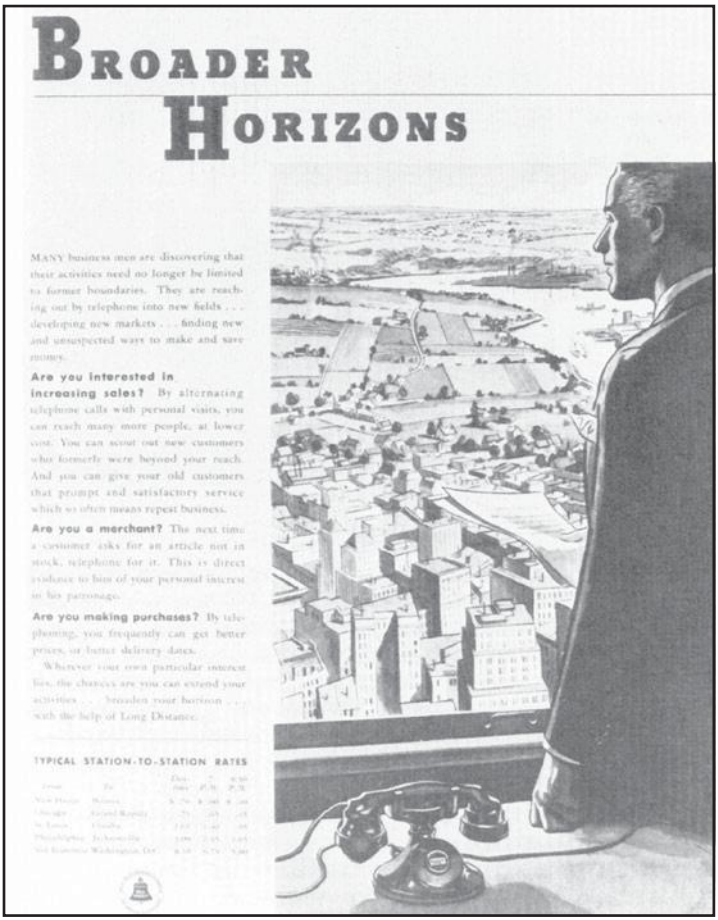
> Both the telephone and the window-with-a-view symbolized prestige and power. Their combined presence adequately distinguished the executive, even the junior executive, from the mere salesman.

> The telephone placed the protagonist among those men in the firm whose rank entitled them to an individual extension. . . . The window was even more symbolically significant. To command a view not only suggested high status within the firm (secretaries and mere salesmen almost never appeared next to large windows with views, except when they came into the boss's office); it also conjured up that ineffable sense of domain gained from looking out and down over broad expanses.[217]

As an AT&T advertisement from the 1930s announces, the deployment of the telephone promises these "broader horizons" by providing a more efficiently structured business and increased profits. The promise of increased scope is underscored by the businessman's open view of the city. Communicational and optical superiority, the association suggests, are inseparable criteria for success. The former is ensured by the right telephone service, the latter by the right office location. The images analyzed by Marchand, with their recurring panoramic views through unframed expanses of glass, are a precise illustration of the new semantics of the executive suite. An upper story and an optimal connection to the outside world now formed a new alliance unknown in the early years of multistory buildings, as Spitzweg's and Tieck's dark garrets and solitude-seeking inhabitants attest.

The way the window was employed to profile the successful businessman could also be seen in the design of the view from his window. Marchand distinguishes two popular motifs: the early 1920s favored a view of the boss's factory—set in a rural landscape—from his office in the administrative building; the view of the city skyline from a skyscraper came later. The two motifs carry different messages:

> The office window that looked out on the factory was identified explicitly or implicitly as the boss's office. . . . These tableaux, with the factory seen from a downward angle, suggested power over a very personal domain. They implied a direct, personal management in which the boss might still know by name the workers over whom he maintained his elevated surveillance.[218]



1930s advertisement for AT&T.

This constellation—the power of the CEO over his empire—was replaced by a highly placed but no longer autocratically operating businessman looking toward the horizon, an image with different implications:

> The new business man of the skyscraper office no longer looked upon a scene of production under his control. . . . Instead, his window usually disclosed the tops of other skyscrapers and an occasional airplane. The view offered substitute satisfactions for a loss of individual autonomy in an age of business bureaucratization. . . . Once in a while he might look past the fringes of the city to the

> landscape beyond. The horizon was broader than before; the domain more extensive but less under personal control. It suggested less a surveillance of present details than dreams of wider opportunities. In accordance with the enlarged role of planning and scientific research operations, the content and scope of the office view now suggested a window on the future.[219]

The location and transparency of the office no longer served to watch over what one owned, but rather as the source of inspiration and visionary business initiatives. In the skyscrapers of the metropolis, the window of the executive suite became "a window on the future." What powers of persuasion the connotations of the top-floor executive suite possessed for early twentieth-century advertising can be seen from the fact that the presentation of this location was by no means a reflection of actual circumstances. Marchand shows that in the early 1920s, at the height of the factory motif's popularity, hardly any large companies still had their executive headquarters in a rural location next to their production facilities. Management had long since moved to the cities. Moreover, the panoramic views presented in the images of later advertisements were almost always limited by other buildings in the commercial districts of New York or Chicago. The universal view of one's own empire or of the city, however, was too seductive not to be deployed as a gesture of superiority. These fictionalizations illustrated the significance of the new connection between work location and power. The elevator enabled bosses to assume their rightful position. New locutions such as "the upper echelons" attested to the congruence of social and architectural hierarchy. One could imagine a media history of loftiness in which the elevator would play a significant part.

The history of the top-floor executive suite in Germany does not begin until January 3, 1921, the day the compulsory restriction of office buildings to five stories was lifted. Whenever the vertical organization of office buildings was discussed before that date—in a 1911 special edition of the magazine *Bauwelt* dedicated to the office building, for

example—it was in the context of a simple observation: "the executive suite [is located] on the second floor."[220] The principle of the *bel étage* still governed the sphere of work as well. With the first multistory buildings of the 1920s—all equipped with elevators—the question of hierarchical order was at last raised anew. The profiles of newly built or vertically expanded office high-rises in architectural magazines of the time are very revealing, since they often included a detailed cross-section of the building as well as information about the function of individual floors. In this context, one question was of primary importance, namely, whether the building was built for a single firm or not. For the assertion of hierarchical ordering in a multistory building was meaningful only if the spaces were occupied for the most part by a single firm. In 1920s Germany, both variations were represented in new multistory office buildings. There were many with office space for rent and a few belonging to single firms. In the latter category—which is the significant one for the present study—the following buildings were the subjects of their own articles in the important architectural magazines: the headquarters of the Klingenberg Power Company (dedicated in 1928, twelve stories),[221] the headquarters of the *Hannoverscher Anzeiger* newspaper (dedicated in 1928, ten stories),[222] the headquarters of Lenz and Company (dedicated in 1928, nine stories, "Berlin's first high-rise"),[223] the tower-like headquarters of the *Stuttgarter Tagblatt* newspaper (dedicated in 1928, seventeen stories),[224] the offices of the *Magdeburger General-Anzeiger* newspaper (dedicated in 1931, with a six-story base topped by an eleven-story tower),[225] the headquarters of Siemens und Halske (the so-called Wernerwerk) in Berlin-Siemensstadt (dedicated in 1931, with a middle section of twelve stories),[226] the headquarters of IG Farben in Frankfurt am Main (dedicated in 1931, nine stories at its highest point),[227] and the headquarters of the Municipal Savings Bank in Breslau (dedicated in 1932, eleven stories).[228]

When we examine the vertical structure of these highest office buildings of the 1920s and 1930s, each built for

occupancy by a single firm, it is remarkable to discover that the option of siting the executive suite on the top floors was still hardly taken advantage of. The graphics and blueprints reproduced in the periodicals show that most firms continued to place their executive offices on the second floor (*Hannoverscher Anzeiger*, *Stuttgarter Tagblatt*, IG Farben, Municipal Savings Bank Breslau) and the "very simply furnished"[229] offices on the upper floors were rented out to other businesses (in the case of the Hannover newspaper and the savings bank). A good half a century after the construction of the Equitable Life Building in New York, the concept of the top-floor executive suite had not yet become established in Germany, although isolated headquarters buildings did introduce the new hierarchical order. After the vertical expansion of the Rudolf Mosse publishing concern in Berlin in 1922–1923, for instance, the executive offices were moved to the seventh floor—possibly as the first in Germany.[230] And a newspaper article about the tower-like middle section of the new Siemens Wernerwerk (dubbed "the first factory high-rise in Europe" in Georg Siemens's biography of his famous ancestor[231]) mentions that it contained "the executive offices on the 11th floor."[232] Around 1930, however, such instances were still rare. As in the case of apartment buildings, the turning point for the hierarchical reordering of verticality in multistory office buildings in Germany had to wait until after the Second World War. From the early 1930s on, no more high-rises were built, both because of the depression and, increasingly, because of the fear of aerial attacks. A 1933 report on office buildings in the private sector mentioned the "worldwide crisis" in construction, and noted that "the German Reich has led the way by prohibiting all construction of administrative buildings for a number of years. Provincial and municipal administrations have followed suit."[233]

Not until well into the 1950s did the top-floor executive suite achieve the self-evident status in Germany that it had in New York and Chicago a half century earlier. Between

1957 and 1965, however, such large concerns as BASF,[234] Mercedes,[235] Bayer,[236] and Klöckner-Humboldt-Deutz[237] dedicated their new headquarters, fifteen- to thirty-two-story office towers whose executive suites were all on the upper stories. "After a decade of temporary and interim arrangements," declared the introduction to an illustrated volume about the opening of the BASF building, it was finally decided to construct a twenty-one-story high-rise, the only one of its kind in 1957. "It is easy to see that vertical transport with modern high-speed elevators can be accomplished without difficulty, while there is as yet no practicable means of transportation through long corridors, that is, horizontally. Once this basic question had been answered, the decision in favor of a high-rise had been made."[238] As for the vertical organization of the office spaces, "In addition, we hoped to create work spaces on the higher floors that would be removed from the unavoidable noise of the street and the factory."[239] In 1963, the Bayer company in Leverkusen replaced BASF as the firm with the highest headquarters building in Germany. The executive offices were located on the twenty-ninth floor of the thirty-three-story building; above them were only the kitchens and the dining room.[240] The publication celebrating its opening speaks of the division of vertical space into "normal floors" and "executive floors," a previously unknown terminology brought into being by the establishment of the top-floor executive suite.[241] Recall the multistory pathology of the hygienists; a brief half century later, the top story was once again contrasted to a postulated "normalcy," but now its value was reversed. In the 1960s, during the extensive discussions of the "office landscape" concept and the most efficient way to divide workspaces, the categories "normal floor" and "executive" or "special floor" repeatedly came up. This raised the question of whether the transparency and openness demanded by the advocates of the office landscape should consistently apply to executive work spaces as well. It is interesting that even an explicit defense of the office landscape concept

concedes that "for office management and associated functions, a few individual rooms of representative character will be necessary even in open-plan offices."[242] In "office buildings wholly occupied by a single company," these "individual rooms of representative character" should be located on a separate "executive floor." "One can site conference rooms on such a floor and moreover meet the special demands of representing the company."[243] In practical construction terms, for the first office buildings designed according to the principles of the office landscape, this meant that—as in the BP publishing house in Hamburg, designed in 1964—above the four open-plan "normal floors" there was a conventionally designed "executive floor."[244] Thus by the 1960s at the latest, the top-floor executive suite in Germany marked such a clear difference that it could not even be erased by the space-leveling philosophy of the office landscape. In an era that had "internalized" (i.e., forgotten) the technical prerequisites for such a constellation, power and the lofty workplace entered into an apparently natural alliance. It is no accident that a study by advocates of the office landscape concept entitled "Hierarchical Organization of the Office" lists "room location" as the very first of numerous status symbols in an office community. "The executives are located on the top floor,"[245] it declares without further ado. The higher the office buildings rose, the more pronounced this conjunction became. When the Cologne company Klöckner-Humboldt-Deutz published an illustrated volume to celebrate the opening of its sixteen-story publishing house in 1965, it described the executive suite on the fourteenth floor as follows:

> Across from the elevators there is a large hall instead of the individual offices found on normal floors. It offers room for the reception desk and the seating areas required for receiving visitors. In contrast to the design of the other floors, the elevator bank here is free. One can walk all the way around it and from the west side has a magnificent view of Cologne and the factory area.[246]

And in the "Large Conference Room," located one floor above the executive suite, "Through the windows along the side walls, the view stretches from Cologne and the foothills across the Siebengebirge range and the suburbs on the right bank of the Rhine as far as the Bergisches Land region."[247] Panorama, responsibility, grandeur—in the late twentieth century, the elevator made a Petrarch of every CEO.

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CONTROLS

THE ELEVATOR OPERATOR AT THE TURN OF THE CENTURY

In 1909, a few months after uniform regulations for elevators went into effect in Prussia and its provinces, a booklet entitled *Der Fahrstuhlführer* (The elevator operator) was published in Berlin. Since the new regulations required every operator to be examined by the relevant authorities, "it seems to the authors of this modest publication," as they stated in their foreword, "that there is a need for a book from which the more intelligent building superintendant, doorman, servant, etc. . . . can gain enough familiarity with the setup and most important components as well as the operation of his elevator that he will not need an expensive apprenticeship in an operator's school."[1] In addition to information on the various controls and safety features of elevators, the booklet contained the text of the 1908 regulations, and the authors promised success to any halfway talented candidate who studied their text: "Used in the right way, this book will allow him to pass the examination for elevator operator without difficulty. This book is not intended for someone completely lacking in technical know-how; such a person can hardly expect to become a useful operator."[2] Given the existence of official examinations, study guides, and apprenticeships in "operator's schools," it is obvious that the profession of elevator operator at the beginning of the twentieth century

depended on a degree of competence and training we can hardly imagine from our contemporary perspective. The job of elevator operator has long since been reduced to a purely ceremonial one. As "liftboy," he exists now only in luxury hotels and department stores, the juvenalization of the title already an indication that his authority has disappeared. The history of the elevator, however, demonstrates how fundamentally different the early operation of the conveyance was from the fully automatic controls today's users take for granted. There is good reason that the very first German "Official Regulations for the Installation and Operation of Elevators," issued in 1893 for Berlin and surroundings, declared the presence of an elevator operator an absolute necessity:

> Passenger elevators and freight elevators that can also carry persons may only be used in conjunction with or under the supervision of special operators. The latter must be at least 18 years old and familiar with the equipment and operation of the elevator, which familiarity must be demonstrated by a certificate of proficiency issued by an expert authority and included in the inspection record. Operators of passenger elevators must in addition enter in the inspection record a written declaration of responsibility for the operation of the elevator.[3]

The regulations of 1893 said nothing about the precise circumstances under which such a "certificate of proficiency" would be issued. The Prussian ordinance of 1908, however, contained "Instructions for Implementation" that referred to the existence of a special "Operator Examination," which was "to be carried out with the greatest stringency" and in the following years resulted in study aids such as the booklet quoted above.[4]

The reason for such conscientious rigor in the process of becoming an elevator operator is to be sought first in the controls of early elevators, both hydraulic and electric, to which the turn-of-the-century regulations referred. The hydraulic elevators of the first years functioned by means of simple cable controls, later operated by hand wheels or cranks. The first electric elevators, which went into service

in the mid-1890s, adopted this mechanical principle or were equipped with electric lever controls. Common to all these techniques was a high degree of responsibility for the operator. On the one hand, he had to stop the cab just as it reached the intended landing, on the other, in hydraulic elevators, he also had to regulate the speed by closing or opening a valve between the water line and the piston by means of a control cable or hand wheel. Although an ordinance of 1893 required a governor on the valve allowing a maximum speed of only five feet per second, slower speeds were at the discretion of the operator. The challenges of operating the cable controls in particular were repeatedly discussed in engineering articles and textbooks. This technique was particularly difficult because there was no indication of a neutral mid-position on the cable that ran through the cab, so that the degree of acceleration could not be determined during travel, thus creating a constant danger that inexperienced operators would overshoot the desired landing. And as Ludwig Hintz wrote in his *Handbuch der Aufzugstechnik* (Manual of elevator technology), at the two end points of travel, the overshot "can sometimes be so great that it leads to a reversal of direction, since the starter mechanism for the opposite direction of travel turns on and the cab pauses only a moment at the terminal before it begins to move again in the opposite direction."[5] Lack of skill in operating the cable controls was apt to completely prevent the orderly functioning of the elevator. Beginning in the 1880s, most hydraulic passenger elevators were equipped with cranks or wheels that reduced this difficulty by providing the operator with a fixed reference point, as Hintz describes: "There is a small indicator connected to the crank or hand wheel that shows the neutral position and the settings for full speed in either direction. No matter where the cabin happens to be located, the operator is thereby always able to set the controls at the mid-position and for the desired direction."[6]

Stopping the elevator remained problematic, however, because the operator had to begin to decelerate before he

Illustration of an elevator interior at Lord & Taylor's, Broadway and Twentieth Street, New York City. From *Frank Leslie's Illustrated Newspaper.* Courtesy of the Library of Congress.

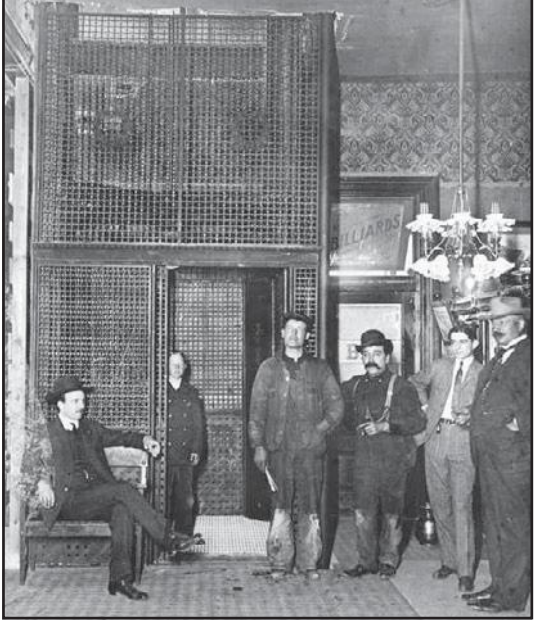
was able to see the intended landing. Late braking necessitated laborious corrections at the stop, early braking caused unnecessarily long travel time between floors, and only the most experienced operators were able to combine the highest speed with the greatest precision of stop. The art of the stop was crucial even to the smooth operation of an electric elevator with lever controls. An electric connection between the lever in the cab and the starter mechanism in the cellar ensured that cab movement could be initiated and interrupted without the slightest physical effort on the part of the operator, but since "every large electric motor must

overcome starting resistance to be set in operation," the control lever had "several contact studs between the neutral mid-position and the two extreme travel positions" that had to be turned on and off in succession when approaching and halting at a floor.[7] This arrangement made operating even the early electric elevators a complex undertaking:

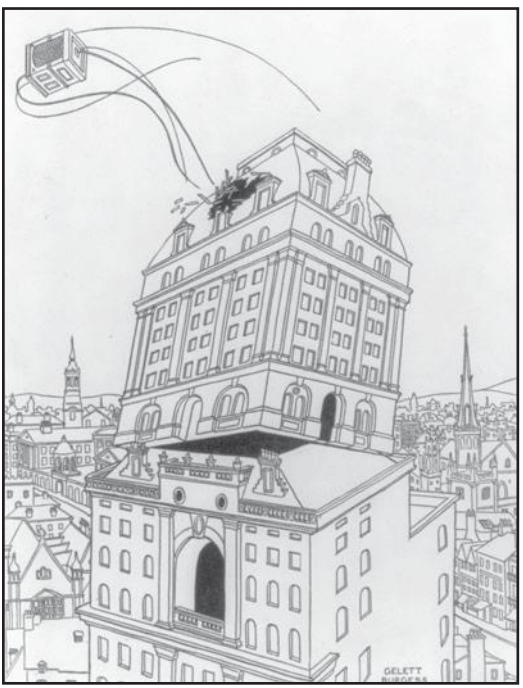
> The elevator must be operated so that the floor of the cab always comes to a stop even with the landing. In order for this to happen, it is not enough to turn off the operating current at the last moment. For the motor armature, cable drum, cables, and cab have quite a significant mass whose inertia does not simply disappear. For that reason, the current must be turned off a few seconds before the landing is reached.[8]

So many demands were placed on elevator operators in the first decades that, in an early recruiting brochure, the Otis company compared the job to that of a "railroad engineer controlling the movement of his locomotive."[9] Over and above the art of controlling the cab, his task was to ensure the maximum safety of his passengers and, as stated in the 1900 Siemens publication *Instructionen für Fahrstuhlführer* (Instructions for elevator operators), to "close the door to the elevator shaft each time with so much care that, when the cab resumes its travel, the locking bar can properly engage. . . . The operator must make sure the door is properly closed before traveling on."[10]

The story of the most famous elevator operator in German literature vividly illustrates the opportunities this profession offered at the turn of the century and what results the skilled operation of the apparatus could produce. Felix Krull, known to the hotel's patrons by his "stage name," Armand, is one of the last virtuosos of elevator operation. From the beginning, he strives for complete mastery of the electric lever controls of his cab, in contrast to his predecessor Eustache, the quality of whose service depends on the status of his passengers: the less chance of a tip, the higher the step from the floor of the cab to the landing. By contrast, when the hotel director tells Krull to "ride up and down a



Interior view of the Columbian Hotel, Trinidad, Colorado, showing the elevator, workmen, and onlookers, between 1880 and 1885. From Western History/Genealogy Department, Denver Public Library. Courtesy of the Library of Congress.



Cartoon showing elevator crashing through large building. Courtesy of the Library of Congress.

Elevator operator Charles Moore standing in elevator door at Cook County Hospital, Chicago, ca. 1911. Photograph by *Chicago Daily News*, negative DN-0056446. Courtesy of the Chicago History Museum.

Blanche Hildebrand, a woman elevator operator, at Marshall Field's and Company, Chicago, 1918. Photograph by *Chicago Daily News*, negative DN-0070326. Courtesy of the Chicago History Museum.

few times with Eustache or one of the others and see how the mechanism works," Felix replies, "It will be handled with love. . . . I will not rest until I no longer make the smallest step."[11] And the new operator keeps his promise: "I smiled a great deal and said: '*M'sieur et dame*—' and 'Watch your step,' which was quite unnecessary, for it was only on the first day that I was occasionally guilty of a slightly uneven landing; after that I was never again responsible for a step that required a warning."[12] In the course of the novel, we learn how far the chauffeuring artistry of a turn-of-the-century liftboy can get him; in Krull's case, it leads to the lucrative dalliance with Madame Houpflé, an important milestone in his career as a swindler. His initiation to a night of love begins in front of the elevator in the hotel's foyer: "She nodded in satisfaction at seeing me, smiled at my bow which, accompanied by a deferential 'madame,' had some of the quality of an invitation to dance, and let herself be enclosed with me in the bright, suspended room."[13] Felix Krull's mastery—the ride in the elevator as a dance, its elegant operation an element of seduction—is a historic index: not long after the mid-1890s, when this episode takes place, it would cease to be plausible. New control techniques put an end to the elevator operator's need to master the technical apparatus. Whether travel between stories was smooth or jerky, whether the gap at the landing was large or unnoticeable, was no longer in the least dependent on the delicate touch of a human hand.

PUSH-BUTTON CONTROLS AND THE PATH TO SELF-OPERATED ELEVATORS

Not every elevator operator was blessed with the ambition and talent of a Felix Krull. Indeed, by the end of the nineteenth century, the carelessness of the personnel led to increasing demands for self-regulating elevator operation, which also became feasible at a time of improvements in electronic control technology. Above all in New York, which in 1900 still lacked a legally required examination for operators, there was discussion of the need for such an

improvement.[14] The topic arose as early as 1891, in the *American Architect and Building News*:

> Another improvement, which is yet to come, will consist, we think, in an automatic stop for the elevator. Nothing is more tedious, clumsy and dangerous than the way in which an inexperienced boy stops and starts an elevator, particularly if he wishes to astonish the passengers by his skill. Often, he purposely fails to stop it entirely at the landing, expecting the passengers to leap in or out. . . . At other times he fails to pull the slipper rope in time, and the elevator stops a foot or two above its proper place. . . . All this dangerous and annoying ineffectiveness might be done away with by an automatic contrivance.[15]

This passage clearly shows the consequences when the skills required to drive a mechanically operated elevator were lacking: carelessness and showing off. In the following years, the apparatus that put an end to the unreliability of all manually operated controls was introduced, first in the United States and France. It consisted of an array of push buttons inside the cab and outside, at the door into the shaft. Their use required no practice or technical know-how whatsoever, and they have remained ubiquitous right up to the present day. The first American building to trust this new device was apparently the Postal Telegraph Building, built in New York City in 1893. Its elevators used a short-lived transitional system: instead of separate buttons for each floor, there was only an Up and a Down button and a dial one had to use to set the intended floor before beginning the ride.[16] The architect Maurice Saglio reported on a similar array in an 1896 article, "City Apartment Houses in Paris." The new buildings he visited in the rue du Luxembourg, for instance, "are served by elevators which seem to me to have reached the last perfection, and I hardly conceive how they could be better." The elevators were intended only for the use of the small number of tenants in the building and therefore were not supposed to need an elevator operator,

> and, as they are to be handled by impractical folks, they are very easily moved and offer complete security. . . . The engineer, M. Pifre,

> had the idea of adding electric buttons by which every movement can be arranged. . . . The handling is done by means of two buttons; one bearing the inscription *ascent* and the other *descent*. If you press the button *ascent*, and you let it go immediately, the elevator begins to ascend very slowly. If you lengthen the pressure the speed increases until its maximum is reached. If you wish to go to a certain story, you simply draw a small register bearing the number required, and press the button *ascent*.[17]

We could still call this array a precursor of fully automatic push-button controls, since the speed of travel was still determined by how long the button was held down. But the decisive watershed for the history of the elevator was the complete replacement of cables, cranks, and levers with a control system that "makes possible the use of the elevator for everyone . . . since to set it in motion and especially to stop at a landing, neither know-how nor practice" is required.[18]

In Germany, this new technology was still unknown at the turn of the twentieth century. It was mentioned neither in Philipp Mayer's voluminous entry on elevators in the 1892 *Handbuch der Architektur* (Manual of architecture) nor in the earliest draft of the Prussian elevator regulations of 1900 (the most recent variation mentioned there was electric lever controls).[19] How closely the push button was still identified as a characteristic of American elevator design at this time can be seen from a 1901 electric elevator manual that mentions the innovation of "Otis controls."[20] One can date the appearance of push-button controls in Germany to the year 1903, when the Siemens and Flohr companies in Berlin produced the first elevators with the new technology, already with a separate button for each floor. As a commentator noted in the *Zeitschrift des Vereins deutscher Ingenieure* (Journal of the Association of German Engineers),

> Characteristic of these controls is that the elevator is set in motion by contact buttons connected to electromagnetic switches. The buttons can be mounted both inside and outside the cab, at the entry points into the shaft. The elevator's transmission stops on

An example of the early push-button system. From Kerstin Englert and Alfred Englert, *Lifts in Berlin* (Berlin: Jovis, 1998).

> its own at the landing whose contact button initiated its motion. . . . Inside the cab, a bank of contact buttons is installed containing only one button per floor, which is used for both ascending and descending travel. . . . In addition, at every door into the shaft, a button is installed that serves to call the elevator.[21]

During the next fifteen to twenty years, this configuration became established as the obligatory control principle in passenger elevators and fundamentally transformed the perception of the technical apparatus.

What were the consequences of the push-button system, which an engineering article of 1908 called "the greatest advance in elevator construction in the last eight years"?[22] The advance called into question the need for an elevator operator, for if the passenger needed no special skill, but "only needs an act of volition to make the elevator go where he wants,"[23] no restrictions on who can operate it made sense anymore. In place of mechanical controls, in place of electric levers whose intermediate positions must be turned off

at exactly the right moment when approaching the landing, the push button freed the user from any control activity. With the tip of one's finger, a circuit was closed, turning on the motor in the basement, while a toggle switch connected to the motor's control apparatus saw to it that the current was interrupted precisely upon arrival at the chosen landing, and the cab stopped exactly at the landing.[24] This new simplicity of operation had a direct impact on the status of multistory apartment buildings in Germany. Around 1900, even well-appointed residential buildings hardly ever had an elevator because the personnel costs would have been exceedingly high. With the advent of push-button controls, they could dispense with these costs, and elevator installation increased. Those first roof-terrace apartments in Berlin between 1910 and 1913 owed their creation not least to the new control technology. The elevator's revalorization of the upper stories thus depended on the push button. The swiftness of the shift can be clearly followed in the elevator codes of the time—both those already in existence and drafts of future ones. In 1907, the Berlin code revised a passage unchanged since 1893 stipulating that an elevator must without exception be operated by a certified person. For the first time, the Berlin building authorities permitted a so-called self-operated elevator in apartment buildings, thereby creating the legal basis for eliminating the cost of elevator personnel.[25] And finally, the regulations issued in 1908 for the entire state of Prussia contained, in contrast to earlier edicts for individual provinces, a fundamentally new categorization of those permitted to operate the apparatus. Article 32 ("Operators") was now divided into three sections. The first continued to prescribe an adult operator for "passenger elevators with mechanical controls." The second and third sections relativized this rule: elevators "with electric controls in the cab" could be operated by assistant operators "who have reached their fifteenth year." In apartment buildings (but not in hotels or commercial buildings), installations "with interior and exterior controls" could "dispense with

the presence of an operator" altogether.[26] The appended "instructions for implementation" of this clause explained that "all cable, lever, and crank controls are to be considered 'mechanical' in contrast to electric push-button controls."[27] In the modifications and additions to the code in the years that followed, we can see the exception gradually becoming the rule. For example, from January 1917 on, the first section of Article 32 began, "Passenger elevators may (with the exceptions noted in Sections II-IV) only be operated by a certified operator."[28] The newly inserted parentheses made it clear that the exceptions now took up more space than the original norm. And in the first elevator code covering the entire German Empire, issued in 1926, the structure of the old article was entirely abandoned. Now the beginning of Article 2 structured the "classification of elevators" in the following way: "1. Elevators with an operator, intended to transport people or freight (operated elevators); 2. Elevators with a capacity of at most six persons without an operator (self-controlled)."[29] Equivalent categories of access replaced the hierarchy of rule and exception.

In the first years after the development of push-button controls, their use remained restricted to elevators in apartment buildings. A circumscribed number of users became familiar with the new mechanism; buildings with a large fluctuation in foot traffic such as hotels and office buildings, however, at first held fast to the combination of elevator operator and mechanical crank or electric lever controls. One can clearly sense the latent mistrust of the new technology from the pages of the construction journals, for instance in a 1907 article entitled "Lever or Push-Button Controls in Passenger Elevators," which stressed the "greater durability and reliability" of the older systems, "since push-button controls are a fairly complicated and sensitive device." Thus the question of which control system is the right one

> cannot be answered in favor of the one or the other. In private apartment buildings in which the elevator is sometimes run by the inhabitants (renters) themselves, often at night, and a special

operator is not always present, push-button controls have the advantage; on the other hand, in buildings with heavy public foot traffic such as department stores, hotels, etc. in which the elevators are always run by elevator operators, lever controls are usually indicated.[30]

Until after the First World War there was a transitional period in which the authority of the elevator operator persisted, except in apartment buildings. As late as 1917, an instructional booklet was published to help candidates prepare for the elevator operator's examination, essentially the same as those published a decade earlier.[31] By 1920 at the latest, however (and a decade earlier in the United States), the situation had changed. The passage in the elevator code requiring elevators in hotels and public buildings to be attended by certified operators had been removed. And in literary works, the image of the liftboy traces the fading of his creative potential, his demotion to a uniformed lackey. For decades, an elevator operator's job combined operating and maintaining the machine. As one of the instructional booklets stated, he was responsible not just for service in the cab, but also for "inspecting . . . the cables, keeping them well lubricated, and, if they have been severely damaged (snapped wires or torn strands), to replace them as necessary."[32] Now those responsibilities were divided between an unseen mechanic and a visible and usually young liftboy. This division is particularly evident when we compare a figure like Felix Krull with another well-known liftboy from German literature, Karl Rossmann in Kafka's novel *Amerika*, written in 1912–1913. The Hotel Occidental, where Karl takes a job as a liftboy, has more than thirty elevators. Here too, the new boy is broken in by his predecessor (this time named Giacomo instead of Eustache), but the control technology in an American hotel around 1910 leaves no room for differentiated operation or the development of an individual operating style such as Krull's:

Karl's deepest disappointment was the discovery that a lift-boy had nothing to do with the machinery of the lift but to set it in

> motion by simply pressing a button, while all repairs were done exclusively by the mechanics belonging to the hotel; for example, in spite of half a year's service on the lift, Giacomo had never seen with his own eyes either the dynamo in the cellar or the inner mechanism of the lift, although, as he said himself, that would have delighted him.[33]

Karl Rossmann and Felix Krull stand on opposite sides of an epochal divide created by push-button controls. The virtuoso at the end of the nineteenth century who wins the hearts of women with his artful and precise stops has been degraded to simple button pusher. The elevator operator is no longer the lord of his machine, he has become part of it, a constellation whose consequences are played out in the 1920 story "Der Liftboy" by the children's author Anton de Nora: "As soon as someone entered the cab, he doffed his cap and clicked his heels together, as if moved by an *internal mechanism*."[34] We must recall that in 1876, the Otis Company compared the job of an elevator operator with that of a railroad engineer. A quarter century later, the journal *American Architect and Building News* used this same comparison in a discussion of the introduction of an examination for elevator operators. In reply to a remark of the New York superintendent of buildings that an extensive examination was necessary because railroad engineers also had to submit to such a test, the magazine directed attention to the huge difference between the two professions at the beginning of the twentieth century:

> In the latter case practically the whole movement of every part of the machine that creates the movement is under the direct personal control of the engineer and the necessity of caring of it and the ever-changing conditions of the road-bed, grade, traffic, signals, and so on, keep him awake and alert, and consequently the calling has attraction for a high grade of man. But next to passing one's days in the prison cell the most limited career, surely, is that of an elevator-runner.[35]

Thus the history of the elevator cab as a workplace ended in the twentieth century. No longer a place demanding

technical know-how, it was at best a slight improvement on a jail cell.

A BRIEF PSYCHOLOGY OF THE PUSH BUTTON

We must not lose sight of the fact that the advent of the push button had much greater impact on the history of the elevator than simply making its operation easier or more economical. Contemporary accounts made clear how fundamentally the perception of the technical apparatus was unsettled by the new control. Especially vivid, for instance, was the description in Arthur Fürst's 1927 manual of popular science *Das Weltreich der Technik* (The empire of technology). Through the "miracle" of push-button control, the elevator seemed to be transformed into an intelligent being: "The elevator in the apartment building, open to use by anyone, no longer seems to be a dead machine, but to possess the ability to think for itself."[36] And Fürst produced a sample of this remarkable ability:

> Let's assume that the elevator cab is located on the fourth floor at the moment. Someone on the third floor pushes the button mounted on the exterior of the elevator shaft. The cab immediately begins to descend and stops at the desired landing. If one pushes the same button when the cab is on the first floor, however, then it ascends, so that it seems to be possessed of an unerring sense of direction.[37]

That the functioning of the control system was perceived as almost magic had to do with a completely new relationship between visibility and invisibility. In the days when elevator operators set the cable in motion by means of a hand wheel or a crank, the technical process could be seen in its context. In the electric elevator with push-button controls, on the other hand, the entire mechanism—electrical connections, control apparatus, motor—vanished behind the scenes. Only the push button remained visible on the surface like some last vestige and seemed to be responsible for the whole spectacle of motion all by itself. The fact that pushing the button completed a complicated circuit and

broke it again at the chosen landing remained invisible to the passenger.

One of the most historically important characteristics of the years around 1900 appears to be the increasing removal of technical processes in general into a realm of concealment, and the elevator was one of the most interesting examples of this development. The invention of the push button led in equal measure to new power and new impotence vis-à-vis technical phenomena. Although the machine now obeyed the human without any special effort on his part, the decline of the elevator operator shows that the push button made any particular skill of the human in question obsolete. Automatic controls reduced the volitional component of machine operation to a single initiating motion. One could say that since the late nineteenth century, there has been a rupture in our perception of technical processes. For the push button, as the only visible element of a hidden system of wires, coils, and motors, severs the visible connection between cause and effect. Whatever happens between pressing the button and the desired result—the arrival of the elevator, for instance—has become an abstraction.

Elevator fantasies in literature and film repeatedly focus on exactly this blind spot and take literally Artur Fürst's metaphor of the elevator's "ability to think for itself." The classic 1983 Dutch horror film *De Lift* (a 2001 American remake was entitled *The Shaft*), for example, in which a defective microprocessor causes a cab to become in fact "animate" and kill a series of passengers by moving unexpectedly, is possible only in the historic circumstances created eighty years earlier by the push button. To imagine an apparatus having a "life of its own" becomes possible the moment that real-life control systems hide their operation from view. The same thing goes for less scary versions of the fantasy that belong more to the genre of fairy tale than horror film. In *Der Aufzug* (The elevator), the previously mentioned children's book by Paul Maar and Nikolaus Heidelbach, the little girl Rosa is taken

on a trip through the magic landscapes between the stories of her building, but first receives a warning from the dwarf in the elevator: "Push any button! / There's lots to see! / Just not the one / that has a B!"[38] Of course the story ends when Rosa pushes the forbidden button one night and ends the spell. Her returning parents discover her in the basement and carry the sleepwalking child back to her bed. Crucial to the imaginary structure of this story as well is that it is possible only in the age of the push button. What we could call the "fictional impulse" of the story—the idea that an elevator cab could suddenly deliver you to a fairy-tale realm—is tied to the invisibility of the control mechanism. An elevator operated by a hand wheel just wouldn't work as a hermetic wish machine.

When we contemplate the implications of the push button around 1900, one shift becomes especially evident: in the mechanical epoch, an effect such as calling for an elevator was *produced*, not just *activated*. This threshold between producing and activating a movement is especially important in the history of human consciousness. Hans Blumenberg describes this precisely in the essay "Environment and Mechanization under the Aspect of Phenomenology," which posits a theory of the push button using the example of the doorbell:

> There are the old mechanical models: the bell pull or revolving bicycle-style bell. When you operate them, you still have the immediate feeling that you are producing the intended effect in all its specificity; there is an adequate nexus between the act of your hand and the ringing of the bell, that is, when I am confronted by such a device, I not only know what I have to do but also why I have to do it. It's different with an electric bell operated by a push button. The hand's action is related to the effect in a quite unspecific and heteromorphic way—we no longer produce the effect, but only activate it. The apparatus holds the desired effect already completed, so to speak, and ready for us. Indeed, it carefully conceals from us its contingency and the complexity of its production in order to suggest that it is obtainable without effort.[39]

To be sure, there were devices used to activate processes long before the push button: the trigger of a gun, for instance, or the earliest forms of electric telegraphy in the mid-nineteenth century in which an ensemble of visible keys and invisible wires was already present. But only the push button fully developed that constellation whose most important criterion was defined as early as 1876 by the physicist Julius Robert Mayer in his lecture "On Activation," namely, "that there is absolutely no quantitative relationship between cause and effect."[40] In the transitions from crank to lever to push button, the last analogy between activating and activated power disappears, namely, direction. For the direction in which one's fingertip moves is always the same and independent of whether an elevator is supposed to travel up or down. The push button becomes the absolute activation device, and it's a bit surprising that Walter Benjamin makes no specific mention of it in the often-quoted passage from his book on Baudelaire:

> In the mid-nineteenth century, the invention of the match brought forth a number of innovations which have one thing in common: a single abrupt movement of the hand triggers a process of many steps. This development is taking place in many areas. A case in point is the telephone, where the lifting of a receiver has taken the place of the steady movement that used to be required to crank the older models. With regard to countless movements of switching, inserting, pressing, and the like, the "snapping" by the photographer had the greatest consequences. Henceforth a touch of the finger sufficed to fix an event for an unlimited period of time. The camera gave the moment a posthumous shock, as it were.[41]

Benjamin's observation culminates in the invention of the push button, which began showing up in various devices between 1885 and 1895. Besides its function as an elevator control, it is also used as a doorbell, on machine tools, and as a release on fire alarms and camera shutters. The famous advertising slogan of Kodak, which began selling its pocket camera in 1888, thematized the new relationship between user and device: "You press the button, we do the rest."[42]

Already by the end of the nineteenth century, the fingertip was often the only point of contact between humans and their machines. Perhaps, then, it is more than just a historical coincidence that at the same time—in fact, in the same year as one of the first patents for an elevator push button[43]—the fingertip gained importance for quite a different reason: not as a medium of control but of identification. The English polymath Francis Galton published his book *Finger Prints* in 1892, the first systematic study of the use of human prints for the purpose of identification. In remarkable synchronicity, this tiny part of the human anatomy was assigned different functions: the activation of technical processes and the production of unique identification marks. The power and impotence of modern man, his ability to control as well as to be controlled, were both concentrated in his fingertip.

One of the earliest uses of the push button—a little less than a decade before its installation in elevators—was to report fires. It's obvious that modern activation mechanisms would be welcome in fire prevention, for even the most advanced firefighting techniques are unavailing when tardy notification means the firemen arrive at a smoking ruin. But procedures for giving the alarm were long hindered by the problem that they could "only be carried out within earshot of the public in general," as the hefty 1929 *Deutsches Feuerwehrbuch* (German firefighting book) puts it, that is, by sounding a bell or blowing a horn.[44] This often meant that the work of putting out the fire was interfered with by a crowd of onlookers. In the middle of the nineteenth century, the new possibilities opened by telegraphy allowed more discrete communication; aboveground electric lines connecting tire towers to fire department headquarters began to be strung. Then, between 1860 and 1885, there was a proliferation of fire alarm boxes inside buildings and on the street, at first with cranks or pull-down levers, then with push buttons. As the Berlin senior engineer Lucke stressed in the *Deutsches Feuerwehrbuch*, the introduction of electric

fire alarm boxes ensured not only more discretion but also a more reliable form of data transfer. The use of the device was so simple that any witness to a fire was able to activate the alarm, "no matter how stupid the person may be who gives the signal."[45] Here Lucke quotes an elderly British colleague and then adds a comment of his own:

> This remark characterizes the purpose of a fire alarm box. Such an apparatus is designed to make it possible for anyone to call the fire department to a particular location by sending a signal to headquarters that identifies the location of the alarm box. The main prerequisite is thus that almost no demands at all are placed on the intelligence of the person giving the alarm, especially since that person will almost always be in an excited state.[46]

That is the good news of the push button: it relieves us of the responsibility of having to produce meaningful information on our own. The fire alarm sent by pushing a button gives the exact location of the fire even if the person who discovered it is not capable of doing so. Someone who is too excited and confused to think and speak clearly can still push a button; when someone is in shock, their fingertip is more reliable than their speech center. At the end of the passage quoted above, Senior Engineer Lucke drew attention to an important distinction. He explained to his readers that the assertion of the English historian of firefighting wasn't really accurate, since he was talking about the older crank-operated fire alarm boxes, whose operation still required a modicum of intelligence from the user, "since if the crank is turned too often, too quickly, or too slowly, it can easily cause errors at headquarters as a result of an unclear signal."[47] The push button alone is equal to any potential deficiency in the user. Whether the button is pressed too quickly, too slowly, or too frequently, the signal that arrives at headquarters is always clear and correct.

The same year the *Deutsches Feuerwehrbuch* was published, an article appeared in the magazine *Der graphische Betrieb* (Graphics business) entitled "Push-Button Controls as a Factor in Operating Efficiency." The text discussed the

deployment of the new controls in machine tools in the paper, rubber, and food products industries and described how workers' shorter "manipulation times" result in increased production. It is interesting that in this case too, the decisive advantage of the push button was immediately linked to the latent unreliability of users, and with a racist argument to boot. While in Germany the hefty costs involved would prevent all but the largest machines from being equipped with the new controls, the push button was already in widespread use in American factories for the following reason, according to the author:

> With respect to industrial jobs, we can assume that the intelligence of unskilled workers in America, especially the colored workers, is not on the same level as that of unskilled workers in the cultured states of Europe and therefore, one cannot make great demands on their intelligence. Push-button controls in America are intended to overcome this lack of intelligence among unskilled workers.[48]

Hans Blumenberg's interest, in contrast, was in the alienation of the subject from the technological apparatus in the activation of electric doorbells: "The functional human portion is homogenized and reduced to the ideal minimum of pressure on a button. The technologization makes human actions increasingly unspecific."[49] From the perspective of firemen and economists, however, the advantage of the new controls lay precisely in this leveling. No one needed specialized training to use the button. The push button, one could say, extinguished the genuine authorship of manipulations. While the push button transformed photography, for instance, from an exclusive, time-consuming art form into an instantaneous "snapshot"—an everyday pleasure for the masses—in the case of fire prevention it simply meant greater security. One of the loveliest passages of the *Deutsches Feuerwehrbuch* addressed the frequently advocated use of the telephone to report a fire. Lucke explained his view that the reason this means of communication was not appropriate was precisely that it involved human decisions. He pointed out that a caller could exaggerate, the fire

station might be unable to learn the location of the blaze, and in addition, no written record of the conversation would be available. Lucke then recalled an incident when the use of the telephone resulted in a catastrophe:

> It has happened that an entire telephone office [of a fire station] burned to the ground because the last operator, who possessed the admirable courage to call up the fire brigade before leaving her already burning office, could not be persuaded to clearly state where the fire was. In her distress she just kept repeating, "It's burning here in the office," since she must have assumed the fire brigade would know the call was coming from the telephone office.[50]

Such problems are unknown to the push button. Once pushed, it sets in motion a chain of contacts that precludes any misunderstandings. Thus, since the invention of the electric fire alarm box, the business of reporting a fire has been carried out without the unreliable human factor—with one exception, namely, how to distinguish a practice alarm from a real one. For although electric wires and push buttons perform their service so conscientiously, they are not able to differentiate between a serious activation and one meant only to test the system. To clear up that question, communication by telephone was necessary after all. That is why, as Lucke explained, the newest fire alarm boxes were "paired with a telephone installation."

Thus the push button proved its worth wherever the unpredictability of human intelligence could endanger the transmission of data. The withdrawal of the human subject as a responsible creator of information also had a menacing side, however. Pushing a button occurs so quickly and anonymously that from its first appearance, the push button was associated with a sense of unease and fear of random misuse. Not surprisingly, the subject of malicious misuse of electric doorbells, fire alarms, and elevator buttons was mentioned in almost every article about them at the turn of the century. Doorbells were involved mostly in a playful way; an 1896 *Handbuch der Architektur* (Manual of architecture) already declared that they "tempt young

people to mischief."[51] The problem was more serious in the case of electric fire alarms, which were misused so often in the first years of their existence that they soon got covered by a protective sheet of thick glass. Since then, the form of fire alarms has been characterized by the curious paradox that the inner threshold of activation is kept as low as possible, but the outer threshold is quite high to protect against misuse. Thus the passerby again needs strength and skill to report a fire, but only to legitimize his action, not for the action itself. What the glass cover seeks to inhibit is the almost magnetic attraction of the push button. Its appearance ignites that general urge to activate things that Julius Robert Mayer was already cognizant of:

> Human nature is such that people like to achieve the greatest effects with the smallest possible means. The pleasure we take in firing a weapon is an eloquent example of this. . . . But even if activating things is an inexhaustible source of permissible joy and harmless pleasure, we must also note that this phenomenon can also lead to the most heinous crimes.[52]

Mayer mentioned assassinations, arson, and tampering with railroad switches and closed with the prognosis, "Well, if our planet were so constituted that it would be possible for someone to blow it up with a bag of dynamite, there would certainly be enough people at any given time willing to sacrifice their own lives in order to blow our beautiful earth into outer space."[53]

What was still an imaginary horror scenario in 1876, the idea of blowing up the whole world with the push of a button, became a much-discussed reality in the second half of the twentieth century in the course of the Cold War. All the dangers of the push button—the irresponsibility of the human subject, the possibility of malicious misuse, the process of information transfer inscrutable to the layman—were united in the myth of the so-called Red Button, which could at any time activate the atomic destruction of the earth. The fear of this ultimate push button, played through in countless novels and films, was the culmination

of the entire psychology of its use: the fear of the no longer comprehensible disproportion between cause and effect, the knowledge of its simple, irreversible functioning, and finally, the thought of its indiscriminate use—that a villain might secure access to the Red Button and use it to extort world domination or that, as in a 1980s music video of the English rock group Genesis, a scatter-brained president mixes up the buttons and instead of calling his nurse initiates World War III. With the Red Button, the realization quickly dawned that push buttons eliminated the competence and responsibility entailed in the authorship of an action. The decision to launch missile systems was no longer the result of well-considered negotiations, but rather the matter of a moment, perhaps even the result of a capricious or accidental act. One knows, of course, that such a Red Button never really existed. The mechanism that could set a missile attack from the United States or the Soviet Union (or Russia) in motion is not controlled by push buttons but by a series of electronic decoding systems. According to a description of the so-called nuclear briefcase, a president would have to

> enter a code to approve the process of initiating an attack. The secretary of defense would have to do the same. The third key would be held by the joint chiefs of staff who would have to convert the information received from the president and the secretary of defense into a further number, which would be encrypted and sent to the missiles over special frequencies.[54]

We can already see from the hypotactic sentence structure how much the actuality differs from the myth of the continuously available Red Button. Only a combination of digital codes could allow the worst-case scenario to begin, an activation technology that contradicts the psychology of the push button in all respects: complex rather than simple operation, strictly regulated rather than uncontrolled access, activation as a series of individual, reversible steps rather than a momentary, impulsive act. The fate of the world probably never hung by the thread spun by Cold War hysteria,

the thread that the push of a button could snap. The metaphor of the push button, however, by concretizing the fear of nuclear arms, is psychologically consequential.

The crucial point is that push buttons deny us insight into how a technical apparatus functions. As Hans Blumenberg writes,

> Behind every such activator there is a long prehistory of human discoveries, an entire complex of inventive accomplishment; but the activator is so "packaged" that its abstract uniformity removes and conceals all of that from our view—it would be an inferior "product" that allowed us to peer at its innards.[55]

One consequence of this opaqueness, as the Red Button dramatizes, is the fear of overeffectiveness. Push buttons always contain the threat that they could function "too well." However, the opposite threat also exists (and here the elevator comes back into our sights), the persistent possibility that without our knowledge, they may have no effect at all. In his book *Faster: The Acceleration of Just About Everything*, the American theoretician James Gleick reveals a secret about the "door close" buttons present in all recent elevators. This button is supposed to make the doors close immediately, thus saving those precious seconds that tick away between the choice of floor and the beginning of the ride. Gleick quotes the president of the Otis Company to the effect that in elevators in Asia, the "door close" button has long been the most well-worn of all. No button in the elevator seems more important, and yet, as Gleick's research reveals, the wires to this button are often either disconnected or not present at all.[56] The "door close" button enacts a swindle: it gives passengers the feeling that they are getting on faster, but in reality it has no effect at all. In this light, the phenomenology of the push button—Blumenberg's distinction between "producing" and merely "activating," gains a new twist, since it turns out that in the push button, the connection between cause and effect is sometimes not just optically but literally severed. No one can check to see if the control keeps its promise or not, as James Gleick points out:

> How often do you press a button and nothing happens? Do you press the already illuminated call button of an elevator a second time even though you suspect that your effort will not result in the elevator arriving sooner? Your suspicion is correct. Computers could tell the elevator to privilege those floors where the call button was used more often, but elevator engineers are not about to provide even more incentives than already exist for people to repeatedly press the button.[57]

Everyday life is saturated with push buttons whose functionality is at least questionable, whether they be the "walk" button at seldom-used pedestrian crosswalks, the buttons on a slot machine, or the "door close" button in an elevator. All these controls suggest to their user that the pressure of a finger can influence the course of events. But the invisibility of the actual mechanism confounds any confirmation of this hypothesis. We cannot say with certainty how many of our daily activations are purely unnecessary doublings of actions that are controlled from somewhere else, defective haptic feedback of the kind Willy Brandt experienced in 1967 when he pushed a button to initiate color TV in Germany. An overeager technician had already sent the image to countless German TV screens seconds before the staged moment of activation.[58] In the end, the effectiveness of this control, as incontrovertible as it seems, is never really ensured. Push buttons can always turn out to be placebos.

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INTERIORS

THE STAIRWELL

The multistory apartment buildings that rapidly proliferated in the second half of the nineteenth century created another difficulty besides adding upper floors unsuitable for residences: they contained a number of spaces—corridors, stairwells, and later, elevators—of often indeterminate status. These spaces were part of the building but not of its residential units, and occupied an unstable intermediate position between the private space behind closed apartment doors and the public space outside the building. Revisions of German building codes reveal the increasing attention paid to the stairwell—*das Treppenhaus*—a word increasingly frequent in common parlance beginning in the 1850s.[1] The Berlin building code of 1897, for instance, introduced the previously unknown category "long-term human occupancy" and forbade it in "hallways, staircases, corridors."[2] The amount of time spent in a residential building was legally irrelevant as long as residents were either completely inside or completely outside their separate houses. Only the spaces of multistory dwellings intended purely for transit necessitated the new regulation.

It is no surprise that the new concept of the stairwell as a semi-public space attracted the attention of both building inspectors and public health officials. As the part of

the building used not only by all the tenants but also by a wide variety of visitors, it was monitored by health officials almost as closely as basement and attic apartments. In an 1893 conference paper entitled "The Hygiene of Stairways and Stairwells," the Munich physician Josef von Kerschensteiner drew attention to the importance of this question,

> since no part of a building is so often and regularly used, from early morning until late at night, by people of every age, sex, and profession. Children and old grandmothers, messengers, package deliverers and letter carriers, and not least of all doctors, must climb the often towering stairwells in pursuit of their duties. . . . In this regard, the following points should be noted. Hallways provide an image of the building's character; their floors should be tiled and clean. The air in the hallway must be good, and warm in winter to create natural ventilation. . . . The hallway must be well lit day and night.[3]

The increasingly intense public health focus on the stairwell as a heavily trafficked space was closely related to the "increase in knowledge about the natural processes of infection," as the 1894 *Handbuch der Hygiene* (Manual of hygiene) stressed.[4] Pasteur and Koch had researched the conditions for bacterial infections in the early 1880s, and the semi-public spaces of the new large tenements were recognized as a paradigmatic milieu for disease transmission. The danger was particularly acute where the stairwell was exposed to constant touching:

> In our time, when contact infections are universally recognized by bacteriologists and doctors as more prevalent than any other kind, the banister in the stairwell and especially the handrails must receive special attention as a structure particularly well suited to the transmission of infectious diseases. Up to now, a small number of architects have received hygienic training, concede the importance of public health, and have pointed out that the handrail must not be allowed to accumulate dust. But we must demand much more than that from its design: the handrail must be washable, and not just with moist cloths, i.e., with water, but also with disinfectant solutions.[5]

To underscore their demands, the authors adduced a scenario posited in the *Centralblatt für Bacteriologie* (Central newsletter for bacteriology):

> Let us merely assume, for example, a frequently occurring case: on the top floor of a building, a mother whose child has diphtheria and is nearly choking to death uses her finger to remove a coughed-up croup membrane from the child's mouth, or has otherwise touched its mouth. Without taking time to wash her hands, she rushes to the doctor's office and uses the handrail along the stairs. Shortly thereafter, the father of the family living one floor below returns home for lunch, weary from his morning's work. He too uses the handrail. He greets his children as they run to meet him. They take him by the hand and accompany him to the lunch table, where they reach for pieces of bread and transport the diphtheria germs their father's hand had picked up on the railing onto their bread and with it onto the mucosae in their mouth and throat. The transmission can also occur more directly, since one often sees toddlers using the handrails when going up and down the stairs.[6]

Such scenarios show how much the image of the home changed in the age of urbanization. Previously ignored intermediate spaces now frequently came under scrutiny and their dangers were investigated with the aid of the latest advances in medical knowledge. One could say that stairwells and, eventually, elevators as well introduced the element of public contact into the image of apartment buildings, and in the minds of public health advocates at the end of the nineteenth century, contact was synonymous with contamination. That's why manuals of residential hygiene could devote entire chapters to the proper dust-resistant construction of banister handrails. The cleanliness of through traffic had to be assured if the parts of the building meant for common use were not to become sources of collective illness. Paths for infection that, if we are to believe the handbook's authors, "could be even more drastically portrayed,"[7] must be blocked both by the correct use of cleaning agents and a "local police ban" on certain regional habits such as the "beating and brushing of clothes and shoes on the stairwell

landings."[8] The latter demand referred precisely to the issue of "long-term human occupancy" of corridors that was regulated for the first time three years later, in 1897, in the Berlin building code. In 1894, however, the stairwell still appeared as a diffuse, judicially unstructured location.

It was typical of the hygienists' thinking that they scrutinized the stairwell not just physiologically, but also morally. For the danger of infection lurking in a building's stairwell could threaten both the immune and the value systems of its residents. Interesting contrasts developed in the debate about communal life in apartment buildings. Proponents of such living argued for its didactic value. James Hobrecht, for example, the initiator of the Berlin development plan of 1862 and—despite his activities in the Public Health Association—one of the greatest champions of apartment houses, provided an eloquent defense of them in *Ueber öffentliche Gesundheitspflege* (On public health). The English tradition of single-family houses, Hobrecht argued, separated the various social classes too radically from each other. While upper-class streets were supplied with all the amenities, only "police officers and sensation-seekers" dared enter working-class neighborhoods.[9] The goal of urban planning must therefore be "diffusion," not "seclusion." Hobrecht portrayed the apartment building, with its clearly structured vertical hierarchy, as a pedagogic establishment of benefit to all its inhabitants, from the *bel étage* to the garret:

> It is a moral education for the well-to-do and wealthy to see and meet other people and come into contact with all levels of poverty and deprivation, while seclusion leads either to hard-heartedness or, in the case of more sensitive natures who happen to encounter poverty (which is never entirely avoidable), to a spurious and nervous humanitarianism.[10]

In the multistory apartment building, on the other hand, the continuous cultivation of the heart developed naturally.

> The children from the basement apartments head off to public school through the same hallways used by the children of privy counselors and merchants on their way to the *gymnasium* that

prepares them for university study. Wilhelm the cobbler from the mansard apartment and old bed-ridden Frau Schulz from the back courtyard whose daughter earns a meager living as a seamstress and charwoman are well known to the residents of the *bel étage*. Here they find a bowl of soup to fortify them when they're ill, there a hand-me-down, and again some help getting their children into a free school, etc. And all this, the result of easy relations among human beings however great their differences in station, is charity that exercises its ennobling influence on the *giver*. . . . The well-to-do, on the other hand, with their cleanliness and social graces—quite apart from the better qualities they obviously possess because of their more scrupulous upbringing—are most definitely a positive social influence on the needy and destitute. Where a working-class English mother lets her child run around unwashed, uncombed, and in rags because she has no incentive to expend effort or time on the child's appearance, the mother from a basement dwelling in an apartment house would not think of doing so, for she knows herself to be observed and subject to the disapproval of the better residents.[11]

Hobrecht's philanthropic attempt to regard the *Mietskaserne*, the "rental barracks," as a moral institution assigned the stairwell a completely different function. What was communicated here was not diphtheria germs, but qualities such as charity and self-respect. The common spaces served as a constant corrective by restraining some from arrogance and others from dissipation. A "natural relationship of give and take" was engendered and, in addition, provided the renters of modest means with several possibilities for additional income: "Here, the daughter of the minor official from the back courtyard can give sewing machine lessons. There, the teacher from the garret apartment can give the schoolboy from the *bel étage* extra tutoring—and can do it without wasting time because of the *short* distance."[12] But these "short distances" between apartments were exactly what made Hobrecht's early encomium such an exception; they more often elicited a flood of vituperation. As we know, most public health advocates rejected the multistory tenement

and its stairwell. The potential for contagion, not pedagogy, was their central concern. One of the most prominent of them stated categorically, "The modern style of tenement house creates a widespread individual disposition to infectious diseases."[13] The same could be said for moral infection. It could be observed "that the excessive agglomeration of so many families and men and women of all ages under one roof brings with it many inconveniences, conflicts, and moral dangers that do not usually occur within less crowded buildings."[14] In the nineteenth and early twentieth centuries, the stairwell was a suspect location. One could make a study of the characters in literary works of the time whose existence plays out in these public passageways—Kafka's Odradek, for example, or Melville's Bartleby, who "persists in haunting the building generally, sitting upon the banisters of the stairs by day, and sleeping in the entry by night."[15] They are figures with an identity as unstable as the place they end up in or inhabit from the start.

One last aspect of the discussion of tenement houses is interesting because it shows the hygienists' angle of attack against the stairwell in Germany, namely, the "lavatory question" addressed at tedious length in the public health literature. It is surprising that in the early twentieth century, there were still frequent voices in favor of locating toilets in the stairwells instead of in the meagerly furnished apartments themselves. This argument makes sense only if we assume that hygienic standards for the semi-public spaces of the building were different from those for the private spaces behind apartment doors. As a 1906 essay in the *Zeitschrift für Wohnungswesen* (Journal of residential housing) states, the stairwell in multistory buildings

> assumes a very different character than in a single-family house. While in the latter it is a necessary part of the dwelling, stands in direct communication with its rooms, and often becomes almost a kind of living room in combination with an entrance hall or vestibule, the situation in an apartment building is quite different. Here the stairwell constitutes only an access of sorts—an extension of

> the street if you will—to the individual apartments. There is absolutely no reason for the residents of the building to spend any appreciable time in the stairwell.[16]

Part of the dwelling or part of the street, independent room or mere passageway—this was the central question raised by the advent of the stairwell and later the elevator. In Germany, despite early laws against locating toilets outside apartments,[17] the idea took hold that these rooms were to be regarded as external rather than internal. According to the monumental 1902 *Handbuch der Architektur* (Manual of architecture), "Together with the hallways they [stairways in apartment buildings] constitute the continuation of the street and are to be designed accordingly."[18]

If we wish to trace the ambivalent status of semi-public spaces in the early years of the mass tenement, we cannot ignore the emergence of the American apartment house, first in Boston, then primarily in New York. In contrast to the situation in Germany and continental Europe in general, two things particularly stand out. On the one hand, the difference between life in single-family houses and life in apartment houses was perceived as much more drastic in America. On the other hand, the elevator soon played a decisive role in the debates about apartment houses, which is of most interest for the present work. The furious pace of transformation in Manhattan between the erection of the first apartment house in 1869 and the turn of the century, when only an infinitesimal number of single-family houses were still being built,[19] has been described at length by American social and architectural historians.[20] Within only a few years, a "revolution in living"[21] took place that commentators soon reflected upon. It recapitulated the process of mid-nineteenth-century European urbanization as if in time lapse and carried it even further. By 1883, more than 50 percent of the population of Manhattan lived in communal rather than single-family dwellings.[22] An elevator was already installed in the second apartment house ever built, and by the 1880s at the latest had become a standard amenity. American

architectural critics were surprised to find that the new conveyance was absent from even the most luxurious European apartment buildings. In an 1890 portrait of "one of the largest apartment houses" in Paris, one of them noted the absence of "a luxury which an American would consider indispensable in such a house, but which the Parisian is content to find only in hotels."[23]

One must try to imagine the suddenness of the changes in New York, the utter absence there of the early forms of mass dwellings that existed in large European cities, to understand the skepticism toward the new type of building. Before 1870, the only communal alternatives to single-family houses were "boarding houses" and "tenement houses"—simple hotels for long-term guests and collective accommodations for poor families and newly arrived immigrants. The radical difference between the latter and the new apartment houses was readable from their etymologies, as a contemporary commentator pointed out:

> "Tenement" is derived from the Latin verb "tenere" (to hold), and is the name properly given to a building that is designed to hold or to give shelter to the largest possible number of persons, at the least possible cost to each individual tenant. "Apartment," however, is an anglicized derivation of another Latin verb, "partere" (to divide), and with equal propriety is applied to a dwelling-house, of which the structural and social intent is to separate family from family, and to gratify the desire for privacy that every household naturally feels. . . . Economy, therefore, is the purpose of the tenement—comfort, that of the apartment.[24]

This delimitation of the tenement was typical of the early reception of apartment houses. The latter constituted an intermediate link between the two traditional kinds of dwelling. They emerged to serve a growing class who could not afford a single-family house, but for whom living in a tenement house would have meant an inappropriate decline in status. As an 1878 magazine article put it, an apartment is the perfect dwelling "for a decent, unpretending, small family, 'not in society,' i.e., making no claims to elegance of surrounding,

but yet not willing to descend to the tenement-house level."[25] This new intermediate link, however, had elements that tended to draw two spheres closer together that up to then had been completely separate: the carefully closed-off living unit on the one hand and the communal life of numerous families under one roof on the other. Stairwells, hallways, and elevators were the interfaces whose job was to guarantee that this drawing together functioned smoothly, and it is logical that their design received more attention in the traditionless apartment houses of America than in the mass rental buildings of Europe. This was already evident in the event that heralded the birth of the apartment house: in June 1857, Calvert Vaux, one of the architects of Central Park, gave a lecture on multistory European apartment houses at the American Institute of Architects, a date still recalled twelve years later by a leading New York construction industry journal: "Vaux was the first, we believe, to publish a plan showing how several families could be accommodated in one building, and yet kept quite isolated."[26] After describing European rental apartments with their unadorned stairwells, Vaux made clear that American cities could not easily adopt such a design. Up to now, this kind of building was known only "in the inadequate shape of what are known as tenement houses."[27] In the plan of a five-story building with eight apartments that Vaux presented to his audience, the semi-public spaces were therefore laid out differently than in Europe:

> It is not at all uncommon in the European buildings on this plan to find the public staircase in the middle of the house, and although ample in dimensions, somewhat restricted in its supply of light and air. Indeed, as a general rule, the public approaches are allowed to be of secondary importance, and the agreeable effect of the rooms themselves, when arrived at, is possibly enhanced thereby; but a different plan must be adopted, if the idea is to be suited to New York needs; the public staircase, which is the unusual feature to which we have to be accustomed, must be made light, airy and elegant; and if possible lighter, airier, and more elegant than any other part of the house.[28]

From the start, this was precisely what distinguished American from European stairwells. Because of its exoticism and bad reputation in tenement houses, more attention was paid to the shared stairwell, "the unusual feature to which we have to be accustomed," in America. The first impression had to be a convincing one if Americans' reluctance to accept the apartment building was to be overcome. In the first apartment house actually built in New York (where it was only logical that Calvert Vaux himself should live), this conception was realized. The four-story building with a total of sixteen apartments was divided by two elegant stairways, so that in each half of the building, as in Vaux's early plan, only two apartments were located on each floor. This arrangement restricted the spaces used in common to a minimum, as we see in a contemporary description of the building: "on arriving on each floor, which represents a separate house, the visitor comes to a private hall door on each landing, without interfering with the privacy of any other family in his passage up and down."[29] The wording of this passage is significant, stressing that the apartments remained "separate houses" each with "a private hall door," that is, they were still single-family houses, merely stacked one above the other, but otherwise no different from the familiar house type. "A family thus situated is quite as private as in the finest residence on 5th Avenue."[30] The semi-public spaces necessary to connect these "separate houses" with the street below had to maintain this status, and it is therefore not surprising that early descriptions of New York apartments regularly emphasized the luxurious decoration of their stairwells. While the lavatory question gradually began to preoccupy the Germans, commentators in America were remarking on interior touches such as the "deep-red Turkey carpet" or the "bronze brackets and chandeliers."[31]

The configuration of residential buildings in New York was changing so quickly during the 1870s that new laws were soon necessary to clarify the situation. In 1878, a legal dispute between two property owners turned on the

question of "whether what is called an apartment-house is a tenement-house."[32] In 1872, the plaintiff had purchased a building from the defendant, and one of the terms of the contract was that the latter would not build a tenement house on a neighboring lot. Six years later he began to construct an apartment house there, whereupon his neighbor sued him for breach of contract. American courts had to decide for the first time how to classify the new building type. The existing law, passed in 1867, defined all New York residential buildings with more than three households as tenement houses,[33] but that was clearly inadequate to deal with the new type of building. The court found for the defendant, thereby adding a third category of residential structure in addition to the single-family house and the tenement building. From 1878 on, the apartment house was a recognized legal entity. The judge's opinion acknowledged "the necessity of new terms in common use and in law to discriminate new things."[34] But in the first two or three decades of the apartment house's existence, what exactly constituted this "new thing" remained unclear from both a legal and an architectural point of view.

Just as the apartment house did not show up as an independent, precisely defined category until the voluminous New York Building Act of 1899,[35] the principles of its construction also remained open. The greatest difficulty always seemed to be the delicate balance between closed and freely accessible spaces, the question of "how, in the matter of residence, shall we manage to associate with our fellows just enough but not too much."[36] An examination of the debates about apartment houses in the last quarter of the nineteenth century, with their constant comparisons of New York buildings to their European and especially Parisian counterparts (not surprisingly, apartments were at first called "French flats"), manifests quite evidently the efforts to establish this balance. More sharply than in Europe, the attempt to understand the multistory apartment house as a vertical stack of single-family dwellings and

the stairwells as purely interior spaces ran up against the problem of blurred demarcation lines. Where did private space end and public space begin? No one described this critical conundrum more clearly than the architectural team of Hubert, Pirsson and Hoddick, who built some of the most prominent apartment houses of the 1880s. In an 1893 essay, they contrasted the construction principles of French apartment buildings to American practice. The authors set out to demonstrate that the design priorities of most New York apartment houses were false. While the stairwell still received the highest priority in the wake of Calvert Vaux's influential assumptions, the dwelling units themselves were designed to be remarkably permeable. The architects reported the difficulties of a man and his wife who lived in an apartment in one of the most luxurious buildings in Manhattan. The couple complained that the location of the windows in their building and the building it faced allowed too great a view into each other's apartments and that the floors between stories were much too thin to mute the noise from the apartments above and below theirs. Moreover, despite the elegant appointments of the stairwell, it was unclear how one was supposed to behave in them. They expressed their annoyance "that the tenants on the top floor had two somewhat rough and ill-bred boys, who nearly upset our friend's wife one day in their wild rush down the narrow public stairs, and who would not rub their feet on the front door mat, but left prints of their dirty boots all the way up the bright Brussels carpet."[37] The more refined the interior decoration of the semi-public spaces, the more unstable were the codes of behavior expected of their users. The same essay illustrates the ambiguous status of the stairwell by describing some tenants who moved in shortly after the couple mentioned above, "a large family with several men who smoked incessantly, both in their rooms and on the stairs and landings which they used as a regular part of their holding, and where they appeared with a painful disregard as to their toilet." According

to the authors, all these gray areas and border violations resulted from the insufficiently clear distinction between private and public spheres in New York apartment houses. As a solution to the problem, they pointed to the structure of spaces in the Parisian buildings on which the New York apartments are modeled. In place of white carpets, their stairwells featured clear relationships: "The stairs and landings are far from being clean or well kept, a rough sweeping once a day being all the attention they receive. . . . In fact, the stairs and landings are regarded as a continuation of the street."[38] All the more impermeable, however, were the apartments themselves; the precisely calculated sequence of rooms as well as the massive floors and walls enabled a high level of privacy.[39] It is significant that in their plea for a purely functional stairwell, Hubert, Pirsson and Hoddick ended up using exactly the same argument Vaux and his followers used to emphasize the need for an imposing one. In both cases, what was called for was an apartment that was simply a single-family house hoisted into the air. New York apartment houses sought to guarantee that by making the public spaces as much like the private ones as possible; the Paris apartment buildings did the same by making the distinction between them as great as possible. "The fact is, that in our sense of the word, the French, except perhaps the very poorest classes, do not live in apartments, *but in small dwelling houses, built one level on the top of another and reached by a narrow ascending street*."[40]

One of the peculiarities of Hubert, Pirsson and Hoddick's essay was that it was probably the only contribution to the early discussion of the apartment house that analyzed the architectonic difference between Europe and New York in terms of a difference in the history of consciousness. The introductory sentence already announced that it was going to treat the "social aspects" of the apartment house problem, which were related to the difference in class consciousness between the Old World and the New World.[41] The more stringent the social stratification, they claimed, the less

problematic the meeting of different tenants in the apartment building:

> In France, the social status of each individual is generally so clearly defined that a freedom of intercourse exists between the various classes of society, utterly unknown in this society. . . . All meet on the common stairs, and the fine lady exchanges cheerful greetings with her poorer neighbors without a thought of presumption on their part or of condescension on her own. With us things are different. All claims to social superiority are bitterly resented by people who regard the elevation of those above them as a mere accident of fortune that a day may reverse, while the favored few strive, through an excessive exclusiveness, to guard their dearly-cherished state of exaltation.

A remarkable thesis: New Yorkers' dislike of public stairwells was an effect of America's unstable social structure. The contingent nature of American social structure must not be repeated in the structure of the apartment house. In complete contrast to the liberality of apartment life in Paris, it was necessary to reinforce the brittle veneer of social identity with rigid spatial separation. Any chance encounter in the stairwell might present a challenge to a family's status, one reason the first New York apartment house in 1869 was already equipped with a rear service stairway,[42] an element present only in the most aristocratic buildings in Paris.[43]

American stairwells were by no means regarded as extensions of the street. Access to them had to be strictly regulated to avoid the harmful influence of inappropriate neighbors or strangers. This is also the reason the first so-called cooperatives were already being set up by the early 1880s, apartment houses purchased or even newly built by a group of future residents. This organized form of living together (which became possible only with a change in the law, since ownership of real property in New York prior to 1880 was possible only as ownership of the land itself)[44] appeared as a logical variant of the "privatization" of apartment houses. On the other hand, a 1907 magazine article entitled "The Radical Evil of Life in Apartment-Houses" showed the

disastrous course unregulated rental of apartments could take. It conjured up the terrifying fate of a building housing "a score of families enjoying equal incomes, each of whom has hitherto lived in comfort and contentment in an isolated dwelling."[45] They were driven to ruin by the arrival of a visibly more wealthy family. "Shortly thereafter peace and comfort will vanish from most of the other twenty families, each one of whom, disliking to be outshone, will also try to make a splurge and will sacrifice its children's rights to a 'plush rocker,' a piano, or a too expensive dress."[46] And the author added the laconic prognosis, "That means debt, sooner or later, and debt too often means drink."[47] The place where such a calamitous competition began was the stairwell, and the countermeasures suggested by the article focused on that part of the building. Although the architects of future apartment houses would be powerless against "all the evils of gregarious living," careful planning could prevent excessive encounters among the residents "by segregating each independent home with the most sedulous care to protect its privacy at any point."[48] The article ended by recommending a system of one-way staircases already installed in a few residential buildings in New York. Separating ascending from descending residents at least limited face-to-face encounters and disrupted the downward spiral of social competition, debt, and drink.

THE ASSIMILATION OF THE ELEVATOR CAB

The stairwell's status is crucial because it already raised all the questions that appeared again vis-à-vis the assimilation of the elevator. Both in Europe and the United States, there was a fairly long pause between the advent of multistory residential buildings and the installation of the first elevators. In Paris and Berlin, it was not until almost half a century after Haussmann's and Hobrecht's urban planning that elevators began to be installed in the most expensive apartment buildings. Even in New York, more than a decade went by before the new means of transportation had

become a standard feature. The elevator cab intensified the problematic relationship between private and public space, intimacy and anonymity already evident in the stairwell. When every fleeting encounter in the hallway threatens to become a test of the residents' moral integrity and must be avoided by special stairway systems, when hygienists warn of contracting diseases from the shared handrails, how great must have been the challenge to the order of communal life represented by an elevator whose passengers are forced to stand crowded together in a small space? Right up to the turn of the century, there is ample evidence that the initial perception of the unfamiliar machinery in the middle of the building was of something alien. For instance, it caused Chicago's Pacific Hotel, which opened in 1870, to provide a separate "ladies' elevator" for single women and a "gentlemen's elevator" for men and married couples.[49] As late as 1912, in correspondence with the workmen's compensation company where Franz Kafka worked, a Bohemian lodging house owner tried to avoid liability for his electric elevator by claiming that the motor—an essential part of the apparatus—was not located in his building at all but in the municipal power plant. Collective understanding of the "location" and extent of the elevator was so inchoate it allowed a clever businessman to attempt such strategic outsourcing.[50]

Despite the fact that the elevator's vertical breach made building interiors more comprehensible and radically reversed the negative hygienic image of the upper stories, the apparatus was at first eyed with suspicion by public health authorities. It took several decades for the elevator cab to become the self-evident core of residential and commercial buildings. The impediments to this process of assimilation were of several kinds. In the early years, there was a lack of clarity about whether the elevator was primarily a means of transportation or an autonomous room, and this led to a lack of clarity about what behavior was appropriate inside the cab. In William Dean Howells's 1884 one-act play *The Elevator*, one of the very first literary texts set in the apparatus,

a lady says to her fellow passengers, "What an amusing thing elevator etiquette is! Why should the gentlemen take their hats off? Why don't you take your hats off in a horse-car?"[51] This question of the correct etiquette illustrates once more the uncertainty we have seen in the debates about the stairwell. What is the function of the semi-public spaces of the building? Should men leave their hats on as they do in other conveyances or take them off as they do in other rooms? In the first decades of its use, the elevator cab was not yet established as a mere vehicle. "We were at a hotel in London where they called it the Ascending Room," responds another passenger in Howells's play.[52] Especially in the United States, an attempt was made to ease entrance into the uncertain sphere of the elevator by sumptuous interior decoration. The cab could not be less elegant than the offices or living rooms to which it brought people. An 1869 Otis Company catalog described the basic features of its cabs: "The car is a sumptuous apartment . . . with skylights, ventilators, and chandeliers supplied with gas through a flexible tube; below richly carpeted, with a large mirror and luxurious sofas around three sides,"[53] curiosities that some twenty years later still elicited the admiration of a visiting German engineering student: "Characteristic . . . is especially the decoration of the elevators in hotels, theaters and many commercial buildings. With their costly paneling, upholstered seats, ornately framed mirrors, electric lighting, etc. they are like little movable salons."[54] Sumptuous apartments, movable salons—the diction of these descriptions makes clear that in the early years, passenger elevators (unlike the unadorned apparatuses for transporting freight) were not to be seen as a mere conveyance. Their interior decoration, imitating immovable rooms, was meant to facilitate habituation to the new transportation channel. For the same reason, German elevator cabs at the turn of the century were also sometimes "a highlight of the building, a wonder to behold," as the jubilee booklet of the Flohr elevator company in Berlin declared.[55] In the years after 1900, however, expensive interior

decoration soon disappeared, not least in view of the significantly shorter travel times of electric elevators. Plush seats and chandeliers were removed, to be replaced by interior design that was more and more functional and focused on the greatest possible efficiency. From the twentieth century on, the cab was nothing but a transit space.

Another impediment in the course of early elevator history was the impossibility of continuous operation. Strange as it sounds today, in 1870 the Equitable Life Building briefly considered running its two elevators according to a fixed schedule.[56] The first generation of American elevators, driven by steam, was fundamentally dependent on external power generation that closed down at night.[57] We take it for granted that elevators are continuously at our disposal, but that did not become an established fact until the arrival of hydraulic and electric technology and continuously accessible sources of water and electricity. In the mid-1870s, for instance, the Osborne was New York's most modern apartment house, and among its amenities was a "steam elevator, running from 7 A.M. to 12 P.M."[58] In these years, a mere seven-hour interruption was a token of the highest possible service, as an 1882 *New York Times* reportage also documented: "in most cases . . . the time during which the elevators are run is not sufficient to accommodate the tenants of the immense buildings. Placards are displayed in some of the hallways setting forth the fact that the elevators will be in active operation only between the hours of 8:30 in the morning and 5 in the evening."[59] The piece quotes a lawyer with an office on the tenth floor of a commercial building on the drastic consequences of this sort of regulation:

> I was detained in court one day until nightfall, and when I returned to the tall building in which my office was situated and discovered that I must walk up nine flights of iron stairs I felt like fighting. However, it was absolutely necessary for me to go to my office, and I walked. When I reached my office I was more dead than alive. Upon recovering consciousness, I saw, to my horror, that I required some copying ink and the bottle was empty. There was nothing for me

> to do but travel down those stairs to Nassau Street and purchase some ink. I procured the ink, and after I had returned to my office reeled like an intoxicated man, and I thoroughly believed that I was about to die.[60]

Thus in the early years of the elevator's existence, the fact that operation was shut down during the night (a practice forbidden by the New York Fire Department in 1899[61]) suggests that it was still perceived as an apparatus extrinsic to the building. It is obvious that this interruption of operation had to do with the structure of the energy supply and thus with concrete technical limitations. But we cannot overlook the more basic and abstract mistrust of a machine not yet perceived as completely reliable. This mistrust was much clearer in Germany, where it was still observable well into the twentieth century, the age of electric push-button controls and optimized safety devices. One piece of evidence is the "key regulation" still in force in the nationwide elevator code of 1926. It prescribed that in residential buildings, keys for the locked cab could be distributed only to residents over fourteen years of age. Independent access to the cab was unavailable to children and visitors.[62] Thus the implantation of an elevator into a building met with resistance and rejection, a reaction that led to a series of important changes to the New York legal code in 1885. Up to that year, the vertical extension of buildings was completely unregulated, but now a maximum height of eighty feet was established for residential buildings.[63] The reason for this measure was different from that for similar restrictions being introduced in European cities. The development of the upper stories and the construction of buildings of eleven to sixteen floors had long since occurred in New York. The so-called Daly Law, named after State Senator James Daly (1843–1892), was not intended to categorically forbid apartments on the upper floors, but rather to slow down all too rapid growth. One of the critical points in this regard was the elevator. According to Elizabeth Hawes, the proponents of the law "were worried that disease might thrive in long communal halls

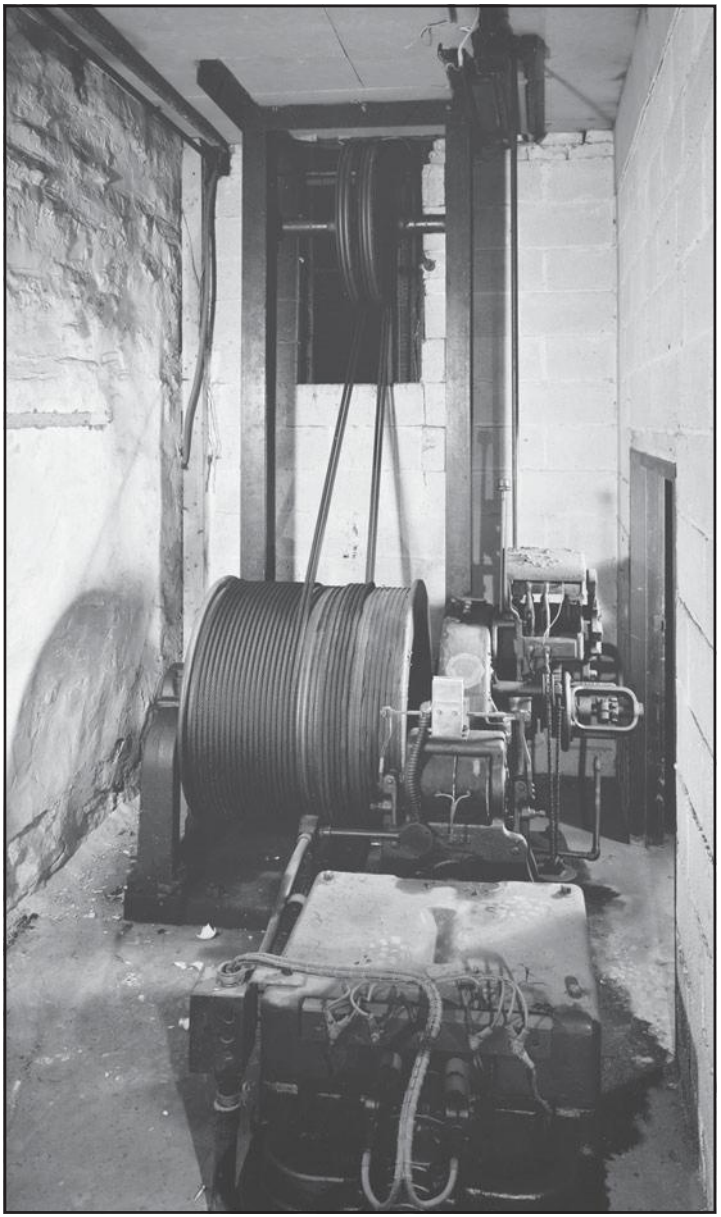
and crowded elevators. Before its passage, advocates of the Daly bill had focused their attack exclusively on apartment buildings, painting them as unwieldy and unhealthy structures, calling physicians to present evidence that their tenants were more liable to symbiotic and contagious diseases than ordinary households."[64] We're familiar with the connection made between the threat of infectious disease and the stairwell. With the elevator, however, this problem became acute in the early 1880s and led to consequences in the building codes. As a magazine article about the hygiene of apartment houses so vividly described it, "Enter a close, overheated hall; get into an elevator, whose glaring gas jets make one fancy he is in a Russian bath, and which ascends with this rickety, jarring creak—so common in elevators—at each floor feeling an increasing sense of suffocation till you reach your destination."[65] In 1885, the New York authorities attempted to reduce the health risk of such an encounter, by limiting building height on the one hand and on the other by issuing an ensemble of specific elevator regulations, the first of their kind. One of them had to do with the maximum carrying capacity of the cab: "Every passenger-elevator shall have the weight it can carry displayed prominently on a metal plate in raised letters."[66] Ever since, the familiar sign next to the push-button controls lists the maximum weight and number of passengers.

When one traces the elevator's progress from alien intruder to core of the building, one must also look more closely at the changes in its operating technology that have already been touched upon at the beginning of this study. The increasing integration of the new means of transportation and passengers' decreasing hesitancy to make use of it were both closely connected to the rationalization of its function. The development of elevator construction between 1870 and 1900—the transition from the (directly or indirectly powered) hydraulic to the electric elevator—is the story of a continuous effort to situate the installation more and more efficiently, so that it occupied less and less space.

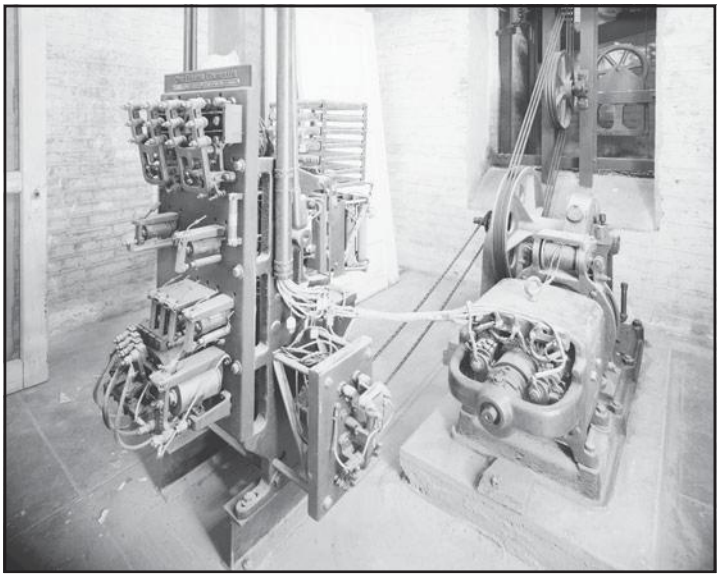
The biggest disadvantage of the direct-drive hydraulic machines was that the piston under water pressure that drove the cab upwards had to of course be sunk into the ground to a distance equal to the height of the building above ground. This made it impossible not only to retrofit a building with the vehicle, but also to install it in new buildings built on rocky ground—New York City, for example. As a consequence, New York was the location of "only a single" direct-hydraulic elevator in its entire history.[67] Such difficulties led to the construction of modified water-pressure systems in which pulleys transmitted the motion of the piston to that of the cab. Although the constituent parts of these so-called indirect-hydraulic elevators (the drive-piston, pulley drums, pressure pumps, water tanks, and water lines) still occupied an enormous amount of space, they could now be installed on any sort of ground since their considerably shorter pistons could be housed in an area beneath or next to the cab, and either horizontally or vertically. Within a short period at the end of the 1870s, this operating system replaced the expensive steam elevators with their high energy demands and dominated American elevator construction into the 1890s. In Germany, it constituted a frequent alternative to the predominant direct-hydraulic elevator.[68] The replacement of water pressure with electric power, which took place in the years around 1900, must also be seen mainly as a greater rationalization of the functionality and siting of the machinery within the building. An essay to accompany Werner von Siemens's first presentation of an electric elevator at the Mannheim Industrial Exhibition of 1880 emphasized the fact that the then current hydraulic elevators were "often barely feasible" because of their space requirements.[69] Once the safety and acceleration problems of the earliest electric machines were solved by the early 1890s, the most important arguments for their introduction were their inexpensive operation and ease of installation in existing buildings. The Otis Company advertised its new generation of elevators with the consideration that such an installation was

no longer a complicated matter; the vehicle was "well suited to many places where it has heretofore been impracticable to use such an apparatus."[70] This turning point in the history of technology—the increased ease of installation of the electric devices—was particularly important for the final cultural assimilation of the elevator at the turn of the century. Before the 1890s, elevators were cumbersome apparatuses that took up a lot of space; now the ensemble of motor, control apparatus, and cable drum (whose dimensions required no more than an "area of modest size"[71]) could fit into a small machine room in the basement or attic. In contrast to the exposed functionality of the direct-hydraulic elevator with its piston running right through the middle of the building, the electric elevator seemed to almost be a vehicle without an engine, consisting of nothing but a cab inside a shaft. This technical change, together with a complete muffling of the considerable noise made by early elevators retrofitted into stairwells, set in motion a change in perception after 1900, a change one could call the elevator's "naturalization." Thanks to the invisibility of its technology, the electric-drive elevator was seamlessly integrated into the building. As a German advertising brochure put it, "Not a sound betrays to the uninitiated the presence of machinery; the cab glides up and down in almost ghostly quiet."[72]

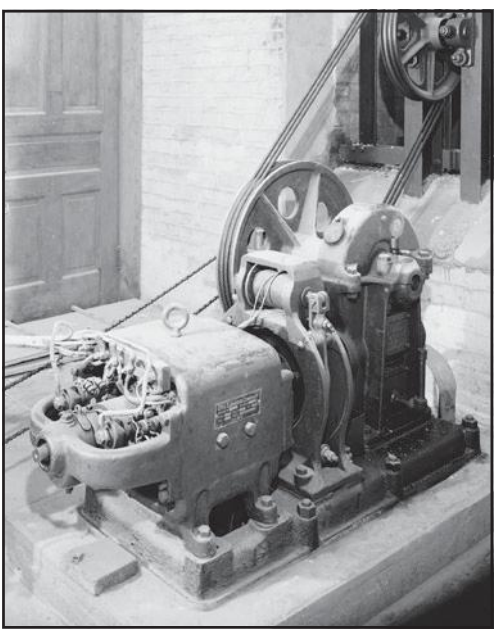
Such was the situation by the early twentieth century. Twenty or thirty years earlier, however (to return once again to the irritations of the first elevator passengers), there was no question of a completely smooth ride. Yet one must understand their distrust and fear as the almost inevitable by-products of any new technical apparatus. Wolfgang Schivelbusch has traced such difficulties of assimilation in his classic work on the history of railroad travel. That comparable symptoms would be found in elevator passengers a quarter century later was already suggested by the name given to the first models: the "vertical railway." Like its name, its catalog of health risks was modeled on those of its horizontal predecessor. Schivelbusch devotes an entire chapter to



Elevator machinery in basement of Telegram Building, 227 Walnut Street, Harrisburg, PA. Courtesy of the Library of Congress.



Detail of controls, electric motor, and lower sheaves of Otis passenger elevator added in 1921, basement of Woodrow Wilson House, 2340 South S Street, Northwest, Washington, DC. The original equipment, shown here, operated on direct current from the Massachusetts Avenue trolley line, abandoned in 1961. Courtesy of the Library of Congress.



Detail of Otis motor, Woodrow Wilson House, 2340 South S Street, Northwest, Washington, DC. Courtesy of the Library of Congress.

the "pathology" of the railroad and mentions an 1857 study of the train's influence on the physical condition of firemen and engineers. The study identified the constant shaking of their bodies from the vibration of the cars as a problem: "In order to ameliorate the jolts and to react to the engine's motions with greater ease, these people spend almost all their time standing on the front part of their feet, raising their heels up from the floor."[73] Despite this therapeutic stance, however, some of the personnel as well as a large number of passengers suffered disturbances of their nervous systems. In the early history of elevator travel, very similar diagnoses and therapies were discussed. In 1890, *Scientific American* introduced a syndrome it christened "elevator sickness":

> The elevator in modern big buildings has only one drawback, the sickness it causes when the car is suddenly stopped. To people of a delicate constitution this sickness is often such a serious matter that to them the elevator is a dangerous blessing. . . . The stoppage of the elevator car brings a dizziness to the head and sometimes a nausea to the stomach. The internal organs want to rise in the throat.[74]

The reason for this excessive stress was not constant vibration, as in a train, but abrupt stopping, especially when traveling downward. The braking maneuver was such "that all parts of the body are not stopped at the same moment of time. The feet being next to the car floor stop with the car, while other portions of the body continue moving."[75] As a countermeasure, the article recommended a very precise positioning of the body, just like the railroad hygienists three decades earlier: "If the body as a whole can be arrested at the same time with the feet, there will be no sickness. This can be done by placing the head and the shoulders against the car frame."[76] Imagine medically knowledgeable New Yorkers descending in an elevator around 1890 and all pressing up against the cab walls as they reach the ground floor! But it is all too easy to make fun of this scenario from the enlightened standpoint of today. Only an inadequate understanding of history can regard such long-forgotten

fears and contortions as merely ludicrous and uninformed. On the contrary, a hundred years later, we must seek to understand why a series of medical diagnoses and preventive measures had existential significance in their day, although their unreality elicits patronizing smiles only a few decades later. Beyond improvements in the technical comfort of the machine, Wolfgang Schivelbusch explains this process with reference to Freud's theory of a shield against stimuli. Continuing exposure to a previously unknown impulse such as the speed of a railway car gradually desensitizes the "skin layer of consciousness." While the first generation of passengers still used to traveling by coach experienced this stress on their consciousness so powerfully that it caused nervous irritation, the next generation had already become accustomed to it. Apropos the spread of reading material for train travelers in the second half of the nineteenth century, Schivelbusch writes,

> The train passenger of the later nineteenth century who sat reading his book thus had a thicker layer of that skin than the earlier traveler, who could not even think about reading, because the journey was, for him, a space-time adventure that engaged his entire sensorium.[77]

The cultural assimilation of the elevator ride occurred in a comparable but accelerated fashion. After only a few years, all traces of "elevator sickness" and suggestions for its prevention had vanished because, to use Schivelbusch's phrase, the "inorganic protective layer due to civilization" has been initiated.[78]

Freud's metaphoric conception of unlocalized changes in perception and consciousness provides a vivid model for human assimilation of technical apparatuses. But Freud's model does not address a relationship of importance for the historian of technology, namely, the relationship of individual experience to the discursive rules of historical processes. The contortions of early elevator passengers raise the question, how seriously can one take these complaints from our contemporary point of view? How "real" were they? There

is no doubt of the factuality of those passengers' subjective suffering. The drastic consequences of nervous overload were still evident in a 1930 German article about modern elevators in New York: "The unpleasant feeling of nausea one has when a German elevator slows and stops disappears in the new American models."[79] With just as much justification, however, one can point to a quasi-fictional component of these complaints, a recurring phantom pain during the early years of new technological advances, a pain whose intensity seems incomprehensible only a few decades later. What is it that evolves in this brief interim? Is it in fact an ability we can only ascribe to the individual, as Schivelbusch says with Freud, a stabilization of the perceptual apparatus, the consciousness, the imaginary cortex? Or must we ignore human bodily sensations in general as a historical source and describe our ancestors' discomfort as something of a simulation enforced by the rules of discourse? There is a confusing dual structure in the relationship of the individual to history. Even the sensory certainties of suffering follow a predictable order of physical reactions, so that the undeniable reality of their dizziness, queasiness, or nausea can be regarded with equal plausibility as the hysterical symptoms of a transitional period—a hypochondria of the epoch and not of individual people. The basic question is how much credence we should grant individual "experience" in historiography. It is Foucault's main question in his discourse analysis and in the course of a few methodological shifts, and he answered it with varying degrees of rigor. In his only explicitly theoretical historical work, *The Archaeology of Knowledge (*1969), any interest in a historical signifier is eliminated. It is only a question of showing the distribution of historical assertions: "What, in short, we wish to do is to dispense with 'things.' . . . To define these objects without reference to the *ground*, the *foundation of things*, but by relating them to the body of rules that enable them to form as objects of a discourse."[80] We can gauge how justified this method is when we apply it to the physical feelings of early

elevator passengers. For if even a feeling such as pain—at first glance the most reliable "foundation of things," a stable reality behind the mutable web of language—proves to be a product of a certain historical constellation, then historiography appears in fact to be possible only as something secondary, as a reconstruction of discourse practices and not of events, emotions, or facts. Where then is man to be found in the humanistic sciences, if his most substantial utterances can be understood as transient background noise during his adaptation to technological devices? And this background noise is not merely characteristic of a naïve early stage of "industrialized consciousness."[81] Our present-day statements are by no means more firmly grounded. It is easy to identify similar constellations at the beginning of the twenty-first century.[82] Historiography must constantly reflect upon the interaction between subjective feeling and discursive order. In this process, the followers of Foucault as well as others have played the worn-out card of "social construction" once too often and with too much confidence. It is more fruitful to think further about the relationship between experience and discourse in light of an interesting formulation of Joachim Radkau's. In his study of the history of neurasthenia, he tries to get at how a particular historical situation "unleashes experience."[83] In the early years of technological conveyances (or information sources), one repeatedly encounters this factor of the "unleashing" of pathological syndromes such as "elevator sickness." Four years after its first mention in *Scientific American*, the *Washington Post* quoted a Chicago physician to the effect that "Cases of elevator sickness are on the increase. It is now becoming well defined. Its effects are found in an increased number of cases of brain fever and disordered nervous system."[84] This confident announcement of his findings was apparently the last mention of the disease in American publications.

URBANIZATION AND SPATIAL FEAR: THE CAB AND CLAUSTROPHOBIA

While elevator sickness and its therapies disappeared after less than a decade, another syndrome appeared shortly before it and gained a permanent place in the classification of neurotic symptoms, namely, claustrophobia. The history of psychiatry records a remarkable ensemble of symptoms that appeared almost simultaneously between about 1870 and 1880: phobias of varying intensity and all related to spatial threats. At the height of the urbanization process in Europe and the United States, one finds lines of connection between the history of architecture and the history of medicine, and we can ask whether the massive changes occurring in late nineteenth-century cities are related to previously unknown nervous disorders. In 1872 the Berlin psychiatrist Carl Otto Westphal published an essay in the *Archiv für Psychiatrie und Nervenkrankheiten* (Archive of psychiatry and nervous diseases) that began with the acknowledgement, "For several years, patients have repeatedly come to me with the curious complaint that it is impossible for them to walk across open squares or through certain streets."[85] Westphal presented three decades-long case studies and coined a name for his patients' symptoms ("for it seemed desirable to have one"): agoraphobia.[86] The new syndrome, according to Westphal, was different from other mental illnesses "especially as the occurrence of the pathological affects (fear, etc.) is essentially attached to certain external circumstances and disappears immediately when they are removed."[87] The concrete catalysts of the neurotic disturbance were not yet precisely categorized in this foundational description of *Platzangst* ("spatial fear," the German word that encompasses both agoraphobia and claustrophobia), and so the two kinds of unease engendered by especially large and especially small spaces were repeatedly confounded in case histories. Of one of the patients, for instance, Westphal wrote, "It was for the most part impossible

for him to take long walks (e.g., to the Tiergarten park), also trips in rented carriages, omnibuses, droshkies, etc. Further, he had to avoid traveling by train, while the use of his own carriage presented no difficulties."[88] Thus in Westphal's article, the concept "agoraphobia" still included various kinds of fear of spaces.

Eight years later, a text of equal importance for the history of psychiatry stressed the necessity of a more precise separation and a name of its own for agoraphobia's "complementary illness." The Frenchman Benjamin Ball, in a lecture entitled "De la claustrophobie," spoke of a neurosis "tout opposé"[89] to Westphal's observations and described two cases—all that he had seen so far[90]—in which the patient's symptoms were triggered only by enclosed spaces: a younger man no longer able to spend the night in his bedroom because he thought the walls were closing in on him, and a woman attacked by feelings of trepidation while climbing the stairs of a tower and ever since unable to be in small rooms. Ball was the first to introduce this explicit illness into the psychiatric literature. His essay ended with three axiomatic conclusions in which he identified a new variation of the nervous condition, a "fear of enclosed spaces," which was to be understood as "a real psychosis, not a simple sensory problem" and in the future should be classified under the name "claustrophobie."[91] Thus by about 1880, European psychiatry had already described two varieties of spatially determined phobia, at a time when public discussion of nervous illnesses increased dramatically with the publication of the New York physician George Miller Beard's *Neurasthenia* of 1880.

The physiologically unlocalized condition of permanent overstimulation and exhaustion was one of the most discussed pathological phenomena of the late nineteenth century, "the signature of our cultural epoch."[92] It is unusual that this syndrome, which has recently been very thoroughly researched,[93] can be traced back to a single author. *Neurasthenia* immediately became a best seller and was translated

into German only a few months after its appearance.[94] A decade later, the editor of the *Handbuch der Neurasthenie* (Manual of neurasthenia) summarized Beard's contribution: "Thanks to Beard's book, the illness became known to the entire educated world, and the enormous increase of cases of neurasthenia in recent years comes not only from various conditions of our time, but also from the fact that the fortunately invented word with its no less fortunate explanation is easily understood everywhere."[95] Beard's central concern—repeated in numerous variations both in *Neurasthenia* and in the more cultural-historically oriented *American Nervousness* of a year later—was to interpret the general enervation of the epoch as an illness of civilization. Sentences such as "The chief and primary cause of this development and very rapid increase of nervousness is *modern civilization*"[96] and "Civilization is the one constant factor without which there can be little or no nervousness"[97] recurred regularly in these two foundational documents of the discussion of neurasthenia. In their large-scale studies, Anson Rabinbach and Joachim Radkau have worked out the cultural-anthropological and political implications of this syndrome in detail. In the context of the present chapter, one strand of symptoms from the many variants of neurasthenia is especially important: a group of illnesses that Beard, following the diagnoses of Westphal and "my friend Professor Ball,"[98] called "topophobias." With this designation, he attempted to classify complaints that include agoraphobia, claustrophobia, and more specific spatial fears of individual patients such as fear of churches or bridges. For instance, as Müller wrote in his 1893 manual of neurasthenia, "This fear of open places or squares is, however, only one phase of a great variety of spatial fears. . . . To be precise, the genus spatial fear should be named topophobia, of which agoraphobia is only one species, a particular kind of spatial fear."[99] As a component of neurasthenic complaints, the spatial fears attracted increasing attention in the 1880s, especially since the topophobias proved to be representative

of the entire syndrome, "a certain indicator for the understanding of nervous conditions," as Müller put it.[100]

It is revealing that the earliest descriptions of the spatial phobias all observed the causes of the condition from a similar perspective. We have already mentioned Beard's vehement criticism of American civilization and its metropolises, but German physicians also suggested that their patients' symptoms could have something to do with the architecture of big cities. It is no surprise that one of the first textbooks of psychiatry to mention agoraphobia as a new category of neurotic disturbance included this observation: "This curious anomaly was first observed among the population of large cities (Vienna, Berlin, Munich)."[101] A patient of Carl Otto Westphal explained to him that

> a large open space out in nature is easier to cross than one of equal size that is surrounded by buildings, "because nature is on the whole refreshing and has a positive effect on him." Large boulevards, especially when they run across flat open ground (he mentions, e.g., the Tempelhof Chaussée) make him extremely uncomfortable.[102]

Thus agoraphobia was part of the "pathology of the city"[103] that came increasingly into view at the end of the nineteenth century, the subject of a recent book by the architectural historian Anthony Vidler. "If agoraphobia was by definition an essentially spatial disease," writes Vidler, "many psychologists insisted that it was equally an urban disease."[104] Referring to Westphal's texts, the French physician Edouard Gélineau even speaks of a "malaria urbana."[105] In some European metropolises, the connection between architectural changes to the city and pathological symptoms in its inhabitants was explicitly mentioned. Vidler mentions the Austrian architect Camillo Sitte, who related Westphal's diagnoses to the fundamental reshaping of Ringstrasse in Vienna in the 1860s and 1870s, with its creation of boulevards and wide squares in the tradition of Haussmann. Sitte wrote in his 1889 book *Der Städtebau nach seinen künstlerischen Grundsätzen* (City planning according to artistic principles),

> Recently a new nervous condition called "agoraphobia" has been identified. Numerous people are supposed to suffer from it, i.e., they always feel a certain fear, an unease, when they must cross a large, empty square. . . . Agoraphobia is the newest, most modern illness. Quite natural, for in the little old squares one feels very comfortable. . . . On our gigantic modern squares with their yawning emptiness and oppressive boredom, even the inhabitants of cozy old towns are susceptible to the fashionable illness called agoraphobia.[106]

Nervous illnesses manifested as an appropriate reaction to the monumentality of modern urban architecture. Vidler mentions one sufferer who made this connection especially vivid, a patient by the name of Vincent who wrote as both an agoraphobe and an architectural critic in a short 1919 essay in the *American Journal of Psychology*. Vincent described what triggered his phobia:

> However the architecture of the building has much to do with the sort of sensation produced. Ugly architecture greatly intensifies the fear. In this connection I would remark that I have come to wonder if there is real art in many of the so-called improvements in some of our cities, for, judging from the effect they produce on me, they constitute bad art.[107]

The agoraphobe became the most reliable seismograph for the quality of modern architecture; aesthetic sensibility was translated directly into neurotic disturbance.

If the symptoms of agoraphobia, first recorded around 1870, seemed to be connected to the reshaping of big cities and the replacement of jumbled old town centers with boulevards and open squares, the same could be said for the simultaneous appearance of fear of explicitly enclosed spaces. At least as striking as the intimidating expanses of the new city centers in the last third of the nineteenth century was the increasing compression of social life in the metropolises. Infrastructure such as public transportation created a crisis of spatial experience in the opposite sense as well. At one point in his essay on Baudelaire, Walter Benjamin quotes Georg Simmel's well-known statement,

"Before buses, railroads, and streetcars became fully established in the nineteenth century, people had never been put into the position of having to stare at each other without exchanging a word for minutes or even hours on end."[108] Precisely such an alliance between the history of modern transportation and the destabilization of ingrained forms of perception and communication is of interest for the history of claustrophobia, especially because from a certain point on, these means of transportation—and the elevator above all—became the paradigmatic locations where this phobia could be observed. An excerpt from a recent standard work demonstrates how self-evidently the elevator is associated with the condition. The symptoms of claustrophobia can be traced back "to small, enclosed spaces: elevators, but also being closed in a bus, train . . . or sitting immobile in a barber's or dentist's chair."[109] The sentence identifies the elevator as the prime example of the category "small, enclosed space," while all other critical locations are reduced to the status of less severe variations by the phrase "but also." Thus in professional psychiatric discourse, the topography of this neurosis has long since been decided (in 1966, a journal article entitled "Claustrophobia and Depression" had already termed the former the "classic elevator phobia"[110]). An analysis of the historic conditions of claustrophobia, however, needs to feel its way back to the point where this long-standing diagnosis first began to be established. The question is, if the elevator cab is regarded as an undisputed synonym for a threatening "claustrum"—the enclosed room—then what part does its appearance play in the spread of the neurosis?

In the history of psychiatry, the infrequent studies devoted explicitly to claustrophobia are remarkable in their repeated concentration from the beginning on case histories involving the same locations. Modern means of transportation are the focus as triggers for the phobia: in addition to the elevator, the earliest studies mentioned the subway[111] and railroad cars.[112] Claustrophobia was so intimately

associated with the realm of public transportation that a large empirical study from 1949 came to the conclusion that as a rule, claustrophobes should avoid using "trains, elevators, subways, airplanes or ships."[113] According to the neurologists' observations, it was precisely at the intersection of mobility and restricted space that the syndrome threatened to arise. If one then goes on to ask why it was the elevator among all other means of transportation that was the most important trigger, one must recall a certain intensification of the spatial situation in the cab. Certainly the incomparably confined space of this location disconcerted passengers and led authors of early architecture manuals to recommend that elevators "be sufficiently large and so equipped as to take account of the comfort of the passengers so as not to engender a very understandable sense of unease in non-experts during their sojourn in it, however brief. Such a sense even today prevents many persons from using the elevator."[114] But there was also the danger of some technical malfunction trapping one in the tiny space for an unforeseeable length of time. Paul Virilio once remarked that every new means of transportation produces a previously unknown type of accident: the "shipwreck," the train "derailment," the airplane "crash."[115] The elevator, whose danger of falling was soon eliminated, produced at the end of the nineteenth century the new accident type "getting stuck." Sensitive catch mechanisms that are activated by as little as an overstretched cable as well as malfunctions of the electric motor halt the elevator's travel between floors and dramatically extend one's transient presence in the cab. The very first literary texts in which the elevator plays a central role already provided information about the phobic implications of such an accident. In 1875, four years before the article in which Benjamin Ball coined the term claustrophobia, *Harper's Weekly* published a story entitled "In an Elevator." Two guests at a dinner party in a distinguished New York apartment house get stuck for several hours in the elevator cab on their way to the fourth floor. And when

they exit the cab after a slow and inconsequential drop back down to the ground floor, they are physically unharmed but emphatically swear "that we should never venture again into an elevator."[116] Less than a decade later, William Dean Howells dramatized a very similar situation in his one-act play *The Elevator*. In this piece, not two but six people get stuck in an elevator between the fifth and sixth floors. Once the malfunction is repaired and the cab is brought back down to the fifth floor, the liftboy is about to set the elevator in motion again when there arises, as the stage direction says, "a joint cry from the elevator." The victims in this text, too, intend to avoid the elevator after their ordeal. "Thank you! We'll *walk* up this time."[117]

The unease in the confined and opaque cab of the elevator, widespread in the first decades of its history, was only intensified by the latent danger of getting stuck. One could say that the new type of accident for its part also produced a new syndrome, that long-lasting "elevator sickness" called claustrophobia that depended on the specific malfunction of a particular conveyance just as "railway spine" and traumatic neurosis depended on the train crash.[118] Thus the genesis of spatial phobia is inseparable from the genesis of urban architecture, a fact also obvious from the historical reception of agoraphobia. Against this background, it is interesting that psychiatric and psychoanalytic research on claustrophobia completely ignores the historical context of the neurosis. In the most cited studies from the first half of the twentieth century (those of Oberndorf, Bagby,[119] Miller,[120] Eisler, Terhune, and above all Bertram Lewin, whose 1935 article was regarded as standard for thirty years[121]), one finds detailed discussions of the supposed basic psychic cause of the illness (the fetus's fear of being driven out of the womb), but no consideration of the "materiality" of spatial fear—of possible architectonic circumstances, for instance. Thus the professional discussion of claustrophobia in the early twentieth century clearly continued the complete ahistoricity of psychoanalysis for which Freud, in his eagerness to establish

a science of the psyche, provided the model.[122] The suspicion that the fear of enclosed spaces noticeable in the last third of the nineteenth century could have had something to do with the increasing density of urban life was at the most tacitly acknowledged in the remarkable continuity of a certain form of therapy, namely, removal to the country. This treatment already had a place in the foundational works on claustrophobia. Thus in *Neurasthenia*, George Miller Beard mentions a patient, a student at an urban university, who "was compelled to give up his studies and become a farmer."[123] Benjamin Ball, on the other hand, at the end of his essay criticized the recommendation of the Bologna psychiatrist Raggi that leaving the city was already sufficient to allow the neurosis to subside. Ball adduced the massive nature of the syndrome and maintained that it required additional pharmacological treatment.[124] The stubborn persistence of this alliance between spatial fear and the stresses of city life in research on claustrophobia was nicely illustrated by a remarkable passage in a 1973 essay entitled "Indecision and Claustrophobia." With reference to the widespread alternative lifestyles of this era, the well-known American neurologist Raymond Gehl wrote,

> I have been struck by the frequency of the appearance of claustrophobic symptomatology in my patients and have wondered . . . whether the increasing complexity of life, with congestion, pollution and crowding of all types, including the complexities of political, economic and social life, has given some cultural sanction to this particular neurotic solution. . . . Incidentally the youth of our society, whom I tend to think of as the "claustrophobic generation," are in large numbers seeking freedom from the pressures of modern life in the cities and suburbs and relief from the feeling of their parents on their backs by taking to the open road and the rural open country.[125]

A century after the first victims of agoraphobia and claustrophobia showed up in a metropolitan and urban context, the hippies and dropouts of the early 1970s appeared to be the direct inheritors of that persistent "malaria urbana."

THE POLITICS OF THE ELEVATOR

THE DOUBLED SHAFT: PRIVATE AND SERVICE ELEVATORS

Around the turn of the century, with the number of elevators on the increase, there were various schemes to defuse its threat as a location of fortuitous public encounters. At stake was the establishment of orderly traffic patterns in multistory buildings that would help avoid unwanted encounters in a small space. Two kinds of elevators received special attention. Both stringently restricted access to a building's apartments: the service elevator on the one hand, and the private elevator on the other. That the latter made its first appearance in New York and remained virtually unknown in European apartment houses was a logical result of the greater American skepticism toward communal living. An elevator that carries one directly from the entrance hall to one's own apartment avoids the danger of running into other tenants. Built in 1884, the Dakota—a ten-story castle-like edifice on the still largely unbuilt west side of Central Park—established the apartment as a luxurious place to live.[126] It has four passenger elevators so that on average only two apartments per floor—and sometimes only one—are served by each. According to a chronicler of the building,

> Because there were so many passenger elevators, public hallways on each floor were unnecessary: where two apartments had to be reached from the elevator, a small foyer would give access to both, and in many cases at the Dakota, the elevator gave onto only one apartment on a floor. In that case, the elevator could open directly into a tenant's private foyer, with no public hall at all.[127]

The Dakota initiated the history of the private elevator, the installation of a vertical passage that made movement in a multistory residential building completely independent of public spaces. This transportation option was so essential to the development of the image of New York because it prepared the way for the final phase of the transformation of Manhattan in the first two decades of the twentieth century: the willingness of the most wealthy class to sell their

remaining mansions on Fifth Avenue, together with their building lots, and move into the apartment houses rising in the same location. Elizabeth Hawes describes this "last stage of transition" in the architectural history of the city, when the divorced wives of great industrialists like William K. Vanderbilt II or Edward Hutton agreed to the demolition of their mansions only on condition that it would not affect the exclusivity of access to their new upper-story apartments.[128] So around 1920, a series of residential buildings of unheard-of size were erected on both the east and the west side of Central Park with multistory apartments of over twenty rooms, supplied with "separate entrances and individual elevators."[129] According to a newspaper article from 1926, some mansions were reconstructed in their original form within the apartment building on their original site:

> The mansions gone? No: they have simply moved—moved into the apartment houses. . . . The most striking example of the saving and reconstruction of a mansion took place a few years ago, when a well-known Fifth Avenue house at the corner of Ninety-second street was torn down and rebuilt on the twelfth floor of the building that was erected on its former site.[130]

The article names the prerequisite for such a substitution: "One of the unique features of this super-apartment is that it retains the privacy it has always had. Its entrance lobby and elevators are not shared by others."[131] Elizabeth Hawes mentions a similar story—the conversion of Betty Hutton's fifty-four-room mansion into the largest New York apartment building ever—and gives the particulars of its entrance: "To ensure her autonomy, they cut a private porte cochere into the side of the building, which gave entrance to a private elevator that ascended directly to a three-story suite that filled its crown."[132] We must recall the discussions of stairwells and elevators in American construction journals, the continuing lack of clarity about where the public sphere ended and the private sphere began. For decades, the main problem in integrating the elevator into the residential building was its oscillation between interior and exterior space. The

private elevator for the very wealthy put an end to such unacceptable mixing by extending interior space right out to the entrance threshold, just as in the single-family houses of the past, also putting an end to the latent dangers of social and hygienic contamination conjured up again and again in the early days of the elevator. The private elevator allowed one something like one's own address even in a sixteen-story building. This was literally true in the case of Mrs. William Vanderbilt II: her apartment with its separate entrance and private elevator also had its own house number.[133] If, as Bernhard Siegert says, identity is "a question of deliverability,"[134] the private elevator ensures that its exclusivity is not diminished.

At about the same time as the private elevator, a sort of negative model was also developed in the apartment houses of New York. The service elevators that led from separate building entrances to the kitchens and laundries of the apartments also created exclusive access, but in a negative sense. They prevented encounters between the residents or their guests and the servants, and were an attempt to preserve the system of main stairway and back stairway characteristic of multistory apartment buildings in the United States, and to a lesser extent in Europe, before the advent of the elevator. The service elevator also appeared for the first time in the Dakota as well as contemporary buildings such as the Central Park Apartments and the Berkshire. As Elizabeth Cromley notes, "Big budgets enabled Hardenbergh [the Dakota's architect] to separate service stairs and elevators from those for tenants and their guests, placing the service circulation in the centers of the four sides of the Dakota's courtyard and accessible only from a service level one floor beneath the open-air courtyard. Thus servants were kept apart from tenants' stairs and elevators."[135]

Unlike private elevators, there was some thought about installing service elevators in German apartment buildings. In the luxurious pre–World War I Berlin apartments that can be considered the avant-garde of a new vertical

hierarchy, it was apparently one of the basic amenities. A column entitled "Hochherrschaftlich" (Lordly style) that ran in the first months of the construction journal *Bauwelt*, founded in 1910, regularly reported on ten- or twelve-room apartments "in the elegant old neighborhoods of western Berlin" that had all been built "within the last year."[136] A common feature of all these buildings was a service elevator, such as the one in a "modern residential palace" on the Lützowufer: "The front stairs are executed in oak and the stairwell also contains a modern elevator. A separate elevator is installed next to the back stairway for the domestic servants."[137] One of the first *Bauwelt* columns under this rubric explained why people around 1910 considered installing a service elevator. The problem was that the upper stories of baronial Berlin apartment buildings were still difficult to rent despite their elevators. The reason was that the servants, "for whom the elevator in the front of the building is taboo," refused work on the upper floors.[138] The article played on the increasing shortage of domestic servants at the beginning of the twentieth century: "Because the market is good for domestics, but bad for the wealthy tenants, those considering renting an apartment on the upper floors are still not willing to pay the same rents as for the second floor, for higher up they suffer the disadvantage of the shortage of servants."[139] An elevator for the servants was regarded as a concession to the increased difficulty of work on the upper floors. How rarely this project was carried out even in the most baronial buildings, however, was suggested by the final sentence of the *Bauwelt* column. In the face of the high installation costs, "it is not impossible that the elevator for domestic servants will become more frequently installed in distinguished buildings."[140]

We need to take a close look at those episodic, quickly fading efforts to double the shaft, so to speak, and establish distinctions in transportation. In Germany, there was no trace of private elevators, and separate elevators for domestic servants appeared for only a short time and in a very

few special cases. Obviously the character of the vehicle was not very well suited to upholding class differences. We must recall the organization of access to multistory residential buildings before the elevator, the system of front and rear stairways, as described in the 1902 *Handbuch der Architektur* (Manual of architecture): "In well-furnished rental apartment buildings, there are auxiliary stairways for the use of domestics. They must therefore be located near the service areas and easily accessible from the courtyard."[141] Already in "mid-priced apartment buildings," the entry continued, "in addition to the main stairway, an auxiliary stairway for domestic servants is desirable or necessary and in many places, regarded as quite indispensable."[142] In turn-of-the-century Berlin, a sign at the entrance to the main stairway in many buildings announced that it was "For Residents Only." "Servants and purveyors must use the auxiliary stair."[143] What caused the leveling of access in the decades after 1910? No apartment building erected after the Second World War (and probably none in the 1920s either) possessed more than one stairwell or one elevator. Without a doubt, the widely studied disappearance of the servant class played a decisive role.[144] With the elimination of full-time domestic servants in multistory buildings, the need for separate traffic routes also faded away. Thus we can understand the separation of access routes deemed necessary for seventy-five years in the retrospective light of the well-documented and far-reaching changes in the structure of employment after 1900.

But one could also shift perspective for a moment and ask which purely architectural factors played a role in such a speedy transformation. Could it not be the case that the swath cut by the elevator shaft in and of itself created the structural conditions for an increasing unification of access routes? It is revealing that the very first commentaries on the installation of elevators in residential buildings stressed this effect. Thus the *New York Times* declared in 1870, "The elevator, to be sure, is, not to be paradoxical, a great leveler."[145] The elevator not only collapsed the strict vertical hierarchy

of nineteenth-century apartment houses. The conveyance's egalitarian function was also a result of its concentration of traffic, replacing winding stairways with its direct channel. If we seek to understand why a concept like the service elevator did not last, we must also consider the consequences of the shaft itself, in addition to all the sociohistorical reasons. As far as their construction is concerned, it would not have been a problem to equip the baronial Berlin apartments of 1910 with a second elevator in the rear. That plans to do so were not realized—that the principle of separate access routes was not carried forward from the era of the stairwell into that of the elevator—suggests a change in the image of the building and its inner structure in the twentieth century. To a certain extent, the elevator democratized access. Among the most obvious expressions of this process were the regulations, initiated soon after the conveyance established itself, that posited the average weight of its passengers. The earliest version of the elevator code for Prussia and its provinces, which took effect in 1908, already declared, "On each entry door into the elevator shaft and in the interior of the cab a sign shall be posted with the clearly legible words 'Passenger Elevator' as well as the permissible carrying capacity, including the operator, in kilograms. The weight per passenger is assumed to be 75 kg."[146] This value, obligatory in every German elevator to this day, expresses the leveling power of the conveyance.[147] One could call it the elevator's political potential. The combination of shaft and cabin both thwarted the class divisions of horizontal transportation systems and promoted an egalitarian image of man. Literally and figuratively, every passenger in the elevator had equal weight.

THE LIMITS OF PRESTIGE: VERTICAL TRANSPORT AND THE WANING OF MONARCHY

If it is true that the elevator not only transports people but also promotes a particular image of them, if its installation is one of many interventions in the organization of buildings

and thus also of societies, then the following passage from the memoirs of Hedda Adlon, widow of the hotel owner Lorenz Adlon, is especially revealing. It depicts an incident from the 1913 wedding festivities for Princess Viktoria Louise, Kaiser Wilhelm II's only daughter. Eight hundred guests were to be housed in the Hotel Adlon on the Pariser Platz near the Brandenburg Gate. A few days before the event, the hotel's planning was put to the test:

> Suddenly we were told that the Kaiser's brother-in-law Duke Ernst Günther zu Schleswig-Holstein and the duchess could not stay in a suite on the fourth floor, as had originally been planned, although it was the duke's express wish to stay on that floor and no other. . . . Now that had to be changed. The Court Steward's Office had given instructions that the duke and duchess were to be accommodated in an apartment on the second floor. The reason given was that the tsar of Russia could not ride the elevator!
>
> The tsar had announced that he would come to the Hotel Adlon to pay a courtesy call on the duke the day before the wedding, and we were told that under no circumstances could the tsar be expected to climb the stairs to the fourth floor.
>
> Russian court protocol governed every step the tsar took and nowhere did it mention an elevator. Thus there were no instructions for how the tsar and his retinue were to behave in such a situation. Should he enter the cab first? Was he permitted to keep his hat on? Who should operate the elevator's crank? and God knows what else.
>
> The protocol had survived unchanged from the days of Catherine the Great. Catherine, of course, had never ridden an elevator for the simple reason that there weren't any back then, and that's why the protocol contained not one word about this means of vertical transportation. . . . At any rate, an apartment on the second floor was prepared for Duke Ernst Günther zu Schleswig-Holstein.[148]

The elevator collided with the traditionally prescribed movements of the sovereign, and Tsar Nicholas II was not the only ruler of the time who had reservations about the new conveyance. On the contrary, a fear of the elevator was conspicuous among European monarchs at the turn of the century.

It was known that Kaiser Franz Joseph I of Austria would not visit his longtime mistress, the actress Katharina Schratt, in her upper-story apartment in Vienna because he had "an aversion to elevators."[149] And the publication celebrating the 150th anniversary of the Otis Company relates how long it took for Queen Victoria to overcome her hesitation to install an elevator in Balmoral Castle.[150]

What is the explanation for these monarchs' shared uneasiness about the new apparatus? Consider two characteristics of the elevator: first, its previously mentioned leveling tendency. A few years after the incident in the Hotel Adlon, the German Standards Committee carried forward the work of the first elevator codes by establishing compulsory standard dimensions for shafts and cabs—"in order to facilitate the economical manufacture of elevator parts"—as well as maximum carrying capacities.[151] The elevator quickly developed into a completely standardized entity for the use of a group of statistically normed passengers and thus represented a fundamental contradiction to the spatial privileging of a monarch. But it was not just a question of the image of the elevator passenger and the conflict between the democratic principle of the conveyance and the distinctiveness of the monarchy. The second and possibly decisive reason for the monarchs' aversion had to do with the spatial positioning of the elevator, the incompatibility of the enclosed, opaque shaft with the stage-managing of their public appearances. Why was it impossible for Nicholas II to ride the elevator when he visited the Hotel Adlon? Why would the use of the vehicle be such a violation of court protocol? It was only a pretext to say that the protocol had remained unchanged since the eighteenth century and did not mention the elevator: the tsar had no problem riding in an automobile in Berlin, for example. No, we must ask to what extent the appearance of the elevator was a threat to the way the rulers presented themselves by manipulating space and how they were seen. As a historian of court culture puts it, "The foremost

consideration in all court ceremonials is the practical one of who steps forward and takes precedence. The priority of rank at each level, as well as the deference to be paid to that priority, must be visible and ascertainable at every moment."[152] The greatest possible open space and the greatest possible visibility of relationships are the prerequisites for public appearances of the ruler, who must always take center stage. The elevator shaft confounds these arrangements; it is the dark place in a completely open room and interrupts the continuum of visibility. The aura of the monarch—the effect of successful staging—was at risk in the elevator, both because of the opacity of the shaft and because of the lack of distance between him and the other passengers. The inability of the court steward to decide "how the Tsar and his retinue were to behave in such a situation—should he enter the cab first? Was he permitted to keep his hat on? Who should operate the elevator's crank?"—was due less to the absence of rules than to the intuition that entering the elevator would be a violation of protocol. In the narrow, enclosed cab it would be impossible to maintain any kind of aura as it was famously defined by Walter Benjamin: the "unique phenomenon of a distance, however close it may be."[153]

How much the ceremonial exploitation of space is unsettled by the elevator can be gauged by the fact that for centuries, vertical movement has represented a sensitive problem for public displays of power. The history of courtly culture demonstrates that the main staircase of a castle or palace played a central role in receptions and other state functions from the Renaissance to the twentieth century. The earliest evidence of a decidedly political function for the stairway comes from sixteenth-century Venice, in the context of state ceremonies on the Scala dei Giganti, the Staircase of the Giants in the Doge's Palace, where the limitations on horizontality imposed by the crowded city necessitated the staging of official events along a vertical axis: "Since there was not much room to stage a colorful, ceremonial scene

in a foreground hemmed in by the canals, there was a need for some background, an arrangement of groups in a steeply rising prospect."[154] The Staircase of the Giants, which continued into the interior of the palace, became the "platform for the loftiest ceremonies of state," as the architectural historian Josef Bayer wrote at the end of the nineteenth century:

> Standing on this platform, the newly chosen Doge would place on his head the princely *beretta*, the symbol of his rule, before the crowd of inhabitants. Here the most distinguished of the Signoria would assemble around the head of state when some special occasion required him to appear with his retinue on San Marco Square or board the ceremonial gondola.[155]

The political function of the staircase was still restricted to the exterior of the building in the sixteenth century. Not until the Baroque era was "the prestige expressed in the Renaissance by the flight of stairs in front of the building . . . moved entirely indoors."[156] The paradigmatic example of such an interior staircase is surely the famous Grand Escalier des Ambassadeurs in Versailles, built in the 1670s for Louis XIV. The central role played by this staircase in courtly protocol—during the arrival of foreign emissaries or the return of the king himself—remained the model for reception protocols right into the nineteenth century. Especially the critical moment of the first meeting of host and visitor usually took place on a palace's main staircase, with the hierarchy of relationships expressed by how many steps the one was to ascend or descend toward the other. In the seventeenth- and early eighteenth-century manuals of etiquette,[157] the rulebooks for the life at court, there are a number of descriptions of such occasions that show that "in European court protocol . . . the order of society also finds symbolic expression in the stairwell."[158] The most influential of these handbooks was Julius Bernhard von Rohr's 1729 *Einleitung zur Ceremoniel-Wissenschaft der grossen Herren* (Introduction to the science of the ceremonials of great persons), which included these instructions in the chapter "On Visits and Personal Audiences":

> If the host has not ridden or been driven out to meet his guest outside the princely residence, then he will meet him in the palace, either at his carriage or on a staircase, or in a particular room, according to the difference in station or to the prerogatives of one before the other. A distinction is often made concerning how far and how many steps the rulers themselves or their princes and other relatives, or their ministers should take to receive the visitors and lead them to their rooms.[159]

The richly decorated Grand Escalier with its lowest central flight rising to meet the two side wings was carefully calculated to serve the function of a "state space," down to its decorative elements running along the steps.[160] The various busts, stucco work, and paintings had symbolic significance. A visitor climbing the steps passed four battle scenes representing the latest conquests of Louis and his brother. Eight stucco sculptures on the ceiling showed the most important military and political events in the king's career. A partially glassed-in ceiling and illusionistic frescos "that seem to open toward the sky like a gallery" created the feeling of great space.[161] The Grand Escalier was designed explicitly as an instrument of power. Every state visitor to Versailles was to be impressed and intimidated by the greatness of his host. The splendor of the staircase suggested that one found oneself "at the political and cultural center of the world,"[162] an impression underscored by allegorical frescos representing the four continents. On the other hand, these decorations were to also stimulate the king's own image of himself when he returned from a victory in battle, a concern that obviously was the first impulse for the construction of this ceremonial flight of stairs.

We can conclude the following from the appearance of the Grand Escalier: for centuries, interior spaces designed to demonstrate the authority of absolute or monarchical states were oriented along a vertical axis. In state receptions, the staircase was the stage upon which a passage was played out. The continuity of the practice is clearly evident. Johannes Paulmann's study of meetings between monarchs

from the *ancien régime* to the First World War demonstrates how closely nineteenth-century court protocol, although never officially recorded, adhered to seventeenth-century patterns.[163] The infrequent mention of these questions in unpublished correspondence between the courts shows that the ceremonial reception of a visiting ruler hardly changed at all. The first, carefully modulated contact of the visitor with the monarch and the royal household still always took place on the main staircase unless the host had ventured outside the palace to meet the arriving guest. In an 1821 document from the court in Vienna on the occasion of an impending visit from George V, the sequence of movements on and around the stairway was precisely choreographed. Once the arrival of the two monarchs together at the palace was announced,

> the royal household of His Majesty the King will meet them at their carriage and then precede them. Their Royal Highnesses the Princes will receive His Majesty [crossed out: "on the steps of the staircase"] at the foot of the staircase and their Royal Highnesses the Princesses will meet His Majesty in the middle of the Grotto-Hall (there being no other anteroom on the garden side of the palace).[164]

Johannes Paulmann, who unearthed this document, emphasizes that "up to the First World War, this ceremonial is typically the final act of an arrival, with minor variations depending on location and circumstance."[165] The deployment of people along the vertical axis enacted an orderly hierarchy for the benefit of the visitor. Each member of the royal household was assigned a specific static or dynamic position: the highest court officials lined up below and along the sides, the princes greeted their father and the visiting monarch on the steps, the princesses received the arrivals on the second floor. Monarchical political ceremonial was always coupled with the principles of rigid distribution and complete visibility of movements in space, which made the problematic nature of the elevator immediately apparent. Although as a technological substitute for the stairway it

accelerated the mere act of climbing up or down, the displacement of the vertical passage into a shaft eliminated all possibility of ceremony.

It may be purely historical accident that the triumph of the elevator and the fall of monarchies temporally coincided, but if we take seriously the proposition that "social order always corresponds to architectonic order," we can draw some connecting lines.[166] The end of a method of rule whose image depended on maintaining precise positions and distances corresponded to the end of a method of building whose interior vertical structure was the prerequisite for such positioning. Every building constructed around the core of an elevator shaft, on the other hand, contributed to the disappearance of the monarchical ordering of space. Perhaps this rupture in political and architectural history around the turn of the century can be illustrated by comparing two building types similar in their size and public orientation: on the one hand the monarch's palace, and on the other the grand hotel. The former traditionally got along without a passenger elevator, while the latter was one of the first places where it was installed, beginning in the 1870s. In his essay "The End of the Ceremonial," Gotthardt Frühsorge shows the extent to which the luxury hotel replaced the royal court as the focal point of the metropolis, the location of advanced etiquette. He even identifies the hotel owner as a "successor to the lord steward or major-domo, the director of a large household."[167] The fundamental difference between court and hotel was that in the latter, the formal ordering of space around a central point had dissolved. The distribution of people no longer followed a ceremonial, but was now left to their free circulation. We must recall the building where the collision of courtly protocol and modern transport occurred in 1913. It was the grand Hotel Adlon, and perhaps in this unimportant incident, the multifarious connections between architecture and politics become visible: from the grand staircase to the elevator, from the court to the

hotel, from the monarchy to the republic. Future studies of political systems should not leave the elevator out of consideration.

Barely fifty years later, another incident involving a hotel elevator and a state visit occurred that is like a complementary story in the post-monarchical era. Nikita Khrushchev was supposed to give a talk to two thousand American businessmen in the Waldorf-Astoria Hotel. On the way down from his tower suite, he and some Secret Service agents got stuck in an elevator for half an hour. When the cab finally descended to the third floor, KGB and CIA agents were waiting with drawn revolvers.

> The door opened, and everyone in the elevator was so pale, not knowing whether it had been done externally or what had happened. . . . The Russians and Khrushchev probably thought it was an attempt to assassinate him. Of course there were many apologies made, but it was a mechanical problem. The elevator had gotten stuck! And then he went into the ballroom . . . and everybody looked as if the war was going to begin.[168]

In this episode from a time without courtly protocol or any exact prescription for the distance between bodies, the latent danger in this means of transportation for heads of state—a danger the turn-of-the-century monarchs sensed intuitively—became reality. The total opacity of the channel through which the cab moves engenders jittery nerves, especially when it gets stuck, and almost caused a real political crisis at the height of the Cold War. In the Waldorf-Astoria, Khrushchev would not even have had the option of dispensing with the elevator as did his tsarist predecessor; by the late 1950s, stairways in New York luxury hotels were nothing but emergency exits. Once again, the intertwining of political and transportation systems became visible. In a country without any monarchical tradition, the elevator shaft had already replaced the main staircase as the principle of vertical organization by the late nineteenth century. Elaborately choreographed political appearances were no longer planned in the democratic age. But the darkened

space around a head of state contains a diplomatic risk, as the Khrushchev incident demonstrated.

If, as we have said, the significance of the ceremony lies in the visible identification of any person's status at any given moment, then the problematic nature of the elevator was manifestly on display in the "elevator etiquette" of federal offices in Washington to which *Harper's Weekly* devoted an article in 1910. "Elevator-conductors everywhere have their troubles, but these are nothing compared with the trials of the elevator-conductors in the Federal departments at Washington,"[169] the article began, and went on to describe the complex system of privileges in the buildings of the State, War, and Navy Departments that placed almost inordinate demands on the skill of the operators. An officer's rank determined his prerogatives in the elevator. If a cabinet secretary was waiting for the cab, for example, an assistant signaled his rank by pressing the button three times, causing the elevator to interrupt its travel immediately and return, pick him up, and bring him to the desired landing. Other passengers already in the elevator had to simply wait to be taken to their own destinations, according to their position in the hierarchy. Superficially, everything functioned according to the traditional principle of protocol—at stake was the preservation of a rigid ranking—but the article recounted the breakdown of that principle on the morning of a state funeral, when numerous high-ranking officers were in the War Department.

> A major . . . was on the lift, and was being shot up to the third floor, when the sharp ringing of the three bells announced the appearance on the ground floor of the Secretary of War. Down shot the elevator. The big Secretary and the little major saluted, and before the salutation was over two bells rang, meaning that an officer of high rank wished to ride.
>
> In this case the Secretary of War was, of course, the main proposition, and, accordingly, was ushered out at the second floor first. Then up flew the elevator to the fourth floor to answer the two bells, to take on a brigadier-general who desired to descend to the street

> floor. The major found it necessary to do a little more saluting. The elevator proceeded to the ground floor, and the brigadier-general departed, and the major, who had now been carried by the floor of his destination twice, breathed a sigh of relief and thought his turn had come. But not so. Just at that moment two bells rang on the second floor, and this time there got aboard the chief of staff, with another officer, and down they went, major and all.[170]

Whether the major left the cab still in possession of all his faculties is not recorded. This story exemplifies how the elevator frustrates the preservation of ceremonial order. The conveyance resists the elaboration of distinctions, and only the express elevators of the largest office buildings, reserved for the personnel of the executive suite, allow a relatively untroubled observance of privilege. Its structural constraints, however, make the elevator's politics by nature egalitarian.

THE ELEVATOR IN LITERATURE, FILM, AND ADVERTISING

SITE OF CONTINGENCY: THE ELEVATOR AS ORGANIZER OF CITY NARRATIVES

As we have seen, in the first decades after the passenger elevator's arrival, its potential as the scene of crises was soon recognized. Elevator encounters between complete strangers in a space even more constricted than the railway compartment provoked discussions among architects, physicians, and psychologists of the apparatus's status and risks. If we seek to understand why the elevator is still such a popular location in novels, films, TV series, and advertisements with urban settings, we need to keep in mind the latent threat embodied in this unobservable intersection of individual lives. What is it about the cab that makes it such a significant element in the spatial structure of city narratives and thus in the poetics of modernism?[171] An initial answer to this question emerges against the backdrop of the canonical works of modernist experience and aesthetics, works continuously referred to in academic analyses of literary portrayals of the big city.[172] In Poe's *Man of the Crowd*,

Baudelaire's *Painter of Modern Life*, Georg Simmel's *Die Großstadt und das Geistesleben* (The metropolis and intellectual life), and Walter Benjamin's Baudelaire studies, the most salient characteristic of urban life is the increasing contingency and multiplicity of its encounters. Baudelaire's declaration, "By 'modernity' I mean the ephemeral, the fugitive, the contingent"[173] is widely recognized as the "incontrovertible definition of the modernist aesthetic."[174] The elevator cab—in the days of Poe and Baudelaire just beginning to be installed in the grand hotels, by the time of Simmel and Benjamin a permanent part of urban architecture—is the contingent locale par excellence. Here the greatest possible anonymity is conjoined with the greatest possible intimacy of contact. The utter randomness of encounters there, reinforced by the absence of class differences and schedules, collides with the complete enclosure that inevitably produces proximity and togetherness. The writings of Georg Simmel in particular returned again and again to the self-discipline demanded of city dwellers at the turn of the century in order to get used to the proximity of strangers. Urban traffic with its multiplicity of fleeting encounters required a kind of sensory shield—protective measures nowhere more urgently needed than in an elevator. Even before the conveyance had become firmly established in European metropolises, literary works were already drawing attention to the oppressive atmosphere of the cab, as in a 1906 prose miniature by the Viennese feuilletonist Peter Altenberg:

> It is dreadful to ride up together with a stranger. You feel the duty to strike up a conversation and worry obsessively from floor to floor about what to say. There's the same embarrassed tension in the air as at high school final exams. At last you blurt out "Farewell" in the tone you would use if you'd just made a friend for life.[175]

The elevator's status as the paradigmatic site of precarious public encounters is clear from its frequent use as an example in the most important sociological theories about public interactions. In his essay "The Territories of the Self," for example, Erving Goffman attempted to classify

individual spatial needs in interpersonal relations. At the end of a discussion of "personal space"—that sphere "within which an entering other causes the individual to feel encroached upon"—he observed, "All of this may be seen in miniature in elevator behavior."[176] The elevator cab proved to be a kind of laboratory for the ethnology of urban life, where the structuring of space between two human guinea pigs and the rules of maintaining their distance from each other could be observed under ideal conditions. In a long footnote, Goffman went on to quote a colleague's empirical study of behavior in elevators that revealed the consistent spatial distribution of bodies in an elevator: the "first entrant takes up the corner near the controls or one of the rear corners; the next entrant is likely to take up the corner diagonally across from the taken one. The third and fourth passengers take up the remaining corners, the fifth the middle of the rear wall, the sixth the center of the car."[177] The passengers' predictable sociogram, their reflexive maintenance of the greatest possible distance from each other, was based on the fact that the anaesthetizing of attention was even more difficult to maintain in an elevator than in the means of horizontal transportation often mentioned by Simmel. Neither windows nor reading material offered the possibility of avoiding interaction. How persistently the apparatus challenges the maintenance of Goffman's "territories of the self" can be measured by how relatively ineffective the strategies for avoidance of contact are even today, after a hundred years of elevator use. Thus it is no surprise that literary and sociological observations of the atmosphere in the cab have hardly changed in the course of the twentieth century. In a prose sketch entitled "In an Elevator" and written thirty years after Peter Altenberg, Christian Bock described the encounter of two neighbors in an elevator:

> It so happens that two of you are standing close together in the ascending elevator and you suddenly feel embarrassed in each other's presence. Sort of like you had some cooked macaroni in your pocket and don't want the other guy to find out. But it's already

seeping through to your skin and you still have a long, long way to go to the fifth floor.

What's the point of staring at the other guy's tie? Should you examine the elevator walls on which there's nothing to examine? And if you're forced to look your fellow human being in the face—what can you say? It's just stupid to suddenly say what a beautiful day it is. He already knows that; he was just out there. And so I do what others have done before me and blurt out the senseless question, "Oh, you're going to the fifth floor too?" (When you've known for years that you both live on the fifth floor.)[178]

Bock's text anticipated the sociologic theory of "personal space" and proxemics by a quarter century when he concluded, "We feel overcrowded on our scant two square meters of elevator floor, because our condition in life is usually predicated on a distance of at least three meters from the next person."[179] A recent study of the "minimizing of presence" in elevators by the Cologne sociologist Stefan Hirschauer reaffirmed the continuity of this feeling of crowding and anxiety right up to the present day. His empirical observations of elevator passengers confirmed the findings of Goffman as well as the impressions of Altenberg and Bock. Hirschauer set out to show that preserving one's separateness and avoiding contact with other passengers was a complex social achievement. Precisely maintained physical positions and "corridors of vision" ensured the systematic avoidance of communication.[180] "Space 'speaks' for proxemics," as Umberto Eco once wrote apropos Hall and Goffman's theory of adequate distance relationships.[181] In the elevator cab, this "speaking" is a dense murmur that every passenger tries to ignore.

In order to identify the specific function of the elevator in big-city stories, we must compare their narrative method with the way they configure the locations of their action. Beginning in the last third of the nineteenth century, a similar dynamic of dispersal became apparent in both urban life and urban novels: as social life in the metropolis became more heterogeneous, novels employed

more simultaneous narrative strands. We must keep this connection in mind between a development in social history and its reflection in narrative technique; the diffusion of individual biography in the wake of urbanization that Georg Simmel so often wrote about—the proliferating and unstable locations and relationships—was recapitulated in the transition from the organic "novel of education" to the panoramic novel of contemporary life. By the late nineteenth century, the development of an individual life no longer stood so firmly in the narrative foreground, but rather (as Karl Gutzkow put it in his early poetics of the "social novel") the portrayal of a "*Nebeneinander*," a simultaneous "being together," an oscillation between various figures and plot strands.[182] While most scholars seldom mention the influence of urbanization on narrative theory, in his 1978 study of English and American novels, Gerhard Hoffmann writes that the "increase in the number of plotlines" and the "strengthening . . . of plot simultaneity versus pure chronology" are some of the most conspicuous shifts in the poetics of nineteenth-century novels and go hand in hand with the increasing complexity of their spatial organization.[183] Thus heterogeneity and contingency are characteristic not only of the structure of perception and communication within the expanding cities, but also of the plot structures of big-city fiction. A decade before Hoffmann, Volker Klotz's study of the "narrated city" formulated the thesis that in the novel, "the city comes into its own as an object of literature."[184]

With these considerations as background, what literary role does the elevator play? We must examine the recurring tasks assigned to it in both literature and film. In stories set primarily in hotels, offices, or apartment buildings and as a result of this topography involving multiple contingent encounters, the elevator cab often serves as a kind of hinge. The cab, combining freedom of access while stopped and hermetically sealed impenetrability while in motion, acts as a decisive intersection of biographies and plotlines. In the

midst of the general fleetingness of personal exchanges, it introduces a brief moment of intimacy invisible from without. As a dramaturgic device, it makes almost inevitable what private, service, and express elevators were meant to forestall. Especially fiction and films set in hotels exemplify the fundamental significance of the elevator for plot structure. As a location of chance encounters with momentous consequences, it sets the story in motion or integrates a simultaneous plot strand.

An elevator scene stands at the very inception of Vladimir Nabokov's literary career. At the beginning of his first novel, *Mary*, written in 1925–1926, two Russian exiles get stuck together for twenty minutes in the elevator of a Berlin boarding house: the longtime resident Lev Ganin and the newly arrived Aleksey Alfyorov. Their chance meeting initiates a fateful connection, for shortly afterward Ganin recognizes in a photograph of Alfyorov's wife the love of his youth, left behind in Russia and now on her way to join her husband in Berlin. This discovery plunges Ganin into a frenzy of memories, and causes "the entire kaleidoscope of his life to shift."[185] Only at the last minute does he abandon his plan to beat his fellow resident to the train station and start a new life with Mary. The opening scene in the elevator initiates the story and prepares for the revelation of the hidden connection between the two strangers. The curiously emphatic words uttered by Alfyorov in the cab—"Don't you think there's something symbolic in our meeting like this, Lev Glebovich? When we were on terra firma we didn't know each other. Then we happen to come home at the same time and get into this contraption together"—don't reveal their full significance until much later.[186] In point of fact, one could very well call their meeting in the stuck elevator symbolic, since it is already a compressed image of what will be played out in the rest of the short novel: the random connection of two biographies. As the garrulous Alfyorov says in the cab, "We stepped in without a word, still not knowing each other, glided up in silence and then suddenly—stop."[187]

An elevator lurches to a stop and a novel begins. In the same year that Nabokov's *Mary* appeared, the Berlin writer Paul Fechter published the best seller *Der Ruck im Fahrstuhl* (The lurch in the elevator), a novel that follows the same narrative pattern. Instead of a hotel or boarding house, the story is set in an upper-class apartment building during the economic crisis of the 1920s and narrates the downfall of the well-to-do Jordan family, who live on the fashionable second floor. Little by little, they are forced to go to work for the ambitious radio store owner Alwin Hempel and also surrender their apartment to him. In the first chapter, entitled "The Symbol" (like an echo of "something symbolic" in Alfyorov and Ganin's meeting), Amélie Jordan and her two daughters Toni and Eva get stuck in the elevator. Hempel, who just then happens to be returning home to his sublet lodgings on an upper floor, is able to rescue them with the help of the janitor. This incident, the eponymous "lurch in the elevator," is referred to again and again in the course of the long-winded novel. The apparatus that lurches to a halt on a September evening in 1923 becomes the symbol for the historical dynamics of the country's economic troubles and the characters' lack of social orientation. An impoverished businessman, for instance, asks Toni Jordan's architect friend Gieseler,

> "You've never experienced a lurch?"
>
> "What kind of lurch do you mean?" asked Gieseler.
>
> Traugott Lehmann looked at him. "What kind of lurch? Why—the kind that pulls you up by the roots and tosses you somewhere or other."[188]

There are similar exchanges at various points in the novel, always focused on the metaphor of the "lurch."[189] When Alwin Hempel at last takes over the reception rooms in the Jordans' twelve-room apartment, hires Eva Jordan as his private secretary, and suggests to the rest of the family that from now on they enter the rooms they still occupy in the rear of the apartment via the servants' stairway, Eva muses on the course of events:

> "I have the feeling that in such moments, our life got suddenly jarred the same way that"—she gave a little laugh—"the elevator did when Toni tore open the doors and we got stuck and you came and got us out."
>
> She looked at him pensively. "How remarkable it is; you helped us out on that occasion and got the elevator going again, and now it's almost the same. . . . If you hadn't come and rented the apartment and hired me—I don't know how we would be surviving today. We were just as stuck as the elevator."[190]

Fechter's novel is just one—unusually emphatic—example of the elevator's use as an important narrative pivot point in many urban stories. Although seldom or never again deployed as such an unrelenting metaphor, this device can be discovered in literature and film to the present day. One could call the dramaturgic use of the elevator a response to the difficulty of narrating the twentieth-century metropolis, an answer to the question of how and where both relationships can begin and narrative structures can be built in the anonymous web of passersby. Of course there are other public places where strangers are brought together in a small space and chance encounters are transformed into fateful fellowships. Think of the train compartment and its narrative potential for such novels as Patricia Highsmith's *Strangers on a Train* or Agatha Christie's *Murder on the Orient Express*. But the elevator's specific advantages are the everyday frequency of its use and the incomparable speed with which it can reorder a group of people. In the elevator, fluctuation and hermetic isolation coexist in a unique relationship. Precisely its self-evident daily use and its herding together of strangers in a multistory building make it such a popular location in big-city stories. It would be impossible to list all the Hollywood films set in hotels, offices, and apartment buildings in which the elevator is a determining plot factor. (In Sofia Coppola's 2003 *Lost in Translation*, to cite a recent example, the encounters of the two main characters are staged in and around the elevator, from their first eye contact in the

crowded cab to their farewell in front of the bank of elevators in the hotel lobby.)

To analyze the cab's narrative function, however, we must return to its ability to bring together a fortuitous collection of people and their parallel plotlines. There is no other text that uses this double ability as transparently as does Arthur Hailey's best seller *Hotel* (1965). One of the most successful hotel novels of the twentieth century, it was later made into a movie and expanded into a television series. The novel is set in the neglected grand Hotel St. Gregory in New Orleans, and Hailey narrates more than a half dozen parallel stories of various guests and employees. For 540 of the novel's 580 pages, the characters have no direct contact with each other. The hotel magnate O'Keefe arrives with his girlfriend, Dodo, intending to buy the St. Gregory. The crooked bell captain, Herbie Chandler, embezzles money from the hotel and brings it to the brink of financial ruin. The Duke and Duchess of Croydon have killed a woman and her daughter in a hit-and-run accident and solicit the help of the hotel detective to smuggle their damaged car out of town. The hotel thief "Keycase" Milne accidentally finds the wallet containing the payoff money for the detective. All these plotlines are narrated in separate chapters until the moment when four of the protagonists—Dodo, Chandler, the Duke of Croydon, and Keycase—get into the same elevator cab, which malfunctions and plunges to the ground. Here the cab's narrative function is different than in the novels of Nabokov and Fechter. Instead of serving as the starting point that enables the story to be told, it ties the separate plotlines together at the end. It is revealing for the novel's structure, however, that the final catastrophe is foreshadowed by repeated mention of the dangerously neglected elevator number four, one of twenty in the 1,600-room hotel. In the very first chapter, the cab starts to move only after a long hesitation ("It's the connections I think, either here or up top. . . . Had quite a bit of trouble lately," says the lift boy[191]), and in the course of the novel the ramshackle elevators are often mentioned

as a sign of the St. Gregory's general state of neglect. When the chief engineer tells Peter McDermott, the newly promoted assistant general manager, about the elevator's problems and says the apparatus will eventually reach a "death point," McDermott heeds the warning. "Peter was still thinking about the chief's words when he entered his own office. What was the death point, he wondered, for an entire hotel?"[192] The larger history of the neglected hotel is reflected in the smaller history of the elevator; again, the apparatus serves a symbolic function in the context of the narrative.

At the end of the novel, things come to a head in several regards. O'Keefe's takeover of the hotel is as good as decided; McDermott (with his colleague Christine Francis the last bastion of conscientiousness in the St. Gregory) is about to prove Chandler's embezzlement; and the irregularities in the operation of the elevators can no longer be ignored: "Now, today, number four was starting and stopping jerkily at every floor."[193] The composition of the story and its rhetoric of steadily increasing suspense culminate in the final catastrophe in the elevator. There are two reasons for this focus: in terms of narratology, the cab inside the building is the most appropriate place to bring the parallel life stories together; in terms of dramaturgy, the elevator's fall represents the collapse of the St. Gregory as a whole, but also its rebirth. The four passengers gathered randomly there are all in the midst of a crisis: Dodo has been abandoned by her lover, O'Keefe; Croydon has decided to turn himself in to the police; Chandler is about to be fired; and Keycase needs to make a quick getaway after his surprise coup. Thus it is the representatives of the old St. Gregory cosmos who come together in elevator four. And since things have taken a turn for the better just before the accident (a guest has unexpectedly purchased the hotel and named Peter McDermott manager), the elevator's fall at the end of the novel appears to be an eerie purification, a final shock before the completely new beginning. McDermott's first official act on the very evening of the crash is the rehabilitation of the elevators:

"On Monday, a team of consultants would fly from New York to begin planning for replacement of all passenger elevator machinery with new. It would be the first major expenditure of the Albert Wells-Dempster-McDermott regime."[194] The "death point" of both the elevator and the hotel itself has been overcome.

SITE OF TRANSFORMATION

In addition to the cab's narrative utility as an intersection of various plot strands, its creation of a space completely sealed off from view (during its travel) also comes in handy in big-city stories. There is no other public space where one can feel so securely and completely alone, if only for a few moments. It is this aspect of brief but absolute seclusion that allows the elevator to play such a decisive dramaturgical role. A much-beloved cliché in films and television series set in office buildings is the image of two colleagues who board the elevator on an upper story and emerge several floors below with red faces and disordered clothes. But lovers aren't the only ones who exploit the invisibility of the cab interior. Single passengers also profit from what Nicholson Baker in his novel *The Mezzanine* calls

> a unique moment of true privacy—truer, in fact, than the privacy you get in the stall of a corporate bathroom because you can speak loudly and sing and not be overheard. L. told me once that sometimes when she found herself alone in an elevator she would pull her skirt over her head. I know that in solo elevator rides I have pretended to walk like a windup toy into the walls; I have pretended to rip a latex disguise off of my face, making cries of agony; I have pointed at an imaginary person and said, "Hey pal, I'll slap that goiter of yours right off, now I said *watch it*!" The indicator light and slowdown give you enough warning to adjust your glasses and reassume a hieroglyphic expression before other passengers get on.[195]

The elevator cab produces a seclusion that tempts people to do outrageous things ("Something happens to men in elevators. Must be the change of altitude—the blood rushes

to their head, or something—boy, I could tell you stories," complains the lift girl Fran in Billy Wilder's film *The Apartment*[196]). But if the ride is prolonged it can also have dire consequences and even lead to the gibbet. That at least is the message of what is probably the most famous elevator story of them all. Julien, the protagonist of Louis Malle's thriller 1957 *Elevator to the Gallows* (based on the novel by Noël Calef), gets stuck in the office elevator for a weekend after murdering his boss and disguising it to look like a suicide. Meanwhile, a young couple steals his sports car and commits another murder with his pistol. In the novel, Julien is convicted not for his actual crime, but for the second murder, with which he had nothing to do.[197] For the time between Saturday afternoon (when the elevator is turned off by the building's superintendent) and Monday morning, there are no witnesses to his whereabouts. He is stuck in a vertical non-place while the plot runs its course on the horizontal: the boulevards of Paris and the roads of the surrounding countryside.[198] Not even the confession that he has killed someone else at the time in question can help him, for the judge does not believe his story. "It was suddenly clear to him that he had an irrefutable but fatal alibi: the elevator."[199] Calef's novel refers insistently to the blind spot in the topography of buildings (as well as criminal cases): the modern, completely enclosed cab. Julien seems to sense its ominous nature immediately after killing his boss, for as he descends in the elevator with the superintendent (shortly before he makes the mistake of rushing back into the elevator to retrieve a forgotten and damning piece of evidence), he says, "I think these elevators installed in the wall are odious. . . . It's like being stuck down a well. I liked the old elevators much better. You could see the floors passing, the steps. . . . In here, its stifling."[200] The progress of the story confirms Julien's prophecy. Whatever happens in the elevator, whether during a brief trip from one floor to another or in the long hours after getting stalled, is unknowable from without and can never be verified (in a forensic reconstruction, for instance).

Thus one could say that in the era of the wide-open executive suite, the elevator cab to some extent took over the role played by the attic in the late nineteenth century—a thankless role indeed. As the technological apparatus freed the upper regions from their dubious stigma, it became stigmatized itself.

In *Elevator to the Gallows*, Julien falls victim to the elevator's hermetic isolation. If you consider the uses the elevator is put to in Hollywood films of recent decades, however, this malevolent role is the exception rather than the rule. It is much more usual for the cab to act as an accomplice. Its invisibility offers the carrier of some secret a reliable opportunity to let his guard down for a brief interval, even in the midst of the bustle of an office building or hotel. The same is true for clandestine lovers who must meet in the elevator and for individuals whose public identity is based on a falsehood. If we look at the topography of films in which the focus is on someone leading a double life, we find that elevators often play a prominent role. Costume-changing transvestites, swindlers, and superheroes who lead a normal life until it's time to don a spandex costume and save the world all need somewhere to change undisturbed. In the big city, this refuge of transformation is often the elevator. Superman regularly uses elevator cabs in the office towers of Metropolis to shed his identity as Clark Kent. In Billy Wilder's *Some Like It Hot*, Tony Curtis and Jack Lemmon escape the Mafia killers in a Florida hotel thanks only to their costume changes in the elevator.[201] Having escaped their pursuers disguised as members of an all-girl band, they exit the elevator in the next scene as a wheelchair-bound invalid and a bellhop, but the latter's high heels give them away. Shortly thereafter they rush up the stairs in bellhop uniforms and leave the elevator and the hotel dressed as women again, unrecognized by the mafiosi waiting to waylay them in the lobby.

But no film integrates the elevator into a double life so consistently as *The Secret of My Success*, in which Michael

J. Fox plays the ambitious young graduate Brantley Foster, who comes to New York seeking his fortune as an executive but ends up with a job as a mailroom clerk in his uncle's company.[202] He exploits this position to read internal company memos and become more knowledgeable about the firm's structural weaknesses and personnel problems than many of the managers themselves. When he discovers a vacant office in the huge but poorly managed enterprise, Foster begins posing as a new executive named Carlton Whitfield. With his creative ideas about how to avoid a hostile takeover, Whitfield soon gains respect and influence within the company. His greatest challenge, however, is how to manage his double existence between the mailroom and the executive suite. When he needs to transform himself back into the mail clerk Brantley Foster after his first appearance as Carlton Whitfield, his secretary comes upon him changing clothes in his office. At this point in the story, the elevator makes its appearance and from then on proves to be the actual "secret" of Brantley's "success." Not only is it the most direct route between the floors of the skyscraper, but the cab with its stop button is the only place in the entire building where Brantley can safely change his clothes without being observed. The unreliability of elevator number three, which gets temporarily stalled several times a day, becomes a leitmotif. Its cab is also the keeper of another of Brantley's secrets: it is the catalyst of and favorite location for his love affair with Christy, his coworker from the executive suite and the mistress of the company president when the movie begins. By the end, she and Brantley take over the business.

Stories like *The Secret of My Success* clearly illustrate the strategic function of the elevator shaft. It is the darkest location in the midst of the brightly lit public space. The topographical structure of the film is a result of the change in the interior structure of buildings already well under way by the end of the nineteenth century with the improvement of sanitary and heating systems as well as the introduction of the elevator. Ever since, buildings contain an invisible system of

pipes and shafts, "widely ramified arteries throughout every floor of the building, of which the outside observer is totally unaware," as one commentator wrote in 1910.[203] The elevator shaft stands in the center of these arteries and becomes, especially in the midst of an office building's public spaces, a privileged place of secret messages and private acts.

In the same vein as the film and literary connections, there is an interesting phenomenon that was one of the germs from which the present study grew: the marked frequency of the elevator as a setting for commercials. In recent years, at least eighteen to twenty spots shot in elevators have appeared on German television alone, including ads for Campari, Volkswagen, Head and Shoulders, Burger King, and Nescafé. Why does the elevator seem to meet the particular aesthetic and dramaturgic requirements of this genre so well? Obviously, its hermetic privacy and opportunity for unobserved transformations offer ideal conditions for a convincing presentation of a product's effectiveness.

Even more obvious, however, is the temporal congruence between the length of a commercial and an elevator ride. This gives the ads' content a kind of Aristotelian unity of structure: the length of the narrated plot corresponds to the length of the characters' presence in the cab. An ad for glasses from the Fielmann Company, for example, begins with two colleagues entering the office elevator. Their conversation reaches its promotional climax when the one with the elegant glasses tells the other how reasonably priced they were, whereupon the cab door opens and their ride (and the ad) is over. It is hard to imagine another narrative setting with foreordained limitations so perfectly fitting the time constraints of the commercial spot. The beginning and end of the elevator ride seem almost natural limits for the presentation, even more effective because the doors of modern elevators open and close like the curtains of a theater.[204] Accompanied by an acoustic signal, their opening means the story is about to begin. Several ads use this dramatic moment to good effect; ads for Eclipse Flash chewing

gum and Spee Gel laundry detergent begin at the precise moment a high-pitched gong signals the opening of the cab door. The background music either begins with the sound of the gong, as in these two ads, or comes to an abrupt halt at the end of the ride, as in a German Burger King commercial in which Cindy Crawford boards a shopping center elevator already occupied by two clueless guys. The matching time constraints of the location and the ad can even form part of the ad's pitch. A commercial for Jet Set nail polish, for instance, exploits the brief length of the ride to underline how easy it is to use the product. A businesswoman enters the cab on the fourth underground level of an airport and begins to apply the polish. By the time she's reached the ground floor, her nails are dry. "One application is all it takes; our ultra-quick formula dries in a minute," promises the voice-over, a promise convincingly underscored by the scene of the action.

The compression of time corresponds to the compression of space in the enclosed cab, a repeated theme especially in ads that feature the fantasy of an unexpected erotic encounter. The fantasy of wish fulfillment is that a tiny impulse is all it takes to transform two strangers into a pair of lovers for the duration of the trip, and this is precisely the take-off point for products purporting to make their users more attractive. They will provide the catalyst for fulfilling the fantasy. In a spot for Axe deodorant, a mousy fellow enters an elevator in which the fragrance of the previous passenger still hangs in the air. A beautiful woman enters behind him—a woman clearly unattainable for him under normal circumstances. But the seductive power of the lingering fragrance in the confined space is such that she pushes the stop button. Cut to the woman exiting the cab with an embarrassed look while smoothing down the hem of her dress. A similar commercial for Rama margarine shows a woman returning to her apartment after buying food for breakfast. She gets stuck in the elevator with a man. She has a bag of croissants and he has a tub of Rama. Since it's an ad for a

respectable German margarine, they content themselves with sitting on the floor and sharing breakfast, but even margarine acquires aphrodisiac powers in the elevator cab, and when the machine starts running again, the woman clandestinely presses the stop button (which, at least in commercials, seems to have no other function). If most commercials use more or less explicit sexual connotations to stress their products' ability to increase the attractiveness of their purchasers, there can hardly be another setting where that effectiveness is so directly put to the test. The presence of the right deodorant, margarine, beverage (in the Campari ad), or ice cream (in a Langnese ad) awakens an irresistible desire in whoever is present, and the sealed cab provides the perfect setting for its immediate gratification.

Quite apart from all erotic attraction between passengers, there is still another reason its spatial characteristics make the elevator such an appropriate setting for these commercials. Its cramped space ensures uniquely intense visual and olfactory impressions. The kind of products that favor elevators for their commercials show that ad agencies are well aware of this characteristic: deodorants, laundry detergents, chewing gum, sheer hosiery, and two kinds of dandruff shampoo—all products that ameliorate defects and produce effects perceptible only at close quarters. After riding together in a crowded elevator, a female coworker lets the businessman in a Head and Shoulders spot know that he has dandruff. In a commercial for a German clothing manufacturer, the head of the firm surprises a job applicant arriving late for an interview as she changes her stockings in the elevator. He's so dazzled by their sheerness that he hires her on the spot. As the mama's boy in a laundry detergent ad enters the elevator, he sees that a neighbor's basket of laundry is so dirty it's going to need extra-powerful Spee Gel. Last but not least, the Axe deodorant man is the beneficiary of the olfactory intensity of the nearly airtight cab. The elevator is the ideal vehicle in which to advertise body care products because there is no other public place where people are

more susceptible to sensory impressions. Nowhere else are body odor, halitosis, and dandruff so noticeable; nowhere else is the need for the right cosmetics and stockings so obvious. The combination of these two factors—the possibility of an erotic encounter and the intensification of sensory stimuli—makes the elevator the ideal setting for commercials. In the cab's hermetic isolation, the passengers become perfect guinea pigs in the ad agency's laboratory.

THE MOMENT OF TRUTH: THE STALLED CAB AS SECULAR CONFESSIONAL

In novels, films, and commercials, elevators get stuck with a frequency that bears no relation to official statistics. As Nabokov's *Mary* and Fechter's *Der Ruck im Fahrstuhl* show, elevators tend to appear in big-city stories precisely, and only, at the moment they stop working. Although malfunctions have been infrequent exceptions since the development of safety mechanisms in the early twentieth century, they seem to be the rule in fictional narratives. The reason for this statistically indefensible preference is undoubtedly that, while one can (with difficulty) ignore uncomfortable physical proximity for the length of a normal ride, it becomes oppressively unavoidable in the case of a malfunction. We stand motionless for the few seconds of a usual ride, our gaze fixed on the illuminated floor numbers or our own fingernails. Our bodies and eyes immediately begin to move again if the cab comes to an unexpected stop. We breach the defensive walls we have erected around ourselves upon entering. From one moment to the next, a collection of individuals studiously ignoring each other becomes a group thrown together by fate, a "closed society" par excellence.

Thus it is no surprise that the very first literary works to use the elevator as a setting have a stalled cab at the center of their action. In 1875, an anonymous author published a short text entitled "In an Elevator." As far as we know, it was the first elevator story ever written, and it appeared at a time when the spread of the apparatus in hotels, apartment

houses, and office buildings had only just begun. The story tells how a man and woman from New York high society came to fall in love. At her wedding reception in an apartment hotel, the bride, Estella Blodgett, tells a friend how she became better acquainted with the young professor who is about to become her husband. They had met a year earlier and knew each other slightly, but she hadn't liked him very much. "I used to be dreadfully afraid of him. . . . He isn't a society man at all, and doesn't know how to get on with young ladies." Her opinion changes dramatically, however, when they meet in an elevator on their way to a dinner party and get stuck between floors. In the cramped cab, the awkward professor turns out to be an entertaining conversationalist. "All his scholarly stiffness melted away; he was easy, merry, friendly, and oh, so kind!" says Estella, and even after several hours together, they still have things to talk about: "Poetry, science, religion, gossip." Since they miss out on the entire dinner, their hosts pass them sandwiches through the wire lattice enclosing the cab. As a final sign of his gallantry, the professor divides the snacks with the point of his umbrella. By now, Estella's earlier dislike has been transformed into unexpected intimacy: "I found myself talking to him about all sorts of trifles, which the day before I should as soon have thought of confiding to the observatory." After an inconsequential drop to the ground floor, they finally exit the cab not as distant acquaintances, but as lovers. "So then and there your romance began?" asks Estella's friend at the end of the reception, which, sentimentally enough, is being held in the same apartment where the dinner party took place a year earlier. "Then and there," Estella replies.[205]

In 1894, nine years after this little story appeared in *Harper's Weekly*, William Dean Howells published the previously mentioned one-act play *The Elevator*. This text also first appeared in *Harper's*, and it is possible that Howells was familiar with the 1875 work, for the spatial structure and dynamics of his play follow a very similar pattern. Again, the occasion is an elegant dinner party—this time a Christmas

dinner for ten guests in a Boston apartment house—and an unreliable elevator is the central location where six people, including the lift boy, encounter each other. They are the spouses, aunts, sons, and daughters of guests already in the apartment awaiting their arrival. They are all a bit late and get stuck together in the cab just short of the landing where they want to get out. Half the dinner guests are in the elegant salon, the other half crowded into the elevator; Howells constructs a spatial and behavioral dichotomy. The scenes of the first half of the play take place in the apartment, those of the second in the elevator, and Howells's main theme is the bourgeoisie's control of their emotions. In the salon of the host, Mr. Roberts, the growing anxiety about where the other guests are must be suppressed. Right at the beginning, Mrs. Roberts is upset because her elderly and often unpunctual aunt is late. When the doorbell rings and her husband ushers someone else into the apartment, she heaves a "suppressed sigh" noticed by Dr. Lawton, another guest. A moment later, he comments on her perfect composure as she welcomes the new arrival: "Now let me see how a lady transmutes a frown of vengeance into a smile of society welcome," and she answers him in an aside behind her fan, "Didn't I do it beautifully?"[206] As the evening progresses, however, the hostess's social façade begins to develop cracks as she worries about the missing guests. Under the pretext of having the food served, she leaves the room, whispering to her husband, "If I don't go somewhere and have a cry, I shall break down here before everybody."[207] Those present in the apartment try with all their might to keep up a good face; this is no longer the case for those stuck in the elevator. The mishap disrupts all etiquette in the cab. Mr. Miller and Mrs. Curwen, whose spouses are waiting for them in the apartment, begin to flirt with each other. An especially strong attraction forms between Dr. Lawton's daughter and a young man by the name of Mr. Bemis, whose father is already in the apartment. The girl is close to fainting and Bemis takes her hand:

YOUNG MR. BEMIS, *caressing the hand which he holds:* Don't be frightened.

MISS LAWTON: Don't leave me.

YOUNG MR. BEMIS: No, no; I won't. Keep fast hold of my hand.

MISS LAWTON: Oh, yes, I will! I'm ashamed to cry.

YOUNG MR. BEMIS, *fervently:* Oh, you needn't be! It is perfectly natural you should.[208]

As in the anonymous 1875 story, the stuck elevator gives rise to a love affair. For when the passengers' cries for help are finally heard in the unenclosed shaft and the lift boy gets the machine moving again, Bemis keeps the promise he made in the halted cab. As the rescued passengers enter the apartment at last, he detains his new acquaintance for a moment:

YOUNG MR. BEMIS, *timidly*: Miss Lawton, in the elevator you asked me not to leave you. Did you—ah—mean—I MUST ask you; it may be my only chance; if you meant—never?

MISS LAWTON, *dropping her head*: I—I—don't—know.

YOUNG MR. BEMIS: But if I WISHED never to leave you, should you send me away?

MISS LAWTON, *with a shy, sly upward glance at him*: Not in the elevator!

YOUNG MR. BEMIS: Oh![209]

Although Howells's play doesn't end with a wedding, he leaves us in no doubt that this elevator mishap, too, has started a love affair.

These early literary documents clearly demonstrate that the elevator was used as a counter-location to the official spaces of bourgeois life. It is no accident that in both texts, the elevator mishap is set against a social event. The lack of formality in the stalled cab is in stark contrast to the formal dinner party with its disciplined gestures and conventional conversations. In the elevator, public masks are lowered. Just as the passenger alone in the cab can divest himself of social restraint or a false identity for one unobserved moment, Howells and his anonymous predecessor show that true selves can also be revealed between couples or among

the members of a group. In the stalled elevator we find out who we "really" are. This has become the recurring narrative function of the cab in literature and film. Recent films regularly employ the elevator as the place where the truth is revealed, a continuity that owes much to the fact that conveyance in a restricted space remains an irritation, a short-term, exceptional circumstance.

This is precisely the context of what is perhaps the only feature film to take place almost exclusively in an elevator, Carl Schenkel's 1984 *Abwärts* (Downward).[210] On a Friday evening, four people get stuck in the elevator of an office building: Jörg and Marion, colleagues in an advertising agency and obviously also longtime friends in private life; Gössmann, an unassuming white-collar worker carrying a briefcase; and Pit, a young man who probably also works for one of the many companies with offices in the building. Their initial amusement at the mishap soon gives way to real concern. Jörg and Pit climb out into the shaft but can't figure out what to do, and the situation begins to get out of hand. The two get into an altercation during which Pit loses his balance and falls down the shaft, thereby precipitating the crucial passage of the film. When Jörg climbs back into the cab through the ceiling hatch, Marion and Gössmann accuse him of murdering Pit. They begin to fight, and in the struggle, Gössmann's briefcase (which he's been clutching the whole time) falls to the floor and out spill bundles of bills—more than a half million Deutschmarks. Like the clasps of the briefcase, the protective mechanisms the characters have been sheltering behind also give way. The surprising discovery of the briefcase's contents is a kind of signal that they can no longer have any secrets from each other. At the same time, the lights go out and the three of them sit in the dark, only reinforcing the atmosphere of confession that now prevails. Gössmann, the unassuming elderly employee absconding with the week's cash receipts, thought this would be his final trip in the elevator. Now he begins to tell the story of his life, a long string of humiliations. He

joined the firm as an unskilled worker right after the war, and has been exploited by his boss ever since. "He always threatens to kick me out into the street, and what would I do then at my age?" He's been planning his revenge for a long time, and decided to break into the safe on this evening because an information technology consultant was in the office that afternoon talking about the accounting methods of the future, and Gössmann realized that his job is about to disappear. No sooner has he finished his confession, with its bitter insight into his own expendability, than Marion pipes up and says to Jörg,

> "You've got to admit the same thing about yourself."
>
> "What?"
>
> "That nobody expects anything from you anymore. You're empty, burned out. You can't get anything started on your own."

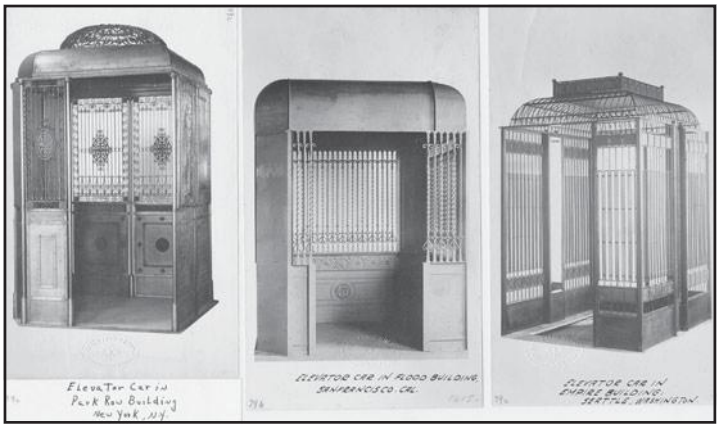
At first, she tells him that their boss, Mr. Meiers, doesn't think much of him, but then she immediately segues into their personal relationship:

> "You pushed me away, too, back then. You tried to keep me under your thumb at work and then play the big shot in bed. I couldn't defend myself, but now I know better. You take the credit for projects other people have developed, ideas I thought up and realized, but that's all over now. Meiers knows all about you, he told me so. Your days are numbered, you're all washed up. . . . He offered me your job and I accepted."

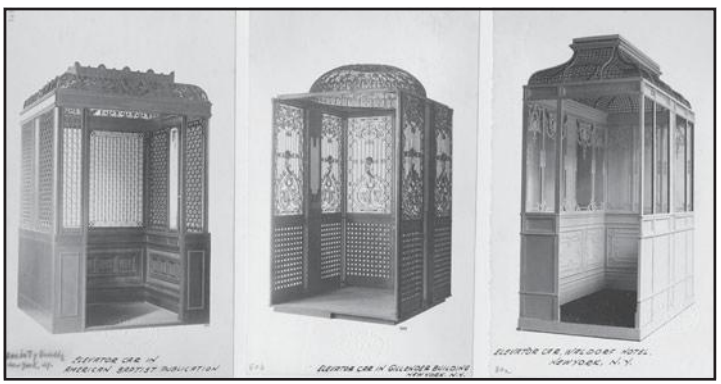
In the darkened cab, in the uncertainty of their situation, the lies they live with are stripped away one by one. The consequences come sooner than expected, for shortly after Marion's last words, the power is restored and phone contact with the doorman's desk is reestablished. Even Pit, whom they thought dead, has managed to drag himself, badly injured, back up onto the cab's roof. But the confessions have been made, the biographies irreversibly damaged, and so it is only consistent that the mishap ends fatally for Jörg after all, even though they are all safe. He is killed trying to retrieve the money from the cab as it plunges to the bottom of the shaft.

The role of the elevator in both *Abwärts* and the story "In an Elevator," when Estella ends up telling the professor "all sorts of trifles" about herself, is reminiscent of another confined, dark space: the confessional. Simmen and Drepper have pointed out the similarities in design, especially in the case of the 1913 Woolworth Building. The tallest building in the world from 1913 to 1930, it was labeled the Cathedral of Commerce during its opening ceremonies. From its outward appearance to details of its interior design, such as the elaborate filigree of the elevator cabs, it awakens associations with Gothic churches. "The classicist skyscraper of the first epoch varies the idea of a sanctuary on its ground floor with elevator doors that look like the paneling of a confessional," write Simmen and Drepper, but without mentioning the functional similarity that emerges from the stalled elevator's role in literature and film as a secular confessional.[211]

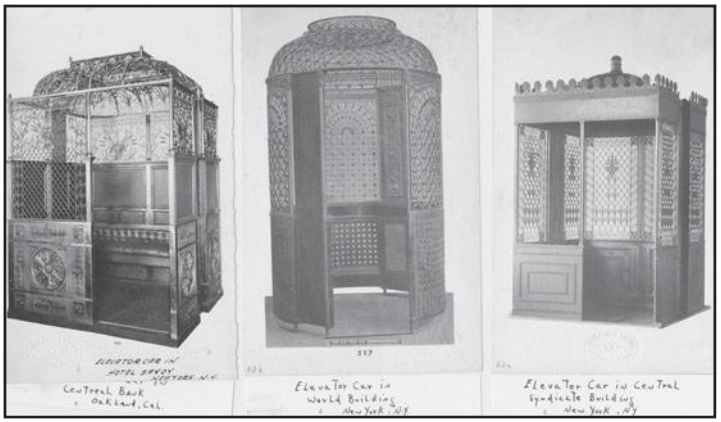
How can this persistent reference be explained? It would appear that sealed-off boxes engender a particular inducement to confession. Obviously, there must be a certain connection between the enclosedness of the space and the truthfulness of the utterance. To explain this connection, we must examine the history of the confessional and ask why the institutionalized location of confession in Christian culture became more and more enclosed over the course of many centuries. An annual confession, as the prerequisite for taking Communion, was made mandatory by the Fourth Lateran Council of 1215. At first, churches set up a simple armchair where the priest sat and heard the confession of the penitent kneeling before him. The two confessional stories in Boccaccio's *Decameron* (written between 1348 and 1353) conform to this pattern.[212] In visual representations, too, one can see the practice of completely open confession well into the sixteenth century.[213] This image of confession did not change until the Council of Trent in 1551, whose decrees regarding the sacrament of penance were a response to the Reformation. Since the traditional absolution, performed by the priest laying his hands on the penitent, was



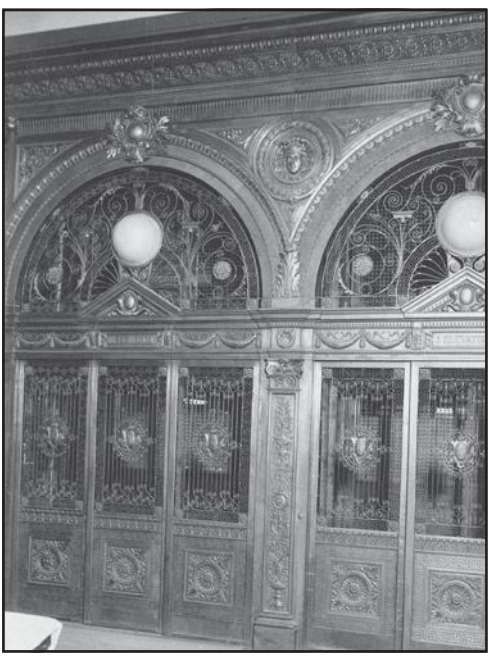
Early elevator cars often looked like confessionals. *Left*, elevator car in Park Row building, New York City; *center*, elevator car in Flood Building, San Francisco; *right*, elevator car in Empire Building, Seattle, Washington. From *Hecla Iron Works from 1876 to 1908* photo gallery, New York Public Library. Courtesy of the Science, Industry, and Business Library of the New York Public Library, and the Astor, Lenox, and Tilden Foundations.



Left, elevator car in American Baptist Publication Society building, New York City; *center*, elevator car in Gillender Building, New York City; *right,* elevator car in Waldorf-Astoria Hotel, New York City. From *Hecla Iron Works from 1876 to 1908* photo gallery, New York Public Library. Courtesy of the Science, Industry, and Business Library of the New York Public Library, and the Astor, Lenox, and Tilden Foundations.



Left: elevator car in Hotel Savoy, New York City; *center*: elevator car in World Building, New York City; *right*: elevator car in Central Syndicate Building, New York City. From *Hecla Iron Works from 1876 to 1908* photo gallery, New York Public Library. Courtesy of the Science, Industry, and Business Library of the New York Public Library, and the Astor, Lenox, and Tilden Foundations.



Loeser Building, Brooklyn, NY. From *Hecla Iron Works from 1876 to 1908* photo gallery, New York Public Library. Courtesy of the Science, Industry, and Business Library of the New York Public Library, and the Astor, Lenox, and Tilden Foundations.

now replaced by the priest simply making the sign of the cross, thus obviating the need for physical contact, "it is possible to realize the pastoral wish often expressed in synods and councils for a clearer separation between father confessor and penitent."[214] In his commentary on the council's decrees, written in the 1560s, Saint Charles Borromeo, archbishop of Milan, was the first to give a precise description of the new confessional:

> The entire box should be made from boards—of walnut or other wood—and enclosed on every side, including from behind and above. Only the front should stay open—and completely open. However, except in highly frequented churches, a door with metal or wooden rods about four inches apart should be installed so that when the confessor is absent, lay persons, vagabonds, and reprobates are not able to idly sit or sleep here in disregard of the confessional's purpose.[215]

The officially prescribed form of the closed confessional was finally published in 1614 in the liturgical manual *Rituale Romanum*. In the course of the seventeenth century, it became established not just in Italy, but in France, Germany, and overseas missions as well, and by the nineteenth century was "the only approved place for the sacrament of penance."[216] In the intervening centuries, the design of the confessional was subject only to minor variations. The two-part confessional described by Borromeo was gradually replaced by a three-part one in the seventeenth century, with a central compartment for the priest and two side compartments for the kneeling penitents. In addition, beginning in the eighteenth century, the front side of the confessional was closed by a solid door, making its insulation even more complete.

Neither in the decrees of the Council of Trent nor in Borromeo's description is there any discussion of the sixteenth-century Church's motives for enclosing the location of the sacrament of penance. What is the explanation for this change? One could say that the insulated confessional is the materialization of a fundamental change in the act of

penance in early modernity, a change from the mere enumeration of one's violations to the examination of one's conscience, so that the penitent confesses not just his misdeeds, but also his hidden desires and intentions. The request for reconciliation was no longer directed to the entire congregation in a public ceremony, but only to the priest as the representative of God, and this concentration on a single recipient of the confession is matched by the concentrated space of the confessional.[217] Inside the confessional, probably for the first time in the history of the West, the language of confessing took shape. As Foucault repeatedly stresses, it is a language that is synonymous with the formation of modern individuality. Precisely because the admission of sin became an intimate conversation with God, however, all potential disturbances had to be rigorously excluded. For multiple reasons, the early modern Catholic Church was in discussion about the formal conditions of the confession, and it was no accident that the end of public confessions before the priest's chair coincided with the prohibition of the practice—widespread in the Middle Ages—of confessing by letter or messenger. In his 1828 "historical-critical" study of confession, Heinrich Klee wrote of the debates about the permissibility of this practice:

> The scholastics argued for and against the validity of confessions and absolutions made via letter and messenger. Some believed it was sufficient that the priest know the condition of the penitent and for that, a letter or message was enough. Others said that each sacrament had its particular element and in the case of penance, that was the oral confession and must remain so. There is something vital about an oral self-accusation, something that proceeds from within and strongly affects the penitent (like any heroic method), something that symbolizes the struggle to free oneself from sin and that is completely lost in the written confession of someone physically absent. Later [at councils from the fourteenth to the seventeenth century] this method of confession and absolution was prohibited.[218]

This indissoluble intertwining of space, presence, and veracity is characteristic of the early modern debates about confession. The enclosure of the location and the obligatory presence of the penitent were two results of the same concern: to concentrate, as much as possible, the conversation between the sinner and God's representative. The sincerity of the confession and the spirit of absolution could not be allowed to dissipate in the porous channels of epistolary correspondence or the open spaces of a church. The insistence on personal presence and enclosed space continues to be maintained today in the face of calls for confession by telephone or via the Internet.[219] A 1980 theological encyclopedia, for example, states that "Confession also has *external requirements* that must be observed: a space closed to visual and aural observation and to disturbance by third parties or by telephone, so configured that it promotes concentration rather than distraction."[220] With complete ease, this passage passes from a physical description to an anthropological declaration; the closure to observation helps the penitent concentrate and prevents his being distracted. This coupling of spatial configuration to an image of the human subject has resulted in an official location for Christian confession unchanged for more than half a millennium.

We must always have the genesis of the confessional in mind whenever an elevator gets stalled or turned off in a Hollywood movie. It is almost inevitable that an atmosphere of confession will develop in the elevator cab, and the moment of truth will not be far behind. The following is an undoubtedly incomplete list of recent films in which precisely this happens.

In *My Best Friend's Wedding* (1997), a young bride meets her future husband's longtime (female) best friend during preparations for the wedding. At first, they exchange pleasantries and try not to embarrass each other, but when they find themselves alone together in a department store elevator, the bride presses the stop button and confesses her worries.

In *Vanilla Sky* (2001), the boundaries between reality and dream are completely wiped out after David Aames, the inheritor of a publishing company, is badly injured in a car crash. The complex solution of the puzzle comes in a fifteen-minute conversation in an elevator at the end of the film.

In *Shallow Hal* (2001), the hero, Hal Larson, constantly pursues beautiful women without success until he gets stuck in an elevator with a famous televangelist (making the religious association explicit). Hal asks the preacher for help, and after cautioning Hal against such superficial values, the televangelist hypnotizes him so that from now on, he will judge women only by their inner beauty. This is the turning point in Hal's life and the beginning of comedic complications, for upon exiting the elevator, grossly overweight but affectionate women look like supermodels to him. In the end, his conversion in the elevator is so convincing that even after the preacher unhypnotizes him, he marries a woman who never would have interested him in the past.

The most extensive use of an elevator as a secular confessional, however, is in *You've Got Mail* (1998), a remake of Ernst Lubitsch's film *The Shop around the Corner*. Joe Fox, owner of a bookstore chain, and Kathleen Kelly, who runs an independent bookstore, have long since fallen for each other via an anonymous e-mail correspondence, although they're face-to-face combatants as she struggles against being taken over by his company. When Joe arrives late for their first rendezvous as e-mail correspondents and catches sight of Kathleen, he realizes who he's been exchanging e-mails with and can hardly believe his luck; he's been interested in her since their first adversarial encounter, but hasn't had the courage to tell her how he feels, partly because he's not ready to separate from his wealthy but hysterical wife. The second half of the film shows Joe's inner turmoil about whether to tell Kathleen the truth or simply forget her. The decisive moment arrives when Joe and his wife return from shopping and get stuck in the elevator on the way to their luxury apartment. In the cab are a half dozen residents of

the building, and when they've been stopped for a few minutes and nothing is happening, they begin to get restless. Finally they sit down in a circle and begin to tell each other what they will do differently once they're freed from this dire situation. On the one hand, the scene points to an ancient cultural model—the birth of narrative from the avoidance of mortal danger—prefigured in two foundational texts of narrative art: *The Thousand and One Nights* and *The Decameron*. On the other hand, the ritual in the elevator is extremely reminiscent of a confession, for one after another, the passengers ask to be forgiven earlier transgressions and promise to lead better lives if they are rescued. Joe keeps recalling Kathleen's face while the others are speaking, but his wife paws through her purse looking for breath mints and chatters away in a loud voice. When it's finally her turn, she has nothing to say but, "If I ever get out of here, I'm having my eyes lasered." At that moment, Joe finally decides to leave her and reveal his identity to Kathleen. By the time the confessions are at an end and the fire department gets the elevator doors open, he's made up his mind to change his life. The following scene shows Joe and his dog Brinkley in their transitional residence on his houseboat as he comments in voice-over, "I came home tonight and got into the elevator to go to my apartment. An hour later, I got out of the elevator and Brinkley and I moved out. Suddenly everything had become clear."[221]

In the stalled elevator, the entire truth of an existence is revealed, even if it's the pure narcissism of an Upper East Side Manhattanite who even in the face of death can think only of maximizing her physical appearance. Just as contemporary Catholic theology regards confession as a "celebration of return,"[222] the elevator marks a similar turning point in the dramaturgy of these films. The confession in the cab clears the way for either reconciliation or renunciation. It remains to be asked why this moment of decision in stories from the big city is so often staged in blocked elevators and not in spaces of comparable size such as train

compartments or private rooms in restaurants. The intensity of the atmosphere seems to be bound up with the tension between movement and stagnation. When something that normally fluctuates rapidly slows down or stops, it causes a disturbance in relationships. Georg Simmel repeatedly described the extent to which the functioning of modern urban life is tied to the mode of circulation, especially the circulation of money. In *Philosophie des Geldes* (The philosophy of money), he wrote,

> The modern, sensitive, nervous person would be brought to complete despair by the physical proximity of such an enormous number of people as share contemporary urban culture, with its commercial, technical, and social intercourse, were it not that the objectification of that circulation's character brings with it an inner boundary and cushion. Monetized relationships, be they obvious or disguised in a thousand forms, establish an invisible, functional distance between individuals. That distance constitutes an inner, compensatory shield against the overwhelming proximity and friction of our cultural life.[223]

Simmel's reference to the circulation of money and its result—the necessary distancing from our fellow city dwellers—is important in this context. We recall a particular detail from stories of elevator catastrophes such as *Hotel* and *Abwärts*: those briefcases of stolen money that one of the passengers (Keycase the hotel thief or Gössmann the office worker) is smuggling out of the building. These stories involve a double tie-up in traffic: the hitch in the circulation of people is also a hitch in the circulation of money. And this is precisely the reason the stalled elevator is such a perfect location for the dramatic climax of conflicts: beyond the atmosphere of the confessional, it produces that excessive proximity that Simmel says can be kept in check only by fluent, trouble-free circulation. With incomparable swiftness, paralyzed elevators make urban operating temperatures rise, and such a seemingly incidental motif as smuggled money—yearning to quickly get back into circulation—dramatizes that rise in temperature, if we follow Simmel, better

than anything else. In this way, every elevator malfunction frustrates the cooling function of the circulatory paradigm described most recently by Helmut Lethen in his study of the anthropology of the interwar years in Germany:

> Traffic transforms morality into objectivity and enforces functionally correct behavior. Participation in traffic is a provisional affair (which embeds one, with the illusion of freedom, in the prescribed streams). No place where an individual can put down roots. . . . One's points of rest are provisional: waiting rooms, lobbies, train compartments, subway stations, *lifts*, surface rail platforms, terminals, depots, open-plan offices.[224]

The "unease" that Lethen says arises "when the traffic flow is suddenly interrupted or backed up for a long time"[225] is intensified in the elevator, where fiction and film can portray it more sharply than in any other means of transportation. The crises that unfold in the cab are one sign among many that the elevator is a paradigmatic site of modernity.

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NOTES

NOTES TO THE INTRODUCTION

1 Goodwin, *Otis*, 8.
2 Shultz and Simmons, *Offices,* 42.
3 Greville, *Memoirs*, 391–92.
4 "Editor's Easy Chair," *Harper's New Monthly Magazine*, June 1853, 131.
5 Simmen and Drepper, *Fahrstuhl*, 9.
6 Goodwin, *Otis*, 13.
7 Otis Elevator Company, *First Hundred Years*, 3.
8 Otis, *E. G. Otis*, n.p.
9 Goodwin, *Otis*, 8.
10 "The Balloon Ascension," *New York Times*, June 10, 1854, 4.
11 "Crystal Palace Notes," *Scientific American*, June 10, 1854, 309.
12 "Machinery at the Crystal Palace," *New York Daily Tribune*, May 30, 1854, 6.
13 A detailed description of its operation is provided by Kennedy, "Vertical Railway," 892.
14 According to the official company history by Goodwin, *Otis*, 17.
15 "Otis Tufts, the Inventor," *New York Times*, November 8, 1869, 3.
16 "Notes on Elevators I," *American Architect and Building News*, no. 232 (1880): 245.
17 Kennedy, "Vertical Railway," 888.
18 Ibid., 890.
19 Ibid., 889.
20 "The Rise of Elevators," *American Architect and Building News*, no. 1460 (1903): 96.
21 Simmen and Drepper, *Fahrstuhl*, 14.
22 Gavois, *Going Up*, 83.
23 Gray, *Ascending Rooms*, 204.
24 Otis, *E. G. Otis*, n.p.

25 For example, Victor H. Bernstein, "Elevators for a Hoist," *New York Times*, November 25, 1934, 5: "It was only eighty years ago that the elevator really has its beginning in New York City, in a dramatic moment."

26 For example, in 1870, a cable-drawn elevator patented by Tufts was installed in the New York Equitable Life Building, the first office building to have one. See Hugh McAtamney and Company, *Master Builders*, 13.

27 Otis Elevator Company, *Otis Bulletin*, 1. Thus the history of the elevator confirms what David Gugerli and Daniel Speich write about retroactively composed beginnings in their *Topographien der Nation*: "Once success has been achieved, it provides the confidence necessary to translate the 'original' complexities of every actual beginning into the discursive clarity of an initial spark pregnant with promise for the future" (99).

28 Goodwin, *Otis*, 8.

29 Aristotle, *Poetics*, chaps. 7–13.

30 See Fleck, *Entstehung*.

31 Ibid., 101.

32 Riehl, *Naturgeschichte*, 142–96 (the chapters "Das ganze Haus" and "Die Familie und die bürgerliche Baukunst").

33 Ibid., 185.

34 Ibid., 165.

35 Bachelard, *Poetics*, 26.

36 Gray, *Ascending Rooms,* 62: "Almost without exception, new hotels after 1860 in New York City and elsewhere incorporated at least one elevator into their design."

37 Equitable Life Assurance, *Hyde*, 119.

38 Schmitz, "Hydraulische Aufzüge." The article concluded, "It should also be noted that for about a year now, Pfaff's furniture warehouse in the Französische Strasse has an elevator operating according to the system described above."

39 "Amerikanische Personen-Aufzüge in Berliner Häusern," *Deutsche Bauzeitung*, February 5, 1887, 61–64.

40 Indirectly driven hydraulic elevators were in wide use between the 1870s and the 1890s. In these, the cab is not placed directly on the drive piston. Hydraulic power is transferred via block and tackle, and the cab is suspended on a cable. This variant of the hydraulic technique was needed especially in cities and regions where bedrock made it difficult to sink the piston completely below ground level.

41 Koolhaas, *Delirious New York*, 139.

42 Robinson, "Tall Office Buildings," 185. See also Schuyler, "Evolution," 421: "It is certain that the earliest and the most indispensable of the factors which have enabled the construction of these mighty monsters was the 'passenger elevator.'"

43 Mujica, *History,* 21.
44 Steffens, "Modern Business Building," 41–42.
45 Ibid., 47.
46 On the development of steel frame construction in Chicago and shortly thereafter in New York, see Rappold, *Bau,* 27; Mujica, *History*, 21–28; Giedion, *Space*, 188–206; Webster, "Skyscraper"; Shultz and Simmons, *Offices*, 18–41; and Balzer, *Hochhaus*, 86–91.
47 Steffens, "Modern Business Building," 50: "There are engineers who can lay the foundations for fifty stories."
48 Mujica, *History*, 21.
49 On the speed of hydraulic elevators, see Gutermuth, "Mitteilungen" and "Neuere Konstruktionen." On electric elevators, see Bohny, "Amerikanische Hochbauten," 365.
50 Mujica, *History*, 21 (emphasis in original).
51 Palme, "Woolworth-Gebäude," 253.
52 Canguilhem, "Gegenstand der Wissenschaftsgeschichte," 22.
53 Giedion, *Mechanization*, 20.
54 Koolhaas, *Delirious New York*, 27.
55 Petersen, *Elisha Graves Otis*, 12.
56 Otis, *E. G. Otis*, n.p.
57 Reuleaux, *Gutachten*, 11.
58 See the extensive discussion in Simmen and Drepper, *Fahrstuhl*, 99–107.
59 Mülder-Bach, "Poetik," 199.
60 On the development of transport techniques in mining, see Schönberg, "Technische Entwicklung"; Heilfurth, *Bergbau;* and Suhling, *Aufschließen.*
61 Most precisely described by Heinrich Lottner, "Die Fahrkunst auf der Steinkohlegrube Gewalt," *Zeitschrift für das Berg-, Hütten- und Salinenwesen*, vol. 1, pt. B (1854): 120–44.
62 Quoted by Bornhardt, *Albert*, 16.
63 Reprinted and annotated in Verein für die bergbaulichen Interessen, *Entwicklung*, 272–73.
64 Bergpolizei-Verordnung, "Die Befahrung der Schächte mittels Seile betreffend," *Zeitschrift für das Berg-, Hütten- und Salinenwesen*, vol. 18, pt. A (1870): 69.
65 A good example are the more than one hundred questions covered in the July 1867 catalog of the Royal Main Mine Office in Breslau. The condition of the shaft, the transporting machinery, the cables, and so on must be conveyed to the authorities down to the last detail. See "Bekanntmachung des Königl. Oberbergamtes zu Breslau vom 29. Juli 1883, betreffend die Anträge auf Ertheilung der Erlaubniss zur Seilfahrt auf Bergwerken," *Zeitschrift für das Berg-, Hütten- und Salinenwesen*, vol. 31, pt. A (1883): 74–77.

66 See Hand, "Bergmännische Lebens- und Arbeitsweise."
67 Hintz, *Handbuch*, 2.
68 Goodwin, *Otis*, 8.
69 Heinrich Lottner, *Leitfaden zur Bergbaukunde*, ed. Albert Serlo, 2nd ed. (Berlin, 1873), 112.
70 See Malmedie, "Fangevorrichtungen," esp. 355 and 365.
71 Ibid., 353.
72 Verein für die bergbaulichen Interessen, *Entwicklung*, 332.
73 Selbach, "Kritik," 13.
74 See Hude and Hennicke, "Central-Hotel," 188. The speed of elevators in the high-rises of New York and Chicago at this time was five to six and a half feet per second. See Gutermuth, "Mitteilungen," 774.
75 Selbach, "Kritik," 59.
76 See "Deutsche Allgemeine Ausstellung für Unfallverhütung: Aufzüge der Berlin-Anhaltinischen Maschinenbau-Aktiengesellschaft zu Berlin-Moabit," *Zeitschrift des Vereins deutscher Ingenieure*, 1889, 631.
77 See "The Immensity of Elevator Travel," *American Architect and Building News*, no. 1188 (1898): 1–2; and Allen E. Beals, "The Elevator as an Enhancer of Land Value," *Real Estate Record and Builders' Guide*, August 12, 1911, 208–10.
78 Flohr Maschinenfabrik, *Personen- und Lastenaufzüge*, 43.
79 In high-rise buildings in large American cities, on the other hand, there were numerous fatal cab accidents into the early twentieth century, as one can read in the pages of the *American Architect and Building News*.
80 The accident is described in great detail in "Elevator Accident," *American Architect and Building News* 3, no. 117 (1878): 104.
81 As they are described in a popular German children's book: Maar and Heidelbach, *Aufzug*, n.p.
82 Flohr Maschinenfabrik, *Personen- und Lastenaufzüge*, 16.
83 Hintz, *Handbuch*, 3.
84 Ibid., 86.
85 Flohr, "Neuere Aufzugsanlagen," 275.
86 Urban, *Unfallverhütung*, 1.
87 Ibid., 8.

NOTES TO CHAPTER 1

1 Robinson, "Tall Office Buildings," 194.
2 Sullivan, "Tall Office Building," 203.
3 Wiener, *Warenhaus*, 325.
4 Schuyler, "Sky-Scraper," 232.
5 The dumbwaiters that began to show up in royal and imperial residences at the end of the eighteenth century exploited precisely this linearity to prevent the attempted poisonings

that often occurred when food was delivered via convoluted stairways. The direct, vertical duct between kitchen and dining room was impossible to tap into.

6 Wiener, *Warenhaus*, 326.

7 Gray, *Ascending Rooms*, 75.

8 Quoted in ibid., 78.

9 "Polizei-Verordnung" (1893), 258.

10 Ibid.

11 Mayer, "Aufzüge," 171.

12 The most drastic examples are supplied in a forensic study by Moritz Ganzoni, *Die Ursachen und die Verhütung der Liftunfälle mit Berücksichtigung des vorliegenden Entwurfes von Vorschriften über Bau und Betrieb von Aufzügen* (Zurich, 1917), 22–26, in a chapter entitled "Causes of Accidents in Inappropriately Constructed Elevator Shaft Enclosures."

13 Flohr Maschinenfabrik, *Personen- und Lastenaufzüge*, 43.

14 Ibid., 60.

15 Gray, *Ascending Rooms*, 67, on the 1870 Equitable Building.

16 There is an exact description in Young, *Art and Enterprise*, 55–56.

17 Blanke, "Cliff-Dwellers," 358.

18 Mann, *Vulkan*, 309.

19 Ibid., 312.

20 Reuleaux, *Gutachten*, 8–9.

21 Mayer, "Aufzüge," 170–71.

22 Hintz, *Handbuch*, 157.

23 K. Dümmler, "Treppenhäuser und Fahrstühle," *Zentralblatt der Bauverwaltung*, December 28, 1907, 687–88.

24 Bachelard, *Poetics*, 25–26 (emphasis in original).

25 Mayer, "Aufzüge," 163 (emphasis added).

26 Ibid., 181.

27 Drews, "Moderne Aufzüge," 659.

28 Fechter, *Ruck*, 49 and again, in almost the same words, 329.

29 Freud and Breuer, *Studien*, 120.

30 On the development of push-button controls, see chapter 3.

31 Siemens-Schuckwertwerke, *Technisches Heft No. 8: Steuerungen für Aufzüge unter besonderer Berücksichtigung der Druckknopfsteuerung*, 4th ed. (Berlin, n.d., circa 1910), 31.

32 Freytag, *Soll und Haben*, 43. Although an 1858 English translation is available online (http://www.gutenberg.org/files/19754/19754-h/19754-h.htm), a comparison with the German original shows that the anonymous translator simply left many things out. The entire passage quoted above, for instance, is translated thus: "The house itself was an irregular and ancient building, with wings, court-yards, out-houses, short stairs, mysterious passages, and deep recesses." See also

Fritz, *Menschen in Büroarbeitsräumen*, 69–79, who lists "some contemporary descriptions of the convoluted space relationships in old merchant establishments" (75) as examples of how hard it was to keep track of whether workers were present or absent.

33 Architekten-Verein zu Berlin, eds., *Berlin und seine Bauten*, 2 vols. (Berlin, 1877), 444.

34 Ibid., 451.

35 Albert Gut, *Das Berliner Wohnhaus: Beiträge zu seiner Geschichte und seiner Entwicklung in der Zeit der landesfürstlichen Bautätigkeit (17. und 18. Jahrhundert)* (Berlin, 1917), 154.

36 Wischermann, "Mythen," 348–49.

37 Ibid., 349.

38 See Engels, "Zur Wohnungsfrage," 260–63; Giedion, *Space*, 641–79; Benjamin, *Arcades*, 120–49; and Sennett, *Flesh and Stone*, 329–32.

39 Speich, *Helvetische Meliorationen*, 317.

40 Ibid.

41 Ibid. The regulation of the upper Rhine by Johann Gottfried Tulla prompted similar conclusions; see Heinrich Cassione and Karl Spiess, *Johann Gottfried Tulla, Der Begründer der Wasser- und Straßenbauverwaltung in Baden: Sein Leben und Wirken* (Karlsruhe, 1928), 7: "Without Tulla's life's work, the Rhine valley would be an inaccessible, fever-ridden swamp, avoided by human inhabitants. Thanks to him, the Rhine is the beneficent receiving stream of the entire upper Rhine watershed and, due to the further work of Honsell, the main traffic artery of the countries surrounding its upper reaches."

42 Foucault, *Discipline and Punish*, 143.

43 See Giedion, *Space*, 644.

44 Theodor Mundt, *Paris und Louis Napoléon: Neue Skizzen aus dem französischen Kaiserreich*, vol. 1 (Berlin, 1858), 210–11.

45 Foucault, *Discipline and Punish*, 143.

46 See Benjamin, "Paris," 72–73.

47 Foucault, *Discipline and Punish*, 141.

48 See David Jordan, *Die Neuerschaffung von Paris: Baron Haussmann und seine Stadt* (Frankfurt am Main: Fischer Verlag, 1996), 280.

49 Quoted by Benjamin, *Arcades,* 186.

50 See J. M. Chapman and Brian Chapman, *The Life and Times of Baron Haussmann: Paris in the Second Empire* (London: Weidenfeld and Nicholson, 1957), 181. See also Giedion, *Raum*, 444: "The transformation of Paris . occurred during the feverish middle years of the age of the railroad."

51 See Roskothen, *Verkehr*, 180.

52 See, for example, Wasserfuhr, "Gesundheitsschädlichkeiten."

53 On the topography of Kafka's *Trial*, see chapter 2.

54 Foucault, *Discipline and Punish*, 143.

55 P. Jenisch, *Haustelegraphie: Eine gemeinverständliche Anleitung zum Bau von elektrischen Haus-Telegraphen-, Telephon- und Blitzableiter-Anlagen* (Berlin, 1897), 69 (emphasis in original). The earliest pneumatic and electric doorbell installations on residential dwellings appeared in Germany at the end of the 1860s, but were restricted to luxurious single-family homes; see Goldschmidt, "Elektrische Haustelegraphen," *Deutsche Bauzeitung*, 1867, 94–96. Prior to Jenisch's publication, manuals and pamphlets for electricians contain no indication that the principle of the doorbell was also known in multistory buildings in the form of a bank of doorbells. An 1893 publication similar to Jenisch's states, "It's quite rare today to find a building without an electric house telegraph," but probably refers only to single-family houses. J. Sack, *Die Haustelegraphie und Haustelephonie: Eine kurzgefasste praktische Anleitung zur Herstellung von Haustelegraphen- und Haustelephon-Anlagen*, 2nd ed. (Berlin, 1893), 2. If we accept the passage in Jenisch as evidence that the first banks of doorbells were installed in the late 1890s, it becomes clear from a 1910 manual how quickly this innovation proliferated after the turn of the century: "In the vast majority of buildings in a modern city, a doorbell is installed for each apartment. Its purpose is to let the inhabitant know that someone is waiting to be admitted at the entrance door." Otto Canter, *Die Haus- und Hotel-Telegraphie und -Telephonie*, 3rd ed., revised by Paul Riemenschneider (Vienna and Leipzig, 1920), 51. We can thus date the widespread introduction of the bank of doorbells to the years between 1895 and 1910.

56 Simmel, *Soziologie*, 711.

57 Foucault, *Discipline and Punish*, 191.

58 Benjamin, *Arcades,* 126.

59 Michel Serres and Nayla Farouki, eds., *Thesaurus der exakten Wissenschaften* (Thesaurus of the Exact Sciences; in French original, *Le trésor: Dictionnaire des sciences*) (Frankfurt am Main: Zweitausendeins, 2001), 37. See also John Haugeland, "Analog und analog," in *Analog/Digital—Opposition oder Kontinuum? Zur Theorie und Geschichte einer Unterscheidung*, ed. Jens Schröter and Alexander Böhnke (Bielefeld: Transcript Verlag, 2004), 42, on the analog principle: "Changes occur gradually or continuously without any 'gaps.' Detents or stops are excluded." Unlike the digital principle, "every (relevant) position or shape is permitted—there is no such thing as shapelessness."

60 Thus Friedrich Kittler describes the digital principle in "Geschichte der Kommunikationsmedien," in *Raum und Verfahren*,

ed. Jörg Huber and Alois Müller (Basel: Stoemfeld/Roter, 1993), 185.

61 See Calef, *Fahrstuhl*; and Louis Malle's film.

62 Generlich et al., *Fahrstuhlführer,* 14.

63 Koolhaas, *Delirious New York*, 85.

64 Ibid. (emphasis in original).

65 Zola, *L'Assommoir*.

66 Ibid.

67 The title *Pot Luck* is a play on this basic constellation of the novel.

68 Zola, *Pot Luck*, 5.

69 Maar and Heidelbach, *Aufzug*, n.p.

70 Ibid.

NOTES TO CHAPTER 2

1 Roth, *Hotel Savoy*, 12–14.

2 Ibid., 20.

3 Ibid., 28.

4 Ibid., 43.

5 Ruttenbaum, *Mansions*, 106–8.

6 See Lis Künzli, ed., *Hotels: Ein literarischer Führer* (Frankfurt am Main: Eichborn, 1996), 51.

7 Roth, *Hotel Savoy*, 33–34.

8 See Mann, *Confessions*, 4, where Krull says he was born "a few years after the glorious founding of the German Empire." After successfully dodging the draft, he must be eighteen or nineteen years old when he reaches Paris. So the hotel episodes take place around the mid-1890s.

9 Ibid., 129.

10 Ibid., 142.

11 Morehouse, *Waldorf-Astoria*.

12 Ibid., 137.

13 Ibid., 144.

14 Morehouse quotes an employee of the Waldorf-Astoria: "We feel, at times, like this is a private UN where many things are discussed and many problems arranged" (141).

15 See ibid., 187.

16 See ibid., 180.

17 See Moritz Hoffmann, *Geschichte des deutschen Hotels: Vom Mittelalter bis zur Gegenwart* (Heidelberg: Hüthig Verlag, 1961), 208: "The years from 1871 to 1914 were the period of greatest growth in touristic travel and thus also in the hotel industry."

18 Karl Baedeker, *London und Umgebungen*, 12th ed. (Leipzig, 1896), 8.

19 Karl Baedeker, *Nordost-Deutschland (von der Elbe und der*

Westgrenze Sachsens an) nebst Dänemark, 24th ed. (Leipzig, 1892), 30.

20 Karl Baedeker, *Berlin und Umgebungen*, 9th ed. (Leipzig, 1896), 4.

21 See Karl Baedeker, *Belgien und Holland nebst dem Grossherzogthum Luxemburg*, 19th ed. (Leipzig, 1891); and Baedeker, *Österreich-Ungarn*, 25th ed. (Leipzig, 1898), passim.

22 Karl Baedeker, *Nordamerika: Die Vereinigten Staaten nebst einem Ausflug nach Mexiko* (Leipzig, 1893), xxvi.

23 Karl Baedeker, *Paris: Nebst einigen Routen durch das nördliche Frankreich*, 15th ed. (Leipzig, 1900), 2.

24 Karl Baedeker, *Oberitalien: Mit Ravenna, Florenz und Livorno*, 18th ed. (Leipzig, 1911), 430.

25 Karl Baedeker, *Deutschland in einem Bande*, 4th ed. (Leipzig, 1925), xvi. Almost identical sentences are also in *Paris und Umgebung*, 20th ed. (Leipzig, 1931) and *Österreich*, 30th ed. (Leipzig, 1926).

26 Karl Baedeker, *Südbayern, Tirol und Salzburg, Steiermark, Kärnten, Krain, Istrien und Württemberg*, 10th ed. (Coblenz, 1862), xiii.

27 Karl Baedeker, *Die Schweiz nebst den angrenzenden Theilen von Ober-Italien, Savoyen und Tirol*, 20th ed. (Leipzig, 1883), xvii.

28 Karl Baedeker, *Mittel- und Norddeutschland, westlich bis zum Rhein*, 20th ed. (Leipzig, 1883), 2.

29 See Karl Baedeker, *Paris und seine Umgebungen*, 11th ed. (Leipzig, 1885), 3 (exactly the same list in the editions of 1888 and 1896).

30 Baedeker, *Paris,* 15th ed., 4.

31 Bachelard, *Poetics*, 17.

32 Ibid.

33 See Siegfried Wichmann, *Carl Spitzweg: Kunst, Kosten und Konflikte* (Frankfurt am Main: Propyläen, 1991), 18, who calls the work "probably the most popular German painting of the 19th century."

34 Hans-Joachim Raupp, "Carl Spitzweg: Der arme Poet," *Wallraf-Richartz-Jahrbuch*: *Westdeutsches Jahrbuch für Kunstgeschichte*, vol. 46 (1985): 256.

35 Ibid., 262. Raupp mentions a number of pictures that deal with the motif of the garret poet, e.g., J. W. M. Turner's *Garreteer's Petition to His Muse* (1809), Tommaso Minardi's *Self Portrait in the Garret* (after 1813), and Honoré Daumier's *Poet in the Garret* (1842). See also Becker, *Urbanität*, 107, who adds the following to Raupp's list: Kaspar Braun's *Garret Room of a Poor Poet* (1832) and N. Widemann's *Artist's Garret* (1836).

36 Tieck, *Überfluss*, 244.

37 Ibid., 194.

38 Detlef Kremer, "Fenster," in *Das Denken der Sprache und die*

Performanz des Literarischen um 1800, ed. Stefan Jaeger and Stefan Willet (Würzburg: Königshausen and Neumann, 2000), 216.

39 Tieck, *Überfluss*, 195.

40 Ibid., 217.

41 Hoffmann, "Corner Window," 378.

42 Tieck, *Überfluss*, 234.

43 Ibid., 247.

44 Wischermann, "Mythen," 352.

45 Friedrich Wasmann, *Ein deutsches Künstlerleben von ihm selbst geschildert*, as quoted in Adelheid von Saldern, "Im Hause, zu Hause: Wohnen im Spannungsfeld von Gegebenheiten und Aneignungen," in *Geschichte des Wohnens*, vol. 3, *1800–1918, Das bürgerliche Zeitalter*, ed. Jürgen Reulecke (Stuttgart: Deutscher Verlags-Anstalt, 1997), 153.

46 See Wischermann, "Mythen," 363.

47 Eberstadt, *Handbuch*, 84.

48 See, for example, A. Schneer, *Über die Zustände der arbeitenden Klassen in Breslau mit Benutzung der amtlichen Quellen des königlichen Polizei-Präsidii und des Magistrats* (Berlin, 1845) as well as various contributions to the *Zeitschrift für practische Baukunst* (Magazine of practical construction), founded in 1841 and the first publication to report regularly on the living conditions in tenement houses.

49 Beginning in the 1860s, this term became established among the critics. See Geist and Kürvers, *Berliner Mietshaus*, 220. In 1900, the city planner Joseph Stübben proposed calling buildings of more than four stories and twelve apartments *Mietskasernen* (see Zimmermann, *Von der Wohnungsfrage*, 11).

50 Foucault, *History*, 140, 137.

51 See Philipp Sarasin, *Reizbare Maschinen: Eine Geschichte des Körpers, 1765–1914* (Frankfurt am Main: Suhrkamp, 2001), esp. 95–172, which analyzes, with different emphasis, the hygiene movement that had already begun in the early nineteenth century in France.

52 Zimmermann, *Von der Wohnungsfrage*, 93.

53 Thus the founding of the Lower Rhine Association for Public Health in 1869 was a direct result of the Cologne cholera epidemic of 1866. See Beate Witzler, *Großstadt und Hygiene: Kommunale Gesundheitspolitik in der Epoche der Urbanisierung* (Stuttgart: Steiner, 1995), 12.

54 Quoted in Hobrecht, *Gesundheitspflege*, 6.

55 Ibid., 10.

56 Ibid., 12.

57 Well documented in Geist and Kürvers, *Berliner Mietshaus*, 142–69.

58 See, for example, Hermann Wasserfuhr, "Zur Organisation der Sterblichkeitsstatistik," *Deutsche Vierteljahrsschrift für öffentliche Gesundheitspflege*, no. 2 (1872): 185–99; and Robert Volz, "Zur Einführung einer Mortalitätsstatistik," ibid., 200–209.

59 Hermann Schwabe, "Einfluss der verschiedenen Wohnungen auf die Gesundheit ihrer Bewohner, soweit er sich statistisch nachweisen lässt," *Deutsche Vierteljahrsschrift für öffentliche Gesundheitspflege*, no. 1 (1875): 73.

60 See the extensive statistics covering eighteen cities in Eberstadt, *Handbuch*, 200; also the data for Berlin in Geist and Kürvers, *Berliner Mietshaus*, 468–69; for Zurich, see also Helmuth Wolff, "Die Stockwerklage und der Wohnungsmarkt," *Zeitschrift für Wohnungswesen*, no. 16 (1907): 213–16.

61 Here, for example, in W. Strassmann, "Anforderungen der öffentlichen Gesundheitspflege an die Baupolizei in Bezug auf neue Stadttheile, Strassen und Häuser," *Deutsche Vierteljahrsschrift für öffentliche Gesundheitspflege*, no. 1 (1875): 54.

62 Hermann Wasserfuhr, "Über die Sterblichkeit der Neugeborenen und Säuglinge in Deutschland," *Deutsche Vierteljahrsschrift für öffentliche Gesundheitspflege*, no. 4 (1869): 533.

63 Rudolf Virchow, *Reinigung und Entwässerung Berlins: General-Bericht über die Arbeiten der städtischen gemischten Deputation für die Untersuchung der auf die Kanalisation und Abfuhr bezüglichen Fragen* (Berlin, 1873), 67.

64 Ibid.

65 Wasserfuhr, "Gesundheitsschädlichkeiten," 194.

66 Flügge, *Großstadtwohnungen*, 103.

67 Statutory health insurance was introduced in Germany in 1883.

68 See a reproduction of the questionnaire in Geist and Kürvers, *Berliner Mietshaus*, 461.

69 See Gesine Asmus, ed., *Hinterhof, Keller und Mansarde—Einblicke in Berliner Wohnungselend, 1901–1920* (Reinbek bei Hamburg: Rowohlt, 1982).

70 See *Bauordnung für die k. Haupt- und Residenzstadt München vom 3. April 1879* (Munich, 1879), § 35.

71 See *Bauordnung Wien*, § 42.

72 See *Neue Bau-Ordnung Prag*, § 73.

73 See Willert, *Zusammenstellung*, 130.

74 See Berger, *Bauordnungen*, 107.

75 *Neue Bau-Ordnung Prag*, 280.

76 Ibid., 279.

77 Berger, *Bauordnungen*, 111–12.

78 Willert, *Zusammenstellung*, 105.

79 Ibid., 129.

80 *Bauordnung Wien*, § 51 (cf. *Neue Bau-Ordnung Prag*, § 76: "The installation of attic apartments in the city is prohibited").

81 *Neue Bau-Ordnung Prag*, § 104.
82 See Max Sommerbrodt, "Über Sterblichkeit und Todtgeburten in abnorm hoch gelegenen Wohnungen," *Deutsche Vierteljahrsschrift für öffentliche Gesundheitspflege*, no. 2 (1878): 260–64.
83 Yuri Lotman, *The Structure of the Artistic Text*, trans. Ronald Vroon (Ann Arbor: Michigan Slavic Contributions, 1977), 237 (emphasis added); "dress circle of a theatre" is presumably a mistranslation for *bel étage*.
84 Dölger, "Einfluss der Höhenlage," 444.
85 Flügge, *Großstadtwohnungen*, 41.
86 Musil, *Törless*, 83. Further citations of this edition will be in parentheses following the quote.
87 Hauptmann, *Rats*, 348. Further citations of this edition will be in parentheses following the quote.
88 Ibsen, *Wild Duck*, 455. Further citations of this edition will be in parentheses following the quote.
89 Kafka, *The Trial*, 73–74. Further citations of this edition will be in parentheses following the quote.
90 Benno von Wiese, "Wirklichkeit und Drama in Gerhart Hauptmanns Tragikomödie 'Die Ratten,'" *Jahrbuch der deutschen Schillergesellschaft* 6 (1962): 315. It is noteworthy that von Wiese's analysis makes a connection to Kafka's *Trial*: "The distance from Kafka's ramified, labyrinthine court offices and their oppressive stuffiness is not as far as is usually thought." On the spatial structure of *The Rats*, see also Brigitte Stuhlmacher, "Berliner Hauser in modernen Dramen: Exempel Hermann Sudermann und Gerhart Hauptmann," in *Literarisches Leben in Berlin, 1871–1933*, ed. Peter Wruck (Berlin: Akademie-Verlag, 1987), 204–53.
91 Neumann, "Zauber," 123.
92 Ibid.
93 Kafka, *Der Proceß,* 168.
94 See Hiebel, *Henrik Ibsens psycho-analytische Dramen*, esp. 115–16; on the spatial structure of *The Wild Duck*, see also Knut Brynhildsvoll, "Die Antinomie von Drinnen und Draußen als strukturbildendes Prinzip in den Dramen Henrik Ibsens," in *Studien zum Werk und Werkeinfluss Henrik Ibsens* (Leverkusen: Literaturverlag Norden M. Reinhardt, 1988), 33–64.
95 Hiebel, *Henrik Ibsens psycho-analytische Dramen*, 124.
96 See Moshe Idel, *Golem: Jewish Magical and Mystical Traditions of the Artificial Anthropoid* (Albany: State University of New York Press, 1990).
97 Freud, "The 'Uncanny,'" 220.
98 Ibid., 241.
99 Ibid., 245.

100 Neumann, "Zauber," 122.
101 Klaus Wagenbach, *Kafkas Prag: Ein Reiselesebuch* (Berlin: Wagenbach, 1993), 42.
102 Bachelard, *Poetics*, 17–18.
103 Gilles DeLeuze and Félix Guattari, *Kafka: Für eine kleine Literatur* (Frankfurt am Main: Suhrkamp, 1976), 104.
104 Bachelard, *Poetics*, 25.
105 "In Paris there are no houses, and the inhabitants of the big city live in superimposed boxes." Ibid., 26.
106 Joachim Hintze, *Das Raumproblem im modernen deutschen Drama und Theater* (Marburg: Elwert, 1969), 110.
107 By 1905, twenty German cities had adopted the graduated building code; by 1911 the number was thirty-eight. See Gemünd, "Neuere Bestrebungen," 415.
108 *Bauordnung Wien*, § 39, p. 38; almost identical wording is in *Neue Bau-Ordnung Prag*, § 70, p. 369.
109 Quoted in Geist and Kürvers, *Berliner Mietshaus*, 376–77.
110 See Friedrich Eugen Hopf, *Bericht über den III. Internationalen Kongress für Wohnungshygiene in Dresden vom 2. bis 7. Oktober 1911* (Dresden: Güntzschen, 1912), especially the opening speech by Carl Flügge, chairman of the Hygienic Institute at the University of Berlin, 64–78.
111 At least in the copy archived in the library of the Deutsches Museum in Munich.
112 Jaffé, "Forderung."
113 "Villenwohnung in der vierten Etage," *Bauwelt*, no. 66 (1910): 19–20.
114 "Luxuswohnungen im Berliner Westen," *Bauwelt*, no. 120 (1911): 23.
115 M.O., "Der Typ des Dachgarten-Hauses," *Bauwelt*, no. 122 (1911): 29–30.
116 Dölger, "Einfluss der Höhenlage," 452.
117 Quoted in Geist and Kürvers, *Berliner Mietshaus*, 373.
118 Gemünd, "Neuere Bestrebungen."
119 Dölger, "Einfluss der Höhenlage," 454.
120 Josef Redlich, *Hygiene, Bauordnung und Parzellierung* (Berlin: Ernst, 1914), 14.
121 *Pretty Woman*, directed by Garry Marshall (Touchstone Pictures/Silver Screen Partners IV, 1990).
122 Quoted in Geist and Kürvers, *Berliner Mietshaus*, 257.
123 Siegfried Ascher, *Die Wohnungsmiethen in Berlin von 1890 bis 1910: Eine statistische Untersuchung als Beitrag zur Theorie der Miethe* (Berlin: Heymann, 1918), 19.
124 Ibid., 125.
125 Ibid., 22.
126 Ibid., 22, 107.

127 Ibid., 22.
128 See especially Cromley, *Alone Together*; Hawes, *New York, New York*; and Ruttenbaum, *Mansions*.
129 Hawes, *New York, New York*, 35.
130 Ibid., 96.
131 Ibid.
132 Ibid., 198.
133 Ibid., 230.
134 He is said to have designed more than five hundred apartment houses. See ibid., 235.
135 Ruttenbaum, *Mansions*, 58; for the design of the facades, see the reproductions on 59–64.
136 See, for example, the entry "penthouse" in the 1929 edition of the *Encyclopaedia Britannica*, 494–95, where even "in modern usage" the term is applied to various kinds of rooftop appendages, including "water tanks, elevator machinery and occasionally living quarters." The first German lexographical recording of the concept is in the 1927 edition of the standard *Brockhaus Enzyklopädie*, 361, where it is defined as a "bungalow-like apartment on the flat rooftop of a multistory residential building."
137 Ruttenbaum, *Mansions*, 68.
138 Ibid., 69–71.
139 Hawes, *New York, New York*, 231.
140 Ibid.
141 See ibid., 221; and Hans-Ulrich Gumbrecht, *1926: Ein Jahr am Rand der Zeit* (Frankfurt am Main: Suhrkamp, 2001), 80–84.
142 The first issue of *Penthouse* was published in 1965.
143 Quoted in Johnson, *Roof Gardens*, 4.
144 See ibid., 8, 37, 78.
145 Ibid., 8.
146 Quoted in ibid., 27.
147 Ibid., 9; see also 37, 59, 110 on the elevators in other roof gardens.
148 Ibid., 4–5.
149 Ibid., 71.
150 Kellermann, *Tunnel*, 61.
151 Johnson, *Roof Gardens*, 59.
152 Kellermann, *Tunnel*, 47–48.
153 Ibid., 63.
154 See Hawes, *New York, New York*, 101, 133, 159.
155 See Walter Spickendorff, "Dachgärten und ihre Bodenkonstruktionen," *Bauwelt*, no. 2 (1913): 28–30.
156 "Eine Anregung," *Bauwelt*, no. 11 (1910): 12.
157 "Die brennende Frage der Dachgärten für Berlin," *Bauwelt*, no. 17 (1910): 20.

158 Wendt, "Dachgärten," 646.
159 W[endt], "Erleichterung," 114.
160 Wendt, "Dachgärten," 648.
161 Flügge, *Großstadtwohnungen*, 41.
162 Wendt, "Dachgärten," 648.
163 W[endt], "Erleichterung," 114.
164 See Johnson, *Roof Gardens*, 51–76, esp. 71–73.
165 See ibid., 89.
166 Jaffé, "Forderung," 5.
167 See, for example, the issues of *Bauwelt* from March and July 1922.
168 It states, "To alleviate the housing shortage, spaces in the cellar and the attic story whose use for long-term human residence is forbidden by the building code may be outfitted as apartments. . The length of use of these apartments is limited to five years." See Willert, *Zusammenstellung*, 786.
169 See the detailed list of bylaws between 1918 and 1941 in Olaf Piechottka, *Dachraumnutzung—Städtebauliches Planungsinstrument zur Erhaltung und Verbesserung der Stadtstruktur* (Berlin: Kiepert, 1978), 36.
170 "Erlass vom 3. Januar 1921, betr. Errichtung von vielgeschossigen Bürohäusern," in *Volkswohlfahrt, Amtsblatt und Halbmonatsschrift des Preußischen Ministeriums für Volkswohlfahrt*, vol. 2 (Berlin, 1921), 39.
171 Max Jahn, *Handwörterbuch des Baurechts* (Leipzig: Jänecke, 1928), 129.
172 "Europahaus und Wohlfahrtsminister," *Zentralblatt der Bauverwaltung*, no. 7 (1928): 111.
173 See, for example, Neumann, *Hochhäuser*, 169; and Rainer Stommer and Dieter Mayer-Gürr, *Hochhaus: Der Beginn in Deutschland* (Marburg: Jonas, 1990), 244.
174 On this topic, see Neumann, *Hochhäuser*, passim; for example on p. 60, the decree published on July 25, 1934, in the *Zentralblatt der Bauverwaltung* demanding "the greatest restraint" in granting permission for new high-rises because of concern about aerial attacks. But Neumann also mentions that the discussion of the problem of protecting high-rises from aerial bombardment reached back to 1927, before the National Socialists came to power. See also Buff, *Bauordnung im Wandel*, 86: "From 1939 to 1948, normal construction activity ceased in Germany."
175 Berlin introduced a system of five "building classes" in 1925. The highest class continued to be subject to the limit of six stories, "unless special provisions have been made for a public, commercial, or factory building." *Bauordnung Berlin*, 10. Very similar language is in the *Münchner Baupolizeirecht und die*

Münchner Staffelbauordnung (Munich, Berlin, Leipzig: Schweitzer, 1927), 84n1.

176 *Bauordnung Berlin*, 11; almost identical wording in *Bauordnung für die Stadt München* (Munich, 1927), 84.

177 Roman Heiligenthal, *Rasse und Wohnung in der großen Agglomeration* (Heidelberg: Winter, 1937), 88. On this book, see also Geist and Kürvers, *Berliner Mietshaus*, 266.

178 A construction magazine described the first German residential high-rise in Düsseldorf in 1927: "The building contains 18 most elegant 6- and 7-room apartments with very large rooms, two passenger elevators, as well as all possible amenities." "Wohnhaus in Düsseldorf," *Baugilde*, no. 4 (1927): 179. On the two Düsseldorf high-rises built in 1929, see Oelmann, "Haus am Rheinufer," *Deutsche Bauzeitung*, supplement "Moderner Wohnbau" (1929): 13–18.

179 Musseleck, "Aufzug," 990.

180 "Mitteilungen," *Der Neubau: Halbmonatsschrift für Baukunst*, no. 2 (1926): 24.

181 *Ministerialamtsblatt*, 1051–54.

182 See, for example, *Bauordnung Berlin,* 232ff.: "Richtlinien für Hochhäuser" (Guidelines for high-rises). In the first nationwide building code for Germany, the *Musterbauordnung* (Model building code) of 1960, the provisions of these "guidelines" were integrated in various places, that for an elevator in "buildings with more than 5 stories above the ground floor," for example, in § 44, section 10. See *Einführung in die Musterbauordnung*, Part B, "Die Vorschriften im Einzelnen" (Recklinghausen: Kommunal-Verlag, 1960), 74.

183 *Ministerialamtsblatt*, 1054.

184 Ibid.

185 See, for example, Fritz, *Menschen in Büroarbeitsräumen*; Pélegrin-Genel, *Büro*; Albrecht, *On the Job.*

186 See Kurt Alsleben, *Büro und Großraum* (Quickborn: Schnelle, 1961); Eberhard Schnelle and Alfons Wankum, *Architekt und Organisator: Probleme und Methoden der Bürohausplanung* (Quickborn: Schnelle, 1965); as well as the other writings of the Quickborn Group of "office organizers" who are considered the inventors of the office landscape concept.

187 See Fritz, *Menschen in Büroarbeitsräumen*, 69–79; and Wiener, *Warenhaus*, 323.

188 Freytag, *Soll und Haben*, 28. Again, the English translation of 1858, available online from Project Gutenberg, is inaccurate and leaves out entire phrases and clauses of the original.

189 Ibid., 107.

190 See Equitable Life, *Hyde*, 119. On this historic date, see also Thomas Hine, "Office Intrigues: The Interior Life of Corporate

Culture," in Albrecht and Broikos, *On the Job*, 135; Logan, "Onward," 139; Eric Sundstrom, *Work Places: The Psychology of the Physical Environment in Offices and Factories* (New York: Cambridge University Press, 1986), 28; and Young, *Art and Enterprise*, 16.

191 Logan, "Onward," 140. Evidence that the Equitable Life also followed this practice in the 1860s is in Equitable Life, *Hyde*, 54.

192 See Young, *Art and Enterprise*, 39.

193 Quoted in ibid., 16.

194 See Hyde's memory of this struggle in Equitable Life, *Hyde*, 119–20: "It is a very singular fact that at the time the first Equitable Building was approaching completion there was not a single elevator in New York in a structure devoted exclusively to office purposes. All the members of the building committee, except myself, were opposed to the introduction of elevators, but finally consented to have one erected. It required quite a struggle on my part to obtain their consent to put two in the building."

195 See Mujica, *History*, 22.

196 Logan, "Onward," 140.

197 Ibid., 149; see also the examples for the conquest of the higher stories in Robinson, "Tall Office Buildings," esp. 198–202.

198 Steffens, "Modern Business Building," 44.

199 Pélegrin-Genel, *Büro*, 166.

200 Young, *Art and Enterprise*, 40.

201 See ibid., 35.

202 Schuyler, "Evolution," 425.

203 A letter of February 11, 1898, quoted in Young, *Art and Enterprise*, 52.

204 Quoted in ibid., 55.

205 See Logan, "Onward," 152.

206 Quoted in ibid.

207 Ibid., 153.

208 Ibid., 156.

209 See the statistics in Steffens, "Modern Business Building," 59.

210 Shultz and Simmons, *Offices*, 207.

211 See Fritz, *Menschen in Büroarbeitsräumen*, 69, on the increasingly hierarchical structuring of counting houses in the early nineteenth century: "The more screened-off and concealed a workplace is, the higher the prestige."

212 Joachim Ritter, "Landschaft: Zur Funktion des Ästhetischen in der modernen Gesellschaft," in *Subjektivität* (Frankfurt am Main: Suhrkamp, 1974), 141–61; on Petrarch, see also Dieter Groh and Ruth Groh, "Petrarca und der Mont Ventoux," in *Die Außernwelt der Innenwelt: Zur Kulturgeschichte der Natur*, vol. 2 (Frankfurt am Main: Suhrkamp, 1996), 17–82.

213 Dölger, "Einfluss der Höhenlage," 454 (emphasis in original).
214 Quoted in Equitable Life, *Hyde*, 119.
215 Daniel Defert, "Foucault, der Raum und die Architekten," in *Politics-Poetics: Das Buch zur Documenta* (Ostfildern: Cantz, 1997), 281.
216 Marchand, *Advertising*, 238–47.
217 Ibid., 238–39.
218 Ibid., 241.
219 Ibid., 242.
220 See, for example, "Das Geschäftshaus Fr. Hahn in Berlin," *Bauwelt*, no. 115 (1911): 51.
221 See A. Wedemeyer, "Groß-Kraftwerk Klingenberg in Berlin-Rummelsberg," *Deutsche Bauzeitung*, nos. 1–2 (1928): 18–26.
222 See Hans Bahn, "Das Hochhaus des Hannoverschen Anzeigers in Hannover," *Deutsche Bauzeitung*, no. 63 (1928): 537–44.
223 See "Verwaltungsgebäude des Lenz and Co.-Konzerns, Berlin," *Deutsche Bauzeitung*, nos. 1–2 (1929): 8–12.
224 See "Das Tagblatt-Turmhaus in Stuttgart," *Deutsche Bauzeitung*, nos. 1–2 (1929): 13–18.
225 See "Magdeburgs erstes Hochhaus," *Deutsche Bauzeitung*, nos. 31–32 (1931): 185–90.
226 See Hertlein, "Wernerwerk"; and Siemens, *Carl Friedrich zu Siemens*.
227 See Zimmermann, *Von der Wohnungsfrage*; on the design competition, see "Verwaltungsgebäude I.G. Farbenindustrie A.-G., Frankfurt am Main," *Baugilde*, no. 22 (1928): 1663–66.
228 See Münter, "Verwaltungsgebäude"; and Lukasz Krzywka, "Das Hochhaus der Städtischen Sparkasse am Breslauer Ring," in *Hochhäuser für Breslau*, ed. Jerzy Ilkosz and Beate Störtkuhl (Delmenhorst: Aschenbeck und Holstein Verlag, 1997).
229 Münter, "Verwaltungsgebäude," 764.
230 See Regina Stephan, *Studien zu Waren- und Geschäftshäusern Erich Mendelssohns in Deutschland* (Munich: Tuduv, 1992), 69.
231 Siemens, *Carl Friedrich zu Siemens*, 256.
232 Hertlein, "Wernerwerk," 1510.
233 Hermann Seeger, *Bürohäuser der privaten Wirtschaft* (Leipzig: Gebhardt, 1933), 11.
234 See Badische Anilin, *Hochhaus der BASF*.
235 See Jürgen Joedicke, "Bürogebäude und Automobilmuseum der Daimler-Benz AG, Stuttgart-Unterrürkheim," *Deutsche Bauzeitung*, no. 5 (1962): 339–78.
236 See Farbenfabriken Bayer AG, *Bayer-Hochhaus*.
237 See Peters, *Verwaltungsgebäude*.
238 Badische Anilin, *Das Hochhaus der BASF*, 11.
239 Ibid., 13.
240 See Farbenfabriken Bayer AG, *Bayer-Hochhaus*, 23.

241 Ibid., 24.
242 Siegfried Schulze and Carl Krause, *Bürobauten* (Stuttgart and Bern: Krämer, 1967), 58.
243 Ibid., 59.
244 See Friedrich Wilhelm Kraemer, "Das Großraumbüro, eine neue Bauaufgabe unserer Zeit," *Deutsche Bauzeitung*, no. 4 (1966), esp. the cross-section of the BP building, 291. See also "Engerer Bauwettbewerb für den Neubau eines Verwaltugsgebäudes der BP Benzi- und Petroleum-Aktiengesellschaft, Hamburg, 1964," *Deutsche Bauzeitung*, no. 10 (1964): 771: "The executive floor is generously proportioned in accordance with the importance of this group of rooms."
245 Wolfgang Schnelle, *Hierarchische Ordnung im Büro: Rang- und Gruppenprobleme in Verwaltungen* (Quickborn: Schnelle, 1961), 28.
246 Peters, *Verwaltungsgebäude*, 31.
247 Ibid., 37.

NOTES TO CHAPTER 3

1 Generlich et al., *Fahrstuhlführer*, 1.
2 Ibid.
3 "Polizei-Verordnung" (1893), 259. A commentary in the official gazette of the Berlin building inspector states that the regulations were "the first of their kind issued in Prussia." Garbe, "Ueber die Einrichtung und den Betrieb von Aufzügen (Fahrstühlen)," *Zentralblatt der Bauverwaltung*, 1893, 164. Simmen and Drepper are mistaken in stating that the earliest Prussian elevator regulations are from 1884 (*Fahrstuhl*, 141).
4 *Polizei-Verordnung* (1908), 32.
5 Hintz, *Handbuch*, 60–61.
6 Ibid., 62.
7 Fürst, "Aufzüge," 81.
8 Ibid.
9 Quoted in Simmen and Drepper, *Fahrstuhl*, 55.
10 *Instructionen für Fahrstuhlführer: Auszug aus der Polizei-Verordnung vom 6. September 1898 nebst zusätzlichen Anweisungen* (Berlin: Siemens, 1900), 4.
11 Mann, *Confessions*, 149.
12 Ibid., 167.
13 Ibid., 168.
14 See "Examination of Elevator-Runners"; and "Improving the Control over Elevators in New York," *American Architect and Building News*, no. 1499 (1904): 89.
15 "Elevator Inconveniences," *American Architect and Building News*, no. 814 (1891): 61–62.
16 See the description of the mechanism in George Edward

Harding, "Electric Elevators," *American Architect and Building News*, no. 983 (1894): 33.

17 Maurice Saglio, "City Apartment Houses in Paris," *Architectural Record*, April 1896, 352.

18 Thus, in retrospect, Hintz, *Handbuch*, 65.

19 See Ernst, "Entwurf."

20 P. Schwehm, *Elektrisch betriebene Aufzüge, ihr Wesen, Anlage und Betrieb* (Hannover: Jänecke, 1901), 41.

21 "Sitzungen der Bezirksvereine: Lausitzer Bezirksverein. Sitzung vom 25. April 1903," *Zeitschrift des Vereins deutscher Ingenieure*, 1903, 1535.

22 Drews, "Moderne Aufzüge," 625.

23 Carl Flohr, *Fest-Schrift zur Feier des 25jährigen Geschäftsjubiläums am 2. Juli 1904* (Berlin: Maschinenfabrik Carl Flohr, 1904), 14.

24 The clearest description of the control system is in Drews, "Moderne Aufzüge," 626–28.

25 See " Fahrstuhl für Dienstboten."

26 *Polizei-Verordnung* (1908), 14–15; for the restriction of this regulation to apartment houses, see the "Ausführungsanweisung" (Instructions for implementation) of § 32 in ibid., 33.

27 Ibid., 32.

28 *Abänderung der Polizeiverordnung vom 30. Mai 1913 über die Einrichtung und den Betrieb von Aufzügen (Fahrstühlen), (Aufzugsverordnung): Polizeiverordnung vom 4. Januar 1917* (Berlin: Seydel, 1917), 7.

29 H. Jahr, ed., *Polizeiverordnung (Musterverordnung zur Aufzugsverordnung von 1926) über die Einrichtung und den Betrieb von Aufzügen sowie Technische Grundsätze für den Bau von Aufzügen* (Hagen in Westfalen: Hammerschmidt, 1926), 2–3.

30 "Hebel- oder Druckknopf-Steuerung bei Personenaufzügen," *Zentralblatt der Bauverwaltung* 82 (1907): 536.

31 See *Fahrstuhlführer-Prüfung: Fragen, welche gelegentlich der Fahrstuhlführer-Prüfung vom Sachverständigen gestellt werden, und Beantwortung dieser Fragen* (Berlin: Seydel, 1917).

32 Generlich et al., *Fahrstuhlführer*, 21.

33 Kafka, *Amerika*, 145.

34 Anton de Nora, *Der Liftboy: Novellen, Grotesken und Skizzen* (Leipzig: Staakmann, 1920), 7 (emphasis added).

35 "Examination of Elevator-Runners."

36 Fürst, "Aufzüge," 82.

37 Ibid.

38 Maar and Heidelbach, *Aufzug*, n.p.

39 Blumenberg, "Lebenswelt," 35.

40 Mayer, "Ueber Auslösung," 413.

41 Benjamin, "On Some Motifs in Baudelaire," 328.

42 The push button leads Roland Barthes to say in his book on photography that "the photographer's organ is not his eye (which terrifies me) but his finger." *Camera Lucida*, 15.
43 See Simmen and Drepper, *Fahrstuhl*, 168.
44 Frank, *Feuerwehrbuch*, 36.
45 Ibid., 37.
46 Ibid.
47 Ibid., 38.
48 F. A. Förster, "Die Druckknopfsteuerung als Wirtschaftlichkeitsfaktor," *Der graphische Betrieb*, 1929, 257.
49 Blumenberg, "Lebenswelt," 36.
50 Frank, Feuerwehrbuch, 41.
51 Hugo Koch, "Fenster, Thüren und andere bewegliche Wandverschlüsse," in *Handbuch der Architektur*, ed. Josef Durm et al., vol. 3, no. 1 (Darmstadt, 1896), 333.
52 Mayer, "Ueber Auslösung," 416.
53 Ibid.
54 "Das aktuelle Lexikon: Atomkoffer," *Süddeutsche Zeitung*, December 28, 1991, 2.
55 Blumenberg, "Lebenswelt," 36.
56 See James Gleick, *Faster—The Acceleration of Just About Everything* (New York: Vintage, 2000), 30.
57 James Gleick, "Himmelfahrtskommando," *SZ-Magazin* 9 (2000): 45.
58 See Florian Felix Weyh, *Die ferne Haut: Wider die Berührungsangst* (Berlin: Aufbau-Verlag, 1999), 68.

NOTES TO CHAPTER 4

1 See Geist and Kürvers, *Berliner Mietshaus*, 244; although this word occurred in the Berlin building code for the first time in 1853, the encyclopedic dictionary of the Grimm brothers has a citation from Goethe, who died in 1832.
2 Willert, *Zusammenstellung*, 129.
3 Josef von Kerschensteiner, "Die Hygiene der Treppen und des Treppenhauses," *Deutsche medizinische Wochenschrift* 45 (1893): 1140.
4 Emmerich and Recknagel, "Wohnung," 428.
5 Ibid., 428–29.
6 Ibid., 429.
7 Ibid.
8 Ibid., 431.
9 Hobrecht, *Gesundheitspflege*, 16.
10 Ibid., 14.
11 Ibid., 14–15.
12 Ibid., 16.
13 Wasserfuhr, "Gesundheitsschädlichkeiten," 196.

14 Ibid., 197.
15 Herman Melville, *Bartleby, the Scrivener*, in *Great Short Works of Herman Melville* (New York: HarperCollins, 2004), 68.
16 Wilhelm Gemünd, "Die Abortfrage," *Zeitschrift für Wohnungswesen* 4 (1906): 47–49.
17 See Josef Redlich, "Baupolizeiverordnung für die Stadt Düsseldorf," *Zeitschrift für Wohnungswesen* 7 (1908): 92–94, who reports on one of the first German draft laws of this kind.
18 Weisbach, "Wohnhäuser," 39.
19 See the statistics in Herbert Croly, "The Contemporary New York Residence," *Architectural Record*, 1902, 705; and the commentary in Charlotte Perkins Gilman, "The Passing of the Home in the Great American Cities," *Cosmopolitan*, December 1904, 140, that private houses are "no longer built in numbers worth mentioning compared with apartment-houses."
20 See Cromley, *Alone Together*; Hawes, *New York, New York*; Ruttenbaum, *Mansions*; and Stern et al., *New York 1880*. The following pages profited especially from the first two.
21 "A Revolution in Living," *New York Times*, June 3, 1878, 4.
22 Stern et al., *New York 1880*, 543.
23 "Apartment-Houses—II," *American Architect and Building News*, no. 777 (1890): 98.
24 Blanke, "Cliff-Dwellers," 355.
25 Carroll, "Apartment-Houses," 532.
26 "Houses on the European Plan," 1.
27 Vaux, "Architecture."
28 Ibid.
29 "Houses on the European Plan," 3.
30 Ibid.
31 Carroll, "Apartment-Houses," 530, 531.
32 "Apartment-Houses and Tenement-Houses."
33 See Lawrence Veiller, *Tenement House Legislation in New York, 1852–1900* (Albany: Brandow, 1900), 147–48: "The first tenement-house act defined a tenement-house as any building which was occupied as the home or residence of more than three families living independently of each other and doing their cooking upon the premises; or a building occupied by two families or more upon one floor, so living and cooking and having a common right in the public parts of the building, that is, the halls, stairways, yards, etc."
34 "Apartment-Houses and Tenement-Houses."
35 See "New Building Law Code," *New York Times*, September 6, 1899, 12.
36 Carroll, "Apartment-Houses," 530.
37 Hubert et al., "New York Flats and French Flats," 56.
38 Ibid., 57–58.

39 Ibid., 58.
40 Ibid. (emphasis in original).
41 Ibid., 55.
42 "Houses on the European Plan," 3.
43 Hubert et al., "New York Flats and French Flats," 58.
44 "The Cooperative-Apartment Craze of a Score of Years Ago," *American Architect and Building News*, no. 1383 (1902): 97.
45 "The Radical Evil of Life in Apartment-Houses," *American Architect and Building News*, no. 1619 (1907): 1.
46 Ibid.
47 Ibid.
48 Ibid.
49 See Gray, *Ascending Rooms*, 62.
50 See documentation and Benno Wagner's brilliant commentary on the incident in Franz Kafka, *Amtliche Schriften*, ed. Klaus Hermsdorf and Benno Wagner (Frankfurt am Main: Fischer, 2004), 721–41, 963–71.
51 Howells, *Elevator*, 304.
52 Ibid.
53 As quoted in Gray, *Ascending Rooms*, 53.
54 Gutermuth, "Mitteilungen," 774.
55 Flohr Maschinenfabrik, *Personen- und Lastenaufzüge*, 14.
56 See Gray, *Ascending Rooms*, 80.
57 See Carroll, "Apartment-Houses," 533.
58 "French Flats: The Parisian System of Living," *New York Times*, December 26, 1876, 2.
59 "Fast Time in Elevators: Ascending Nine Flights in Thirty Seconds," *New York Times*, September 3, 1882, 12.
60 Ibid.
61 See the quote from the New York Building Act in "The New Building Code," *New York Times*, September 7, 1899, 3: "In every building now erected, . at least one passenger elevator shall be kept in readiness for immediate use by the Fire Department, during all hours of the night and day, including holidays and Sundays."
62 Criticism of this regulation was not raised until the late 1920s. The author of a 1928 article entitled "The Elevator in the Modern Apartment Building" demands "doing away with the key that opens the doors to the shaft. It should be replaced by a simple door so that anyone can use the elevator, including people who do not live in the building." Musseleck, "Aufzug," 991.
63 See *New York Regular Session Laws 1885*, 108th Legislature (New York, 1885), 763. This regulation did not apply to hotels and office buildings.
64 Hawes, *New York, New York*, 65.

65 "A Modern Apartment House," *Plumber and Sanitary Engineer*, February 1880, 106.
66 "New York Building Department to Exercise Supervision over Elevators," *Sanitary Engineer* 8 (October 1885): 369.
67 "Sitzungsberichte der Bezirksvereine: Berliner Bezirksverein," *Zeitschrift des Vereins deutscher Ingenieure*, 1894, 622.
68 The first American building to be equipped with indirect-hydraulic elevators was the 1878 Boreel Building in New York; see Thomas E. Brown, "Passenger Elevators—I," *American Architect and Building News*, no. 1507 (1904): 51. In Germany, this type of elevator was introduced by the Otis Company in the mid-1880s; see Reuleaux, *Gutachten*.
69 Werner von Siemens, "Der elektrische Aufzug," *Elektrotechnische Zeitschrift*, November 1880, 373.
70 In the words of an 1890 sales brochure quoted in Gray, *Ascending Rooms*, 172.
71 Flohr Maschinenfabrik, *Personen- und Lastenaufzüge*, 11.
72 Ibid., 43.
73 Schivelbusch, *Railway Journey*, 115n7.
74 "Elevator Sickness," *Scientific American*, July 12, 1890, 17.
75 Ibid.
76 Ibid.
77 Schivelbusch, *Railway Journey*, 165.
78 Ibid, 166.
79 Thomas Katz, "Lehren aus dem amerikanischen Fahrstuhlbau," quoted in Simmen and Drepper, *Fahrstuhl*, 117.
80 Foucault, *Archaeology*, 52–53 (emphasis in original).
81 Schivelbusch, *Railway Journey*, 151.
82 Consider, for instance, the intensity of debate about the danger of radiation from cell phones. Families have moved away from locations near power transmission lines or broadcasting towers for the same reason. It is highly probable that researchers in the future will read about these things with the same ironic smile with which we react to the behavior of early elevator passengers. And yet one cannot dismiss these contemporary complaints as pure delusions.
83 Radkau, *Zeitalter der Nervosität*, 14.
84 "The Elevator Sickness," *Washington Post*, October 14, 1894, 17.
85 Westphal, "Agoraphobie," 138.
86 Ibid. Westphal mentions a Viennese doctor named Benedict who reported a case of "Platzschwindel" (spatial vertigo) as early as 1870 (151).
87 Ibid., 154.
88 Ibid., 143.
89 Ball, "Claustrophobie," 378.
90 See ibid., 380: "I've seen this patient only twice."

91 Ibid., 386.
92 Müller, *Handbuch*, v.
93 See especially Anson Rabinbach, *The Human Motor: Energy, Fatigue, and the Origins of Modernity* (New York: Basic, 1990); and Radkau, *Zeitalter der Nervosität*.
94 See Beard, *Neurasthenia,* 5, where the German translator states in his foreword that Beard's earliest essays on the topic were published in 1869.
95 Müller, *Handbuch*, 33.
96 Beard, *American Nervousness*, vi (emphasis in original).
97 Ibid.
98 Ibid., 146.
99 Müller, *Handbuch,* 38.
100 Ibid., 37.
101 H. Emminghaus, *Psychopathologie: Zur Einführung in das Studium der Geistesstörungen* (Leipzig, 1878), 80.
102 Westphal, "Agoraphobie," 148.
103 Vidler, *Warped Space*, 25.
104 Ibid., 29.
105 Quoted in ibid.
106 Camillo Sitte, *Der Städtebau nach seinen künstlerischen Grundsätzen*, 3rd ed. (Vienna: Graeser, 1900), 53; see also Vidler, *Warped Space*, 265–66.
107 Vincent [pseud.], "Confessions of an Agoraphobic Victim," *American Journal of Psychology* 30 (1919): 295–99.
108 Benjamin, "Charles Baudelaire," 191.
109 Hans Reinecker, *Phobien: Agoraphobien, soziale und spezifische Phobien* (Göttingen: Hogrefe/Verlag für Psychologie, 1993), 31.
110 Asch, "Claustrophobia," 716.
111 See Clarence P. Oberndorf, "Analysis of a Claustrophobian," *Medical Record: A Weekly Journal of Medicine and Surgery* 88 (1915): 350.
112 See Betram D. Lewin, "Claustrophobia," *Psychoanalytic Quarterly* 4 (1935): 228; and Edwin R. Eisler, "Regression in a Case of Multiple Phobia," *Psychoanalytic Quarterly* 6 (1937): 87.
113 William B. Terhune, "The Phobic Syndrome: A Study of Eighty-Six Patients with Phobic Reactions," *Archives of Neurology and Psychiatry* 62 (1949): 165.
114 Mayer, "Aufzüge," 177.
115 See Paul Virilio, "Das Pannenmuseum," in *Ereignislandschaft* (Munich: Hanser, 1998), 93.
116 "In an Elevator."
117 Howells, *Elevator*, 312 (emphasis in original).
118 See Schivelbusch, *Railway Journey*, 134–49.
119 See English Bagby, "The Etiology of Phobia," *Journal of Abnormal Psychology and Social Psychology* 17 (1922): 16–18.

120 See Emanuel Miller, "The Analysis of Agora-Claustrophobia: A Passive Anamnesis," *British Journal of Medical Psychology* 10 (1930): 253–67.
121 Asch, "Claustrophobia," 712, calls it a "classic article."
122 See Rainer Hank, "Topik und Topographie: Seelenlandschaft und Stadtlandschaft im Wien der Jahrhundertwende," in *Die Großstadt als "Text,"* ed. Manfred Smuda (Munich: Fink, 1992), 217–38.
123 Beard, *Neurasthenia*, 41.
124 See Ball, "Claustrophobie," 385.
125 Raymond Gehl, "Indecision and Claustrophobia," *International Journal of Psycho-Analysis* 54 (1973): 51.
126 See Hawes, *New York, New York*, 92–98.
127 Cromley, *Alone Together*, 154; see also Birmingham, *Life at the Dakota*, 37.
128 Hawes, *New York, New York*, 237.
129 Ibid., 205; see also Ruttenbaum, *Mansions*, 130ff., on similar arrangements at the Beresford and the San Remo on the Upper West Side.
130 Virginia Pope, "New York Now Has Mansions in Flats," *New York Times Magazine*, June 27, 1926, 9.
131 Ibid.
132 Hawes, *New York, New York*, 238.
133 See ibid.
134 Bernhard Siegert, *Relais: Geschicke der Literatur als Epoche der Post* (Berlin: Brinkmann and Bose, 1993), 127.
135 Cromley, *Alone Together*, 254–55; see also Birmingham, *Life at the Dakota*, 37, who calls the four service elevators "a novelty in themselves in the 1880s."
136 Ernst Lesser, "Tausend Mark pro Zimmer," *Bauwelt* 12 (1910): 9.
137 "Ein moderner Wohnpalast," *Bauwelt* 34 (1910): 20. A similar description had appeared two issues earlier: "Das Tausend-Mark-Zimmer," *Bauwelt* 32 (1910): 15.
138 "Fahrstuhl für Dienstboten."
139 Ibid.
140 Ibid.
141 Weisbach, "Wohnhäuser," 39.
142 Ibid., 41.
143 See the illustrations in Müller, *Dienstbare Geister*, 184; see also Peter Wiek, "Das großstädtische Etagenhaus: Vergleiche zwischen Hamburg, Berlin und Wien," *Österreichische Zeitschrift für Kunst und Denkmalpflege*, 1982, 156: "The stairs for servants and delivery men . are a matter of course in all 'grand' apartment houses in Berlin."
144 See the extensive bibliography in Müller, *Dienstbare Geister*.
145 "Apartment-Houses," *New York Times*, September 7, 1870, 4.

146 Ernst, "Entwurf," 1287.

147 The assumed average weight of elevator passengers has remained the same for almost a century, but it was not always so, as an 1884 article by Adolf Ernst shows. For a hydraulic elevator in a Berlin hotel, "a carrying capacity of five persons = 300 kg is assumed." Adolf Ernst, "Hebezeuge: Hydraulische Aufzüge," *Zeitschrift des Vereins deutscher Ingenieure*, 1884, 566. A good twenty years before the first unified legal regulations, Prussian elevator passengers were fifteen kilograms lighter on average.

148 Hedda Adlon, *Hotel Adlon: Das Haus, in dem die Welt zu Gast war* (Munich: Kindler, 1955).

149 So declared Katharina Schratt's niece decades later in an interview quoted by Simmen and Drepper, *Fahrstuhl*, 134. In their book, Schratt's move to this apartment is said to have been in 1890, but biographies of the actress date it to 1908. See Joan Haslip, *Die Freundin des Kaisers: Franz Joseph und die Schauspielerin Katharina Schratt* (Stuttgart: Engelhorn, 1985), 361; and Georg Markus, *Katharina Schratt: Die heimliche Frau des Kaisers* (Vienna: Amalthea, 1982), 220.

150 See Goodwin, *Otis*, 111.

151 Zimmermann, "Normen für Personen- und Krankenaufzüge: Aufgestellt vom Normenausschuß der Deutschen Industrie," *Baugilde* 5 (1927): 252. See also Deutscher Normenausschuss, *DIN Normblattverzeichnis: Stand der Normung Herbst 1927* (Berlin, 1927).

152 Jürgen Freiherr von Kruedener, *Die Rolle des Hofes im Absolutismus* (Stuttgart: Fischer, 1973), 60–61.

153 Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," in *Illuminations*, trans. Harry Zohn (New York: Schocken, 1969), 222.

154 Bayer, "Treppenstudie," 258. Apropos the following analysis, see also Mielke, *Treppen*, 131, 212–14.

155 Bayer, "Treppenstudie," 258.

156 Mielke, *Treppen*, 214.

157 On *Zeremonialwissen*, or the science of ceremonials, see Milos Vec, *Zeremonialwissenschaft im Fürstenstaat: Studien zur juristischen und politischen Theorie absolutistischer Herrschaftsrepräsentation* (Frankfurt am Main: Klostermann, 1998); and Paulmann, *Pomp*.

158 Harald Keller, "Das Treppenhaus im deutschen Schloß- und Klosterbau des Barock," quoted in Jansen, "Grand Escalier," 20.

159 Julius Bernhard von Rohr, *Einleitung zur Ceremoniel-Wissenschaft der grossen Herren*, ed. Monika Schlechte (Leipzig: Edition Leipzig, 1989), 365.

160 Jansen, "Grand Escalier," 14; for the following discussion, see

also Peter Burke, *The Fabrication of Louis XIV* (New Haven: Yale University Press, 1992), 75–78, 86f., 158, 172.

161 Ibid., 55; on the design of the Grand Escalier, see also Karl Möseneder, *Zeremoniell und monumentale Poesie: Die "Entrée solennelle" Ludwigs XIV. 1660 in Paris* (Berlin: Gebr. Mann, 1983), 203–4.

162 Ibid., 83.

163 See Paulmann, *Pomp*, 195: "A general rule for the meeting of monarchs and state visits was never published in the nineteenth century." At the court in Vienna, they still made do (as the Lord High Steward wrote to his French colleague in 1854) with variations of the "elaborate protocols . that have been followed on all ceremonial occasions continuously since the year 1652" (298).

164 "Preliminary Draft of How His Majesty the King of England Would Like to Be Received during His Imminent Arrival" (circa September, 1821), unpublished document quoted by Paulmann, *Pomp*, 228.

165 Ibid.

166 Mielke, *Treppen*, 212.

167 Gotthardt Frühsorge, "Vom Hof des Kaisers zum 'Kaiserhof': Über das Ende des Ceremoniells als gesellschaftliches Ordnungsmuster," *Euphorion* 3 (1984): 262.

168 Morehouse, *Waldorf-Astoria*, 179.

169 Elgin Burroughs, "Elevator Etiquette at Washington," *Harper's Weekly* 4 (1910): 31.

170 Ibid.

171 "If there is a mythology of modernity, the place from which it is narrated and to which it is tied is the city." Lothar Müller, "Die Großstadt als Ort der Moderne: Über Georg Simmel," in Scherpe, *Unwirklichkeit*, 14.

172 For more recent studies, see Scherpe, *Unwirklichkeit*; Susanne Hauser, *Der Blick auf die Stadt: Semiotische Untersuchungen zur literarischen Wahrnehmung bis 1910* (Berlin: Reimer, 1990); Christof Forderer, *Die Großstadt im Roman: Berliner Großstadtdarstellungen zwischen Naturalismus und Moderne* (Wiesbaden: Deutscher Universitäts Verlag, 1992); Becker, *Urbanität*; and Roskothen, *Verkehr*.

173 Baudelaire, *Painter*, 13.

174 Hermann Doetsch, *Flüchtigkeit: Archäologie einer modernen Ästhetik bei Baudelaire und Proust* (Tübingen: Narr, 2004), 1.

175 There is an English translation that contains some inaccuracies: Peter Altenberg, "Elevator," in *Telegrams of the Soul*, trans. Peter Wortsman (New York: Archipelago, 2005), 79; see also Gruber, "Yankee."

176 Goffmann, *Relations*, 30, 32.

177 Ibid., 32.
178 Christian Bock, "Im Fahrstuhl," in *Die Luftschaukel*, ed. Wilmond Haacke (Berlin, 1939), 50–51.
179 Ibid.
180 See Stefan Hirschauer, "Die Praxis der Fremdheit und die Minimierung von Anwesenheit: Eine Fahrstuhlfahrt," *Soziale Welt* 50 (1999): 221–46.
181 Umberto Eco, *Einführung in die Semiotik* (Munich: Fink, 1972), 344.
182 See Karl Gutzkow, *Die Ritter vom Geiste*, vol. 1 (Berlin, 1876), iv-v (foreword to the first edition): "The old novel presented the sequence of artfully intertwined incidents. . The new novel is the novel of simultaneity." See also the foreword to the third edition: "People could understand [the concept of the 'novel of simultaneity'] if they would think of a drawing of a mine or a warship in cross-section: the simultaneity of lives existing side by side in hundreds of rooms and cabins, invisible to each other but visible to the outside observer as a unity" (ix).
183 Gerhard Hoffmann, *Raum, Situation, erzählte Wirklichkeit: Poetologische und historische Studien zum englischen und amerikanischen Roman* (Stuttgart: Metzler, 1978), 18–19.
184 Volker Klotz, *Die erzählte Stadt: Ein Sujet als Herausforderung des Romans von Lesage bis Döblin* (Munich: Hanser, 1969), 430.
185 Nabokov, *Mary*, 30.
186 Ibid., 2–3.
187 Ibid., 3.
188 Fechter, *Ruck*, 234.
189 See ibid., 99 and 297.
190 Ibid., 489.
191 Hailey, *Hotel*, 40.
192 Ibid., 76.
193 Ibid., 326.
194 Ibid., 373.
195 Nicholson Baker, *The Mezzanine* (New York: Weidenfeld and Nicholson, 1986), 76.
196 Billy Wilder and I. A. L. Diamond, screenplay for *The Apartment*, directed by Billy Wilder (Panavision, 1959), http://www.dailyscript.com/scripts/apartment.html.
197 Malle's film changes elements of the novel's ending.
198 On the concept of a non-place, see Marc Augé, *Orte und Nicht-Orte: Vorüberlegungen zu einer Ethnologie der Einsamkeit* (Frankfurt am Main: Fischer, 1994).
199 Calef, *Fahrstuhl*, 186.
200 Ibid., 34.
201 *Some Like It Hot*, directed by Billy Wilder (United Artists, 1959).

202 *The Secret of My Success*, directed by Herbert Ross (Universal, 1986).

203 Oskar Bie, *Der Technische Sinn*, cited in Gruber, "Yankee," 91.

204 A Hollywood movie like *Sleepless in Seattle* (1993) exploits this dramaturgic similarity in its final shot, as the elevator doors of the Empire State Building close.

205 "In an Elevator," *Harper's Weekly*, May 1875, 362.

206 Howells, *The Elevator*, 304.

207 Ibid., 305.

208 Ibid., 308.

209 Ibid., 312.

210 *Abwärts*, directed by Carl Schenkel (Laura/Mutoskop/Dieter Geissler Filmproduktion, 1984).

211 Simmen and Drepper, *Fahrstuhl*, 149.

212 Boccaccio, *Decameron*, 184ff. (Third Day, Third Tale) and 416 ff (Seventh Day, Fifth Tale).

213 See the illustrations in Alfred Wiesenhütter, "Beichtstuhl," in *Reallexikon zur deutschen Kunstgeschichte*, ed. Otto Schmitt, vol. 2 (Stuttgart: Metzler, 1948), 183–99. On the history of the confessional, see Schlombs, *Entwicklung des Beichtstuhls*; Max Tauch, *Der Beichtstuhl in den katholischen Kirchen des deutschen Barock* (Bonn: Rheinische Friedrich-Wilhelms-Universität, 1969); Franz Kohlschein, "Beichtstuhl," in *Lexikon für Theologie und Kirche*, vol. 2, rev. ed. (Freiburg im Breisgau: Herder, 1994), 162; Schick, "Außerhalb des Beichtstuhles"; E. Jombart, "Confessional," in *Dictionnaire de Droit Canonique*, vol. 4 (Paris: Letouzey, 1949), 63–66; Salome Zajadacz-Hastenrath, *Das Beichtgestühl der Antwerpener St. Paulskirche und der Barockbeichtstuhl in den südlichen Niederlanden* (Brussels: Arcade, 1970); and John Bossy, "The Social History of Confession in the Age of Reformation," *Transactions of the Royal Historical Society*, Fifth Series, vol. 25 (1975): 21–38.

214 Schlombs, *Entwicklung des Beichtstuhls*, 37.

215 Charles Borromeo, *Instructionem fabricae eccelesiasticae et superlectilis ecclesiasticae libri duo*, chap. 23, quoted in Schlombs, *Entwicklung des Beichtstuhls*, 134.

216 Schick, "Außerhalb des Beichtstuhles," 212.

217 In this sense, Norbert Elias's reflections on the "civilizing process" can be related to the history of the confessional. One of the central elements of his extensive study is his attention to space and the shifting border between the visible and the hidden. "It will be seen again and again how characteristic of the whole process that we call civilization is this movement of segregation, this hiding 'behind the scenes' of what has become distasteful" (Elias, *Civilizing Process*, 121). It is no surprise that the confessional box goes back to the same century

as the clearest shift in Elias's "threshold of embarrassment" and it is evidence of the truth of his observation. In an epoch of marked growth in the sense of shame, the confessional ensures the concealment of affect.

218 Heinrich Klee, *Die Beichte: Eine historisch-kritische Untersuchung* (Frankfurt am Main, 1828), 309–10.

219 On the discussion of the incompatibility of the telephone and confession, see Alfred E. Hierold, "Beichte per Telefon? Bemerkungen zum 'Ort für das Bußsakrament,'" in *Fides et Ius: Festschrift für Georg May zum 65. Geburtstag*, ed. Winfried Aymans et al. (Regensburg: Pustet, 1991), 163–76. On the ongoing debate about confession on the Internet, see articles such as "Vatikan wünscht keine Online-Beichte," *Süddeutsche Zeitung*, June 6, 2001, 16, where the American archbishop is quoted as saying that confession must continue to "always take place in the sacramental framework of a personal encounter."

220 Gerhard Kraus and Gerhard Müller, eds., *Theologische Realenzyklopädie*, vol. 5 (Berlin: de Gruyter, 1980), 430.

221 Original screenplay by Nora Ephron and Delia Ephron at http://sfy.ru/?script=youve_got_mail.

222 See Reinhard Messner, ed., "Sakramentliche Feiern: Feiern der Umkehr und Versöhnung," in *Handbuch der Liturgiewissenschaft*, ed. Hans Berhard Meyer et al., pt. 7.2 I/2 (Regensburg: Pustet, 1992).

223 Georg Simmel, *Philosophie des Geldes*, vol. 6 of *Complete Works* (Frankfurt am Main: Suhrkamp, 1989), 665. See also Lothar Müller, "Die Großstadt als Ort der Moderne: Über Georg Simmel," in Scherpe, *Unwirklichkeit*, 14–36.

224 Helmut Lethen, *Verhaltenslehre der Kälte: Lebensversuche zwischen den Kriegen* (Frankfurt am Main: Suhrkamp, 1994), 45 (emphasis added).

225 Ibid.

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