Eating Smoke

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In April 1852, prominent Philadelphia lawyer Horace Binney excoriated the fire insurance industry at an odd moment. In the keynote address of a gala event celebrating the one hundredth anniversary of the Philadelphia Contributionship for Loss from Fire, he censured fire underwriters for what he characterized as a haphazard approach to their business. Binney contrasted fire underwriters’ uncertain rating methods with the sounder practices of life underwriters, which were based in actuarial method. He ridiculed the industry for not having created a “mortality table” of fire loss, and described the industry’s business as unscientific. Binney urged insurers to intensify their program of observing the landscape and to form organizations that advanced the industry’s common interests, arguing that such activities and associations would help fire insurers to organize their industry rationally and to understand the problem of fire. He also suggested a wholesale reconsideration of public fire defenses. Amazingly, it is unlikely that his remarks offended the audience. By 1850 many fire insurers realized the limitations of their approach. Even leading firms, such as Aetna, recognized that they could predict neither the frequency and extent of fires nor their financial costs with an acceptable degree of certainty.

Binney’s remarks heralded a transition in how underwriters confronted the
problem of fire. Shortly afterward, underwriters introduced fire insurance mapping into the lexicon of their tools, continued to make business transactions more standard, formal, and regular, and established trade associations to facilitate inter-company cooperation. Most importantly, perhaps, they began to develop and to apply statistical reasoning to their business, especially to their efforts to categorize and to evaluate danger. As Binney had expected, using statistics transformed the way that fire underwriters produced knowledge in regard to fire risk. Developing actuarial tables marked an important qualitative and quantitative departure for the industry, especially because it occurred in conjunction with the expansion of other information-management technologies. Insurers represented urban fire risk in statistical ratios, objectified fire danger in city maps, and forged new institutional relationships. Within two decades of Binney’s critique, fire insurers had altered their routines substantially.

As the industry remade itself, it also remade its approach to the problem of fire and helped to shape the urbanization of North America. In particular, the introduction of two representational technologies almost simultaneously in the 1850s—maps and statistics—reworked how underwriters perceived fire risk, and hence the problem of fire. As insurers studied figures and atlases, they objectified the risk of fire; they turned an incalculable societal threat into something to be scientifically studied, controlled, and managed. Moreover, these tools gave insurers the ability to attend to the minutest details of the built landscape. They could study a wider and more diverse geographic area, and divide and subdivide their classifications into more analytical categories. With its new management technologies, the industry re-envisioned the built landscape as an accumulation of fire hazards, and visualization of risk using representational technologies made it conceivable to manipulate the built landscape. As a result, changes in insurance practice were felt beyond the boardrooms or balance sheets of insurance company. As the industry made its administrative procedures more rational, expanded its surveillance, and struggled to create an objective record of fire loss, it helped to reshape American cities. The fire insurance industry’s effort to control the problem of fire helped to reorganize all aspects of urbanizing America—from the provision of municipal services to the structure of city landscapes.

At the same time that they quantified the dangers of fire, underwriters offered a scathing critique of the system of fire protection as it had been organized in the first half of the century. They argued that urban communities should not direct fire protection; rather, it should be managed according to the precepts of industrial capitalism, including a new division of firefighting labor that involved paying wages. Strikingly, insurers’ new business practices and sudden critique of
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firefighting coincided with similar efforts by middle-class reformers. In Philadelphian, for instance, a morality novelist offered a stinging evaluation of community-sponsored firefighting. Such moral commentaries became inseparable from underwriters’ attempt to rationalize their industry, fire risk, and urban space. Insurers were not alone in their advocacy for paying specialists to extingush fires, and their suggestions matched broader changes in the division of labor in the industrializing nation. Underwriters offered a new perspective on the problem of fire—one that emphasized individual protection acquired through the marketplace rather than community-based protection.²

As insurers reconceived fire protection, they directly and indirectly contributed to the reorganization of life in American cities, as well as the construction of those cityscapes themselves, in much the same way that industrial capitalism was altering America’s urban and rural landscapes. But, unlike other, more dramatic, industries—the railroad, textiles, or automobile manufacturing—the insurance industry has remained almost invisible in the historical record, like the commodity it trades. The information technologies, strategies, and organizational arrangements developed by insurers transformed America. When fire underwriters represented safety and danger on statistical loss tables and on fire insurance maps, they created a palimpsest for safety in future American cities. Although the early use of maps and statistics should not be mistaken for organized city plans, these technologies nonetheless gave structure to the urbanization process. Cities—from their physical structures to municipal fire services—began to be structured according to a nascent program for safety. If the outlines remained faint, the underpinnings of a new fire safety discipline were taking root.³

Statistics

Horace Binney called on underwriters to be rational, scientific men. He endorsed contemporary procedures—especially those of surveillance and inspection—and recommended a more systematic way of collecting and organizing information. He urged insurers to compile a record of their losses and then to use these figures to re-create categories and classifications of risk. Binney specifically advocated creating a “mortality table” of fire danger, divided into “the case of houses and merchandise, and its variations in the case of particular trades, and in the different conditions of the agents and apparatus for arresting and extinguishing fires.” Fortunately, the process of building this database would not require a significant new bureaucratic infrastructure. Already existing practices of observing the landscape and managing risks would help underwriters to develop an actuarial
record, which could help them to develop a “rule” around which they could organize their financial portfolios. Thus underwriters eventually would be able to reasonably estimate (and predict) future losses. For the first time, the means of assuring profitability and solvency seemed within grasp.4

Binney even provided his audience with an example of the methods he championed. To exemplify his claims, he developed a quantitative profile of the Philadelphia Contributionship’s financial losses over a ten-year period. He divided the Contributionship’s insured dwellings and warehouses (constructed of either brick or stone) into two categories: occupied at night and unoccupied at night. Next he calculated the average amount of loss on each category during a given year and organized that information into a table. Over ten years of observation he calculated that the company lost an average of 3.6 percent (of the total insured value) on occupied properties against a loss of 9.95 percent on unoccupied properties. Binney argued that the table “awakens [us] to the consideration of the nearly constant relation which the inhabitance or non-inhabitance of a building at night has to the extent of partial loss by fire and it is perhaps explained by the necessary fact, that a fire must in general gain more headway or intensity before discovery in buildings not inhabited than in buildings that are so inhabited.” If the finding seemed mundane—namely that property occupied at night burned less frequently—the insights on business method were profoundly informative.5

Binney’s illustration offered a new perspective on risk taking in the American fire insurance industry. He evaluated the effect of “inhabitance verses non-inhabitance” as an object lesson regarding the benefits of collecting and then applying basic statistics about fire loss. Not only would simple calculations help insurers to place their evaluation of fire danger in space and time, but actuarial data liberated insurers from thinking about risks in the short term because such tables would be cumulative. This approach would become more precise over time, moving from approximations based in “ten years’ observation” to those compiled for a “century,” which would yield a yet broader perspective on what he termed “plague and cholera losses.” Binney pointed out that a statistical analysis of a small sample, such as his example, was not scientifically valid; he noted that “the inference from the table, without further elements, will not strike the mind as conclusive.” By observing this shortcoming he underscored his admonition to the industry: underwriters should create a full accounting of fire risk for several decades. He encouraged insurers to keep a continual record of observations and to use them to search for an underlying “law” of fire insurance.6

Although it is not clear if the Contributionship ever used Binney’s research or how quickly it adopted his perspective, other firms had begun to experiment with
such methods even as Binney delivered his speech. In particular, Aetna Life Insur-
ance Company began to analyze its portfolio using such quantitative reasoning
and developed its first crude mortality table of fire loss in 1852. The company be-
gan to collect and to tabulate statistical averages of loss within different segments
of its portfolio, primarily according to their “use” or “occupation” of a risk—i.e.,
dwellings, breweries, saloons, etc. In that Aetna did not organize its rudimentary
actuarial table in a fashion that reflected all the possible permutations of the many
categories within both a property’s “use” and its method of construction, the quan-
titative record of losses was rather limited. Aetna compiled an account of its losses
only for categories of “occupation”; in other words, similar “uses” of property were
lumped together regardless of the material or method used to construct them. For
instance, all textile mills (or dwellings, etc.) were tabulated as a group, whether
built of wood, stone, or brick. As a result, the statistical analyses did not reflect
minute changes in construction method or building materials. Nor did the rudi-
mentary actuarial table reflect the process through which rates were set. To be sure,
Aetna utilized the “use” category to determine a “base rate.” However, the firm
further modified the rate, sometimes substantially, according to construction ma-
terials or the presence of other hazards.7

Despite their limitations, Aetna’s efforts at collecting and categorizing actuar-
ial data provided an innovative and critical new perspective on its portfolio of risk.
To start, the company compiled loss information for the thirty-five property clas-
sifications that it normally utilized as a starting point for delineating risks. In ad-
dition, the company tabulated the total value of the insured property, the amount
of premiums it collected, and financial losses on that type (or use) of property. Sig-
nificantly, the company also calculated the average premium it charged for a six-
month period. For example, between October 1852 and April 1853, Aetna insured
coffeeshouses and saloons with a total value of $134,509, on which it collected
nearly $2,000 in premiums. In the margins, the company converted these numbers
into an average rate of premium for saloons and coffeehouses over a given six-
month period (by dividing the total value of the insured property by the amount
collected in premiums). In the case of saloons and coffeehouses, the company
charged a rate of 1.45, which was read either as a percentage or as dollar value per
$100 of property insured. Additionally, the company recorded whether it realized
a profit or suffered a loss in each category. In the case of saloons and coffeehouses,
for instance, it paid over $4,550 in claims, thus experiencing a net debit of
$2,602.55 over the aforementioned six-month period. Formally documenting and
evaluating such data—both the average rate and the amount of profit or loss—rep-
resented a significant step forward in the firm’s business practices.8
In practice, implementing and coordinating the new mode of assessing danger with everyday business methods proved difficult, and often occurred haphazardly. In fact, although Aetna developed a quantitative portrait of its risks, the company only partially incorporated the new analytic strategies into its daily practices, especially its rate-making activities. Aetna continued to charge different fees based upon the method and materials used in constructing a building and for its spatial relationship to other structures. For example, the company offered modest rates on “detached” dwellings. Similarly, dwellings built of brick or stone were assessed at a lower premium than frame houses. However, as mentioned above, the company compiled loss statistics only for use categories but did not cull them for construction methods or spatial layout. Indeed, the company did not collect, organize, or categorize loss data in a manner that could allow it to determine precisely how much less money to charge clients who built with more substantial materials. Even more perplexing, Aetna does not appear to have altered its instructions to company representatives. It continued to collect loss data on property use, and it persisted in encouraging agents to observe types of construction and to diagram a building’s location in space, even though it did not use quantitative methods to assess the impact of construction or spatial features on its portfolio of risk and loss.9

Despite compiling loss information in such a limited fashion, Aetna nonetheless constructed a broad financial prospectus of its risks. In 1857, Aetna calculated summary statistics of its financial gains and losses, by property use, for a five-year period running from October 1852 to October 1857, and continued keeping such folios through at least the 1880s. The five-year summary statistics resembled those compiled every six months: amount of insurance written by property use, total premiums received, and losses paid. These summary statistics also noted the average rate paid for the first and last six-month period as well as the average rate. Also, for the entire five-year period, the company calculated an “an actual cost rate—five year average.” The “actual cost” represented the amount of the company’s financial loss (or gain) as a premium, pointing only to the cost of insurance on that category. It did not include an accounting of the administrative costs of writing policies, such as agent’s commissions, salaries, and supplies. However, the company leaders seemed to know these costs well; in fact, in its Instructions for the Use of Agents, they were estimated to be 20 percent of the premiums received. At the very least, then, Aetna’s leaders implicitly included such administrative costs in their assessment of profit and loss.10

By developing an impartial record of financial loss using quantitative data, Aetna took the first step toward objectifying fire risk, and it gained renewed confidence in its ability to set rates. With its long-term commitment to gathering loss
data set into place, the company boasted that its classification now took into account both the company’s record over a period of years and its experience with over “one hundred million” dollars in property, insured annually. The firm believed that this actuarial data provided an accurate method of forecasting loss and a long-term edge in the marketplace. Perhaps most important, establishing a method to predict future losses gave Aetna new confidence to represent the material world as a set of insurance rates. In 1857, the company reissued *Directions for the Use of Agents* for the first time in over a decade. Building on its new quantitative method of gathering loss statistics and classifying danger, Aetna argued that it could now “depend with almost entire certainty” on setting rates that “guarded” the company and its customers from the vagaries of the problem of fire. The historical record of Aetna’s losses, depicted numerically, had become the literal embodiment of fire risk. Company officials now delineated between bad and good risks by representing them quantitatively. In addition, these methods provided underwriters their strongest argument against setting rates according to market conditions—either within a local region or within an industry. Further, they served as an argument against setting rates too low and provided firm representatives an explanation as to why they should not lower rates—because it would expose Aetna to long-term risk.

More importantly, Aetna began to use statistical analysis to justify decisions about which types of property to insure. For instance, in its 1857 *Directions to Agents* the company listed seventeen types of property (by use) on which the firm had suffered large financial losses over a four-year period. Based on that quantitative record, Aetna all but prohibited agents from insuring those categories of risk. It warned that “these hazards (i.e. those ‘of questionable profit’) are most inveigling in their temptations to the inexperienced, and we would sound the note of warning to let them alone, without all can certainly be paid for the dangers incurred.” If Aetna’s statistical record served as a rationale for avoiding bad risks, that same data warned agents not to succumb to the temptations of market-driven price competition. The company expected that its tabulations would make pricing self-evident, and it believed that when rates fluctuated they were out of accord with observable reality. Aetna not only implored its representatives to keep rates at profitable levels, but it also suggested that in cases in which a “hazard is of questionable profit to insurers” the “rates and rules” should be presented as an example of good practice. By highlighting its incomparable program of analysis, Aetna helped agents to negotiate price and gave them a marketing tool, allowing them to distinguish Aetna from other fire insurance companies.

Such themes emerged more strongly in 1867 when Aetna published a new and much more comprehensive manual, which would serve as the basis of its system of
bureaucratic technology for decades. The manual defined good underwriting as a combination of moral character, disciplined daily routines, and rational actuarial science. Compiled by the company’s general agent in Cincinnati, J. B. Bennett, the *Aetna Guide to Fire Insurance* appears to have been the first thorough dissertation on insurance practice following the industry’s intellectual innovations in the 1850s. Bennett argued that, although not yet fully developed, the industry dealt in averages. According to Bennett, Aetna’s “experience with a great number of risks in a sufficient area of space, insured for a long period of time, is the only safe ground from which a reliable cost of insurance” could be determined. If observed carefully, this record yielded guidance in the everyday practices of setting rates and taking risks. Insurance, according to Bennett, “is a science to be worked out.” Companies that did not follow sound practices would eventually disappear, victims of not adhering to the law of averages.\(^\text{13}\)

Aetna’s pricing strategies and underwriting activities reveal the degree to which rudimentary experience tables structured the company’s daily practices and philosophy. In fact, comparing the statistical record against the recommended premiums shows that Aetna’s rates did not deviate significantly from its quantitative record. In addition, the company appears to have incorporated its administrative costs into the calculus of determining rates. In categories in which the company’s rates remained higher than the cost of insurance (losses plus costs) those rates remained in force. On the other hand, if rates in a category slipped below those costs, the company adjusted its prices accordingly. In other words, rates on types of structures that consistently burned and cost Aetna money were adjusted upward to reflect that likelihood. In some cases, such as with “India Rubber” factories, the company prohibited agents from writing insurance altogether—a restriction to which the firm appears to have adhered. For instance, between 1852 and 1857 the company wrote nearly $300,000 of insurance on India Rubber factories and suffered substantial financial loss on those properties. In contrast, between 1857 and 1862 the company took only an additional $20,000 of insurance risk on India Rubber factories and did not pay any losses on those during the five years. Interestingly, rates on property that showed little statistical likelihood of financial loss, such as dwellings, remained high. This suggests that the company used profitable categories as a hedge to balance its exposure to losses in other more risky categories of property. The company’s rudimentary actuarial tables, then, became a signal that helped it to insure profitability and solvency.\(^\text{14}\)

Indeed, certain categories of risk, especially “dwelling houses and stores,” remained steady profit centers for Aetna through the 1880s. In the case of houses, for example, aggregate statistics showed that the company charged, on average,
about $0.83 (per $100) between 1852 and 1857, against a loss of $0.23. This category of risk proved to be Aetna’s most important and steady source of revenue. Insurance on dwellings accounted for nearly 30 percent of its total risk portfolio (although only 20 percent of its premiums). After keeping statistical records of loss for five years, in 1857 the company separated dwellings into a separate category of risk for the first time, perhaps recognizing this category as a consistent profit center. Within this lucrative class, Aetna varied its rates according to the dwelling’s mode of construction, although no statistical record within the general “use” category appears to have been kept. Even for those dwellings most substantially built the company charged about $3.35 (per $100). This rate was more than sufficient to cover the cost of insurance in this category, underscoring the importance of houses as a significant sector of profit for the firm.15

The category of “dwelling houses” played an important role in Aetna’s portfolio not just because it generated high profits, but also because it provided income in a steady, unvarying stream. When compared to other classifications within Aetna’s risk portfolio, dwelling houses were a model of consistency. The company’s aggregate statistics for five-year periods, ending in 1857, 1862, and 1867, reveal that Aetna’s average rate remained about constant at $0.85. Loss and “actual cost” also varied little, at about $0.25. As losses in this category gradually increased after the Civil War, so too did premiums (though not as quickly). However, even with the increased losses, this category remained a profit center. Indeed, after removing expenses—estimated at about 20 percent of premium income—the category of dwellings generated regular and substantial profits. Moreover, the regularity of losses within this class of risk, from year to year, may well have been more important than artificially high rates. The lack of variance helped Aetna to keep a regular stream of cash flowing into company coffers that mitigated unexpected losses in other sectors of its portfolio and served as a hedge against economic downturn and/or catastrophic events. Indeed, this broader perspective underscores Aetna’s long-held strategy of conceiving the risk of fire in terms of its entire portfolio. Statistical evidence buttressed this perspective, as Aetna used experience tables to verify that rates should be higher in some categories, and to help it identify those areas in which the company was most profitable. Careful examination of the company’s actuarial data from 1852 through 1888 suggests that Aetna systematically changed practices in those areas in which losses exceeded premiums—either by raising rates or by more carefully selecting risks; in those areas that were regular centers of profit, practices were kept consistent.16

Having established a rigorous system of classifying risks and analyzing loss, Aetna fostered its use by cultivating a work culture that connected traditional no-
tions of middle-class manhood to disciplined risk taking. No longer was it sufficient for insurers to be men of good judgment; Aetna believed that good fire insurance men first had to buy into the company’s corporate strategy—its scientific approach to danger. Echoing the tone and content of Horace Binney’s 1852 speech, successive manuals published by Aetna argued that insurance was based in rationality: “Many regard the business of insurance as one of luck or mere chance . . . but no future contingency can be more confidently predicted, than the reliability of our success and stability, if we will but act in the future on the facts of our past experience.” As Aetna utilized its growing actuarial record as a sales tool, the firm also would argue that fire insurance companies—and the men who ran them—succeeded because of their accumulated, quantitative wisdom as well as their excellent reputations cultivated over years of careful practice. An excellent character helped firms to offer security from fire, mendacious customers, and sloppy agents. Although reputation had long greased the wheels of commerce, Aetna began to describe the process of investigating men’s characters as minimizing “moral hazard.” Presented uncere-

moniously in a brief mention by J. B. Bennett in his huge guide to practice, this expression would come to embody the fire insurance industry’s prescriptions about manhood, which extended beyond the parlors of well-built middle-class homes, beyond sobriety and prudence. Insurers had begun to emphasize that economic rationality was the base for business and manhood.17

As insurers began to emphasize moral hazard explicitly, they made manhood a more central issue in the insurance transaction, thus structuring how the industry solicited business, disciplined employees, and cultivated consumers. Aetna emphasized that its agents should be prudent and disciplined to attract the right kind of customer and to serve as a model of the ideal customer. Aetna admonished its representatives to seek out middle-class men, because they were better “risks.” According to the company manual, such good risks—or good men—demonstrated business discipline and took responsibility for their own safety and that of their property. For instance, such men would not object to the element of Aetna’s policies that prohibited insuring more than two-thirds or three-fourths of a property’s value. Good risks would recognize that such clauses provided a disincentive for arson, and made insurance companies more secure. Indeed, good risks and prudent men sought insurance from reputable firms, whose stability ensured their security. Likewise, an implicit message resided within Aetna’s pitch to its representatives and customers: property insurance was a necessity. It protected financial assets, including men’s homes, the haven for a man’s most valuable possession—his family. By emphasizing the need for insurance, Aetna indoctrinated its agents and employees, transforming them from salesmen into men that protected the middle-
class social and cultural order. Likewise, the company sold consumers an ideal of the secure middle-class home with a man of character at its head. Furthermore, Aetna emphasized that purchasing insurance did not completely fulfill a man’s obligations. No indeed; it mattered from whom a man purchased insurance. Men of character—the type of men who procured safety—would want nothing but the best product to protect their assets. They sought to transact business with other men who possessed similar qualities, who worked with companies that practiced business according to the certainty of statistics, science, and system, rather than chance or fortune.\textsuperscript{18}

Insurers’ emphasis on character also depended upon connecting attributes of manliness—rationality and prudence—with actuarial record-keeping. Aetna transformed its belief in rules and numbers into a moral dictum when it argued that price competition in insurance was unsound both rationally and economically. Indeed, it urged agents not to sell to men who wanted only a low rate of insurance, because anyone could buy insurance inexpensively from a less reputable and less stable insurance company that was willing to cut prices. By contrast, Aetna, with its prices based in the statistical record, did not cut rates simply to please a customer; Aetna chose to emphasize the safety of its assets over the cost of its policies. If it was irrational to purchase insurance from a firm without sound scientific practices, it was also immoral to begrudge a reputable businessman fair compensation. As the firm noted, “All reasonable men are willing to pay premiums for the insurance of their property against loss by fire that will be sufficient to meet the losses and yield the underwriter a fair return for the labor devoted and the capital employed and exposed.”\textsuperscript{19}

Aetna’s logic had an ingenious circularity. According to Aetna, prudent men only purchased insurance from agents disciplined enough to follow the actuarial tables created by Aetna’s underwriters. Conversely, any man who bought from a firm that ignored its statistical record was imprudent, just as that company and its representatives were undisciplined. Aetna would not want a man who exhibited such behavior as a customer, though it hoped to educate him to behave more appropriately. Moreover, these precepts applied to Aetna’s agents as well. When Aetna’s representatives sold insurance using this logic, they sold Aetna’s policies \textit{and} its philosophy that manhood was connected to the rationality of numbers. In so doing, Aetna urged insurers and consumers to embrace an era of managerial capitalism that was rapidly transforming the American landscape. Moreover, this new definition of business manhood emerged after midcentury, when fears about confidence men, disorder, and a risky economy, as well as increasingly impersonal social relations, were reaching a zenith.\textsuperscript{20}
Near a Fire: Say! Just hold this while I fetch another section, will you (Likely?) (n.d.), from the series of four satirical prints published by Henry G. Harrison and William N. Weightman as *The Fireman*. To promote firefighting reform, Harrison and Weightman drew a series of prints that ridiculed the effectiveness of volunteers, here illustrated by the limp stream of water and the elaborate dress as well as the plea for assistance from a passing gentleman. Courtesy, Library Company of Philadelphia
Aetna’s message was both a clever sales pitch and an adroit strategy to avoid price competition, and it also made safety into a consumer product that connected security to the expansion of middle-class cultural ideals. Aetna’s customers did not just purchase protection against fire, they bought the knowledge that they were behaving as prudent middle-class men. More importantly, perhaps, consumers began to buy into a new approach to fire risk—one based in economic activity rather than physical labor, one based on individualized protection rather than their communal effort. For a fee, insurance companies collected risks and distributed them throughout their portfolios. By managing those risks effectively, underwriters confronted fire’s danger with intellectual labor, information technologies, and an elaborate bureaucracy. Implicit in this approach was an ideal about manliness that was connected to middle-class manhood, but which was far more rationalized than the standard gender norms of the era. Of course, purchasing an insurance policy did not obligate Americans to buy into such beliefs, just as appealing to the immutable laws of science did not assure the expansion or use of quantification within the insurance industry. Actually the creation and use of a classification system was but the first step in making safety and the business of fire insurance more rational and economically viable. This process intensified as the expansion of the industry fostered a new and complex matrix of business associations, and relationships—not to mention new ways of viewing the built landscape.21

Maps

When Binney spoke to the Contributionship, he argued for bringing the built environment under an expansive program of surveillance that attended to the most minute details and that never ceased. He urged an audience that already performed systematic surveys of risks to observe the landscape yet more closely: “New circumstances are constantly occurring to increase or diminish the risk of fires, and all of the phenomena should be constantly and regularly observed.” According to Binney, underwriters should inspect the built environment’s most minute details and should “keep company with all the changes in the place, its extension, the heights and materials of its buildings, the merchandise contained in them, ... the nature and management of dangerous trades ... in fine, daily, and regular observations should be applied to everything that can be supposed to affect either the occurrence of fire or its intensity.” To a large degree, Binney’s recommendations vis-à-vis creating a program of systematic observation already were contained in basic fire insurance when he spoke in 1852, and Binney offered no concrete suggestions on the best methods through which underwriters could intensify their
surveillance. Even so, he performed the important task of connecting surveys of risk and programmatic observation to practices that were more actuarially sound.22

Although Binney had not made specific recommendations on how best to observe the landscape when he spoke in 1852, underwriters already had been experimenting with the information technology that would reshape their ability to bring the urban landscape under systematic surveillance—maps. As we have seen, prior to the 1850s, agents sometimes included drawings in insurance surveys for simple illustrative purposes. Later, many firms asked field representatives to return policy applications with surveys, which often included written physical descriptions and sometimes even hand-drawn maps outlining property boundaries. On occasion, agents even depicted structures immediately adjacent to a property and commented on them. By the 1840s, Aetna had begun to ask agents to draw maps that referred to physical details about construction on the back of policy forms. Even so, such diagrams served little analytical purpose; rather they offered visual reference about the position of a risk vis-à-vis its immediate surroundings. Thus, as underwriters refined their categories of analysis to better quantify fire danger, they also began to reimagine the spatial component of fire risk. By placing the problem of fire into spatial context, complete with construction details and other minutiae of the infrastructure, insurers represented potential hazards more comprehensively.23

By midcentury this kind of information appeared on a new type of map, produced by specialists, not field agents. Surveyors adopted the insurance industry’s understanding and interpretation of fire risk and graphically represented this risk in collaboration with fire underwriters. These maps were not value-free observations about the danger of fire; instead, they embodied insurer’s notions of safety, profit, and loss. Atlases reflected underwriters’ growing obsession with space and helped reshape fire insurance practice. Rather than chaotic accumulations of danger, cities appeared as an aggregation of many interrelated fire risks. The maps further sensitized underwriters to the classifications widely used throughout the industry. Insurers vividly saw the built landscape as color-coded individual hazards, and as districts of greater and lesser risk.

In the early 1850s, a few New York fire insurance companies began to compile information for a map of urban fire risk. The secretary of New York City’s Jefferson Insurance Company, George Hope, commissioned a map of the business district for company use in 1852. Shortly before this was completed, William Perris, an architect and civil engineer, approached the company about preparing a map of the entire city. Hope agreed to the proposal and established a committee, comprised of four underwriters, which assisted Perris in constructing the map’s format,
symbols, and evaluative criteria. By November 1852, Perris surveyed and published the map, which was sold to interested insurers in New York and elsewhere, including to INA in Philadelphia. The practice quickly spread to cities across the nation, and several mapmaking companies sprang up to conduct the new business. In 1857, Ernest Hexamer, who had worked with Perris in New York City, created a map of Philadelphia; in 1859, Western Bascome surveyed St. Louis; and in 1867 Daniel Sanborn represented Boston graphically.24

A complex set of social relationships structured the production and use of maps. Commissioned by or drawn in collaboration with underwriters, insurance surveys generally reflected the criteria with which underwriters set rates. Fire insurance maps identified a structure’s use—as a dwelling, manufacturing facility, store, or warehouse. Simultaneously, surveyors also depicted construction material. In his 1852 map of New York City, for instance, Perris represented the city in terms of the four classes of construction typically used by underwriters: brick, stone, mixed brick and stone, and frame. Further, over time, map makers employed an elaborate variety of symbols and colors that gave insurance maps the appearance of patched quilts, showing regions of greater and lesser hazard.25

Urban landscapes were not the only spaces being reconceived by surveyors and underwriters; industrial landscapes—whether they were isolated or part of an densely populated area—came under the scrutiny of the insurance industry. As with all underwriting practices, companies encouraged agents to include drawings of these sites as part of the survey. Many companies recommended that their agents hire a surveyor to draw such a map, at the expense of the firm seeking insurance. In fact, the Philadelphia Board of Fire Underwriters issued instructions in 1857 that listed drawing a map as one of the many requirements of good underwriting. Not surprisingly, Hexamer and other surveyors began to publish maps of industrial risks as a service to their clients. In 1866, Ernest Hexamer published a map of “special risks” in Philadelphia for the first time; the Whipple Insurance Protective Agency generated similar maps of St. Louis in 1872. At the same time, mutual insurance companies, formed by manufacturers, which had a difficult time obtaining insurance from stock insurers, produced maps that outlined the structural details and fire risks of the properties they insured. Typically, maps of special risks included detailed two-and three-dimensional drawings, as well as detailed verbal descriptions of the property and its fire hazards. Just as insurance maps demarcated “special hazards,” thereby drawing particular attention to them, by the 1870s surveyors provided the industry with another more specialized and detailed surveillance tool—atlasts comprised exclusively of special risks.26

Early maps differed widely for reasons other than subject matter and despite the
fact that mapping firms represented fire risk using insurance industry categories. For instance, Bascome’s map of St. Louis used much the same coloring patterns and map key as Perris’s survey of New York City. However, Hexamer, who had worked for Perris in New York, represented Philadelphia using a different color scheme and classification system. In part the variation in Hexamer’s maps may have reflected differences in how Philadelphia and New York insurers perceived the risk of fire. For instance, Hexamer’s map represented Philadelphia explicitly in the terms and categories of a standard schedule for evaluating property being developed by a consortium of companies in Philadelphia, the Philadelphia Board of Fire Underwriters. It divided “regular” risks such as stores and dwellings into four categories color-coded by both use and construction: “Brick or Stone Stores,” “Brick or Stone Dwellings,” “Brick or Stone Dwellings with Stores under,” “Frame Dwellings,” and “Frame Dwellings with Stores under.” These risks were represented using an array of broken, dashed, and whole lines alongside brilliant colors. In addition, Hexamer included a category of “specially hazardous” risks, which he classified according to the danger assessed to them by the Philadelphia Board of Fire Underwriters. For instance, “Bookbinders” and “Brass Founders” were both in the “second class” of specially hazardous risks, while “Bakers” and “Tobacco Manufacturers” were among the “first class.” Later versions published by Hexamer would drop the insurance industry’s technical nomenclature (“first class hazards”) in favor of a simpler descriptive language when describing construction methods (i.e., brick, stone, etc.).

Surveyors’ categories for evaluating fire risk expanded during the last half of the nineteenth century. Map keys grew from one page to two pages and demonstrated how underwriters increasingly engaged in detailed surveillance. Such representations became increasingly specific as underwriters’ categories for evaluating risk grew more abundant. Early maps listed the width, depth, and height of buildings as well as skylights, boilers, and roof construction. Later maps (those published after 1870) came to include information on street length and width, wall construction, fireproofing, breaks between buildings, shutters, thickness of walls, and other architectural details. Such simple descriptive language provided information that the insurance industry used to categorize risk, or subtly adjust rates. By the 1880s, most maps also diagrammed aspects of the fire protection infrastructure, such as fire plugs, water mains (and their size), and alarm boxes.

Occasionally surveyors experimented with novel ways of representing fire risk. In St. Louis, C. T. Aubin, for instance, expressed the increasingly varied structural character of the city by creating a map that expressed its three-dimensional reality. In 1874, when the St. Louis Board of Fire Underwriters commissioned a map
from Aubin, he produced a map similar to the industrial surveys that he completed for the board. The map contained all the information normally identified. However, Aubin’s map attempted to capture the increasing variation in building size and structure by using shading to create depth. Where other surveyors simply identified a building’s height and number of stories, Aubin represented it graphically. His map’s key included a discussion of the map’s format and symbols within the context of a three-dimensional representation of a city block. Next to each three-dimensional representation of a structure stood a two-dimensional guide to its portrayal on the map.29

The industry incorporated fire insurance surveys into everyday underwriting practice gradually, over twenty years. A communication tool between underwriters and agents located in distant cities, atlases helped representatives at a home office to evaluate premiums. They also encouraged the standardization of information-gathering procedures and risk evaluation. Lastly, as a record-keeping device, insurance maps helped underwriters to manage employees as well as their risk portfolios. By pulling out its map of St. Louis, a company could determine its exposure in a particular neighborhood or block and gain quick access to a record of all its policies, their size, and effective dates on a single form. Indeed, examining original fire insurance maps (as opposed to microfilmed copies) reveals that underwriters and surveyors used the large folios intensely, and on a daily basis.

Historical inquiry about the origins of these maps has been dulled by decades of using them for other purposes—for illustrations, occasional reference tools, or to get students interested in history. Using maps for these other purposes has obscured the context of their creation. Fire insurance maps were produced as a vital tool in the context of the development of the fire insurance industry and its battle to comprehend fire danger. Most obviously, insurance maps provided the basic information about structural features of the built environment that underwriters used to set rates. They identified how a structure was used, how it was constructed, and how it was related in space to nearby buildings. Moreover, mapmakers obliged clients’ demands for constant updates. Agencies continuously inspected and regularly resurveyed the built landscape, producing a constant stream of new information. As a result, maps changed frequently, evidenced by the pasteovers covering them. Insurers kept records of the pasteovers, frequently noting them on front and/or back covers or in the frontispiece of the volume. In a sense, the maps were so frequently updated that they stopped being mere representations; they literally embodied the dynamic urban environment.30

Both underwriters and agents used the diagrams of the spatial arrangement and material construction of various blocks and neighborhoods to manage their busi-
ness. By the 1870s, insurance manuals advised field representatives and officials to mark the policy numbers onto the maps, and many display penciled-in numbers consistent with the industry’s policy-numbering schemes. In addition to listing policy numbers, underwriters also wrote the dollar value of policies, as well as their effective dates, onto the maps. If a policy was not renewed, then underwriters typically erased the information, sometimes leaving the smudge of a number. Even as these atlases offered insurers a way of keeping track of their risks, they also provided a common connection between agents and insurance company officials—a point of reference for discussing risks and business activities. If field representatives and underwriters sometimes had different interests, insurance maps reinforced the industry’s shared routines. Insurance atlases, like other regular business tools, helped to forge the beginnings of a common community of fire insurers.

Insurance maps did more than help to transform administrative routines; they remade underwriters’ cognitive understandings of fire risk and space, as the writings of Aetna’s special agent suggests. In fact, examining A. A. Williams’s diaries offers insight into the how underwriters approached the spatial component of fire risk, how they “read” cities, and how they interpreted insurance maps. Cities became complex assemblages of risk; construction details, property uses, architectural features, etc., had new implications when viewed in relationship to other structures and in the context of the problem of fire. Safety and danger were not just numerical representations of isolated construction techniques but inhered in the very design of cities.

Between 1855 and 1857, when A. A. Williams resumed the company’s practice of visiting its agencies, he traveled from New England to Quebec inspecting Aetna’s risks and built landscape. Like his predecessor Joseph Morgan twenty years earlier, Williams visited the location of each of the risks underwritten by Aetna, and he commented on the risks taken and the rates charged by each local agency. For instance, at 803 Point-Leve in Quebec City, Williams noted that a policy worth $4,000 was in force. He further remarked that the “part of the risk on Dwelling & Paint Shop—very good—Office & Paint in basement. Storm basement, upper part frame; good new building not much exposure. I say 1 %. The outside risks from 1½ upwards.” Yet, Williams’s tour differed from Morgan’s in important ways. Whereas Morgan had provided only general commentary, Williams offered both a global assessment of the landscape and meticulously documented each of the company’s policies in a particular place, such as Quebec City. Second, when Williams passed through space, he evaluated city streets, block by block, and studied manufacturing facilities. Moreover, he connected them within a holistic perspective on the safety and danger of a particular city’s landscape. Williams read
urban space as if it were represented on a two-dimensional insurance map. Indeed, his descriptions of the built landscape could be mistaken for a graphic depiction of Quebec, much like those available in New York or Philadelphia.\textsuperscript{33}

Williams examined changing urban environments according to the invisible logic that organized early insurance atlases. As evidenced by his critical evaluation of Quebec’s streetscapes, he adopted the language and physical representations that were becoming standard on fire insurance atlases. His written physical descriptions of the use and construction of buildings varied little from the categories and evaluations encouraged by Aetna’s manuals: “Fabrique [sic] Street. 17 risks...$94,600...Building stone, part wood & part tin covered from 2, 3, & 4 stories high; occupied principally for first class stores; one or two old buildings in this street; avoid them. The risks have been generally fine. Open south upper part of the street; market and open ground in front—French Cathedral stands at the east on upper end of the street.” In other instances, Williams recorded the specific hazards that threatened manufacturing facilities. He especially included detailed spatial drawings, not to mention written descriptions, of industrial property. In his notebooks, Williams outlined structures, noted building sizes—both the number of stories and the physical dimension—and diagrammed the distance between structures. He often included drawings, descriptions, and conclusions about rates. These maps depicted the arrangement of the buildings associated with or nearby the factory, and identified building use and construction details. Though Williams’s drawings did not use the key or colored ink recommended by Aetna’s manuals, his maps’ physical characteristics came directly from the sample diagram that the company provided in the 1857 manual.\textsuperscript{34}

What is perhaps most striking about Williams’s diaries of his trip through New England and to Quebec was the degree to which he brought all the contingencies facing mid-nineteenth-century underwriters together. He did not just describe spatial arrangement and physical construction of risks; Williams included commentary about the company’s agents and agencies. Especially illuminating were his discussions of those agencies whose premiums were not high enough. In at least one case, in Wilmington, Delaware, Williams recommended closing the agency, and he “took possession of the books.” In another instance, besides describing the structures and the boundaries of the block, he expounded on whether the local agency should pursue further business at that location: “Arsenal Street: one risk in all, $1100, old dilapidated stone buildings, shingled with wood. No more wanted in this street, and the risk now pending may be discontinued unless the rate can be advanced. . . . Smith Street: One risk, $1000—do not renew at any rate and avoid the street by all means—old one story frames in this street entirely. How could you
write in this street?” In his discussion of Arsenal and Smith Streets Williams explicitly tied the growing sophistication of Aetna’s everyday business practices—including presumably the actuarial tables the company was developing—to the landscape. When Aetna incorporated insurance maps into its repertoire of technologies, it added further depth and intensity to its growing surveillance of its field representatives, its portfolio of risk, and society more broadly.35

Reading Williams’s diaries is virtually the same as reading a fire insurance map. Williams conceived the city as a collection of discrete, definable dangers, all interconnected. His goal was to distinguish between them, and to write policies on the safest risks. His reading of the physical landscape gives us a hint of how underwriters perused the colors, lines, and symbols of the atlases authored by Perris or Hexamer. From these atlases, underwriters could determine use, construction materials and details, and the spatial arrangement of a block or neighborhood—all the information needed to assess safety and danger, and to quantify a rate. Similarly, Williams’s written description takes his readers through the alleys, principal streets, and residential neighborhoods of cities alerting them to the arrangement of space, construction, and use of structures in each block and district. Of course reading his diary achieves an even greater effect when viewed in conjunction with any map of the area.36

With the advent and expansion of the insurance mapping business between 1850 and 1880, underwriters added another layer to their everyday practices and acquired another instrument of technology with which to understand the problem of fire. Like statistical record keeping, maps supported the further development and codification of classification systems. Moreover, they helped to embed the industry’s classification technologies into the minds of underwriters, thereby reshaping everyday practice. Maps also established a standard point of reference within disparate sectors of the industry. Perhaps most significantly, however, fire insurance atlases began to reenvision the built environment within a coherent intellectual framework—a framework that divided cities into categories of greater and lesser danger. Implicitly, such atlases became city plans that reordered American cities according to the problem of fire.

**Trade Associations**

As underwriters retooled their business practices, they formed new cooperative relationships that reflected the development of a common interest and shared practices within the industry. The formation of trade associations developed especially from the increasing standardization of everyday practices, and as a way of sharing
resources. Once again, Horace Binney had predicted the direction taken by the fire insurance industry when he recommended that firms work together in order to execute the comprehensive observations so important to developing statistical data on fire loss. Moreover, Binney claimed that industry unification would help to create a rigorous actuarial record and lower the costs of gathering information, all the while producing the benefit of more robust data. Even though most insurance trade associations ultimately did not facilitate the development of such grand actuarial tables, they attempted to use their leverage to improve business conditions and especially to improve industry surveillance—statistical and cartographical—of the landscape. Most associations remained local or regional prior to the Civil War, yet even these relatively limited cooperative arrangements often had startling results. Insurance companies met with many difficulties and few successes as they attempted to organize themselves in the decades surrounding the war, but their institutional alliances represented important first steps toward making the assessment of risk more rational and developing a broader common interest within the industry. Indeed, despite the limited power of early organizations, such associations laid the groundwork for the industry’s eventual success in implementing a common agenda later in the nineteenth century.37

Fire underwriting associations developed as early as New York’s Salamander Society in 1819, but no permanent industrial associations appeared until the 1850s. In 1846, following New York’s Broad Street Fire, the first National Congress of Fire Underwriters met to examine past experience, to set rates, and to develop measures to better regulate the industry. Like the Salamander Society, though, the National Congress proved ephemeral, and disappeared in 1850. It would not be until the National Board of Fire Underwriters formed after the Civil War that a national fire insurance trade association became permanent. In the intervening years, though, several permanent local associations were formed and intercompany cooperation increased over a spate of issues, including setting rates, mapping cities, and collaborating to implement changes in fire extinction.38

As they formed during the 1850s, local fire insurance associations emphasized categorizing risks, assessing them quantitatively, and mapping them, which underscored the industry’s growing awareness that fire danger could not be managed without a thorough accounting of fire danger in space and time. Such associations promised to create a common, collective experience that would make business activities, especially the process of setting rates, more certain. In the 1850s, at least, the promise of increased profits through such cooperative methods bolstered support for the new collectives. The first permanent fire insurance trade associations were established between 1852 and 1854 when underwriters in Philadelphia,
Louisville, and Cincinnati met to establish common rates. By fixing rates, insurers in each city hoped to circumscribe market competition. By keeping rates artificially high (i.e., not allowing the market to set the price of insurance), companies also expected to guarantee reliable profits and to protect against insolvency, which frequently accompanied large fires.\textsuperscript{39}

Local underwriting associations attempted to forge a common interest among insurers by sharing the information that had become so central to their daily business transactions. A commitment to tabulating a record of their members’ combined experience and to using maps to represent urban fire risk became the cornerstones of such organizations. Just days after Horace Binney challenged conventional wisdom at the Philadelphia Contributionship’s anniversary, several Philadelphia underwriters met and formed the Philadelphia Board of Fire Underwriters. The PBFU consisted of one representative from each company, which included all but a few of the city’s major firms. The association organized itself into four committees, which directly supported the industry’s agenda: a committee on statistics, a committee on classifying risks and establishing uniform premiums, a committee on surveyors, inspectors, and appraisers, and a committee to create a “fire police.”\textsuperscript{40}

Toward the goal of ceasing competition on rates, the Philadelphia Board of Fire Underwriters sought to unify the city’s different companies under a common system of rating fire risks. In order to develop a common program of rates, the PBFU first ascertained the prices charged by different companies and then reconciled them into a single set of categories, with attached premiums. Within months of its founding, the PBFU established a set of categories compiled as “Classes of Hazards and Rates of Premium for Insurance against Loss or Damage by Fire in the City and County of Philadelphia.” Through combining the experiences of all its members, the board hoped to accumulate a more objective record of fire risk in the city than was available to its members individually. In addition, it would provide a more complete analytical profile of fire risk and supervise surveillance of the city. Toward these ends, the PBFU provided a comprehensive list of categories and classes of hazard. In addition, the organization kept tabs on hundreds of the city’s so-called special risks—its manufacturing facilities and warehouses. The ninth article of the organization’s constitution codified this system by demanding that member enterprises police one another. When members encountered other firms violating the board’s rating agreement, the organization obligated them to report that company. The board would then discipline the noncompliant firm.\textsuperscript{41}

Although this differed in content from Aetna’s mode of tabulating losses, in practice it accomplished a similar result. In theory at least, the PBFU’s rates rep-
resented the collective record of fire loss of its member companies, especially if those firms had begun to link their rate-setting strategies to an assessment of their administrative costs, as well as quantitative records of loss. Although certainly distorted, such data nonetheless promised to offer PBFU members an invaluable wealth of knowledge about fire risk, and their competitors. For instance, by perusing this data, firms could acquire a better sense of how their own loss histories on particular types of properties compared to those of other companies. Plus, an organization could determine how its administrative costs differed from other firms by comparing rates in relatively stable loss categories, such as dwellings. Most importantly, the PBFU’s rates represented—at least roughly—the shared experience of many different companies, rather than the perhaps atypical experience or arbitrary pricing strategies of a single firm.

Within a year of its formation, the PBFU intensified its surveillance of Philadelphia. In 1855, the trade association made the secretary of the board its surveyor and statistician. The secretary was charged with collecting statistics on fires, which included information on property loss, insurance loss, insurance paid, causes, character of the buildings involved, and how the building was occupied. He classified, surveyed, and mapped various buildings at his own discretion and at the request of individual companies; all of these surveys were to be recorded along with his notes in a ledger available to all association members. The PBFU also appears to have established a relationship with Charles Hexamer, whose firm began mapping fire risk in Philadelphia during the 1870s. Through regular inspections, the PBFU revised rates and reissued guidelines that demonstrated its sensitivity to the city’s changing built environment. In addition, the board’s surveillance of the city extended to members’ activities. Published rates, even if not always followed, subtly encouraged companies to follow local industry practice, and the organization also established common rules for issuing policies.

Over the next decade, the membership of the PBFU waxed and waned—in direct relation to the severity of fires within the city. Even though its ability to enforce common rates often failed, the PBFU provided an invaluable service to the city’s underwriters. Through the 1850s, and into the 1860s, the board provided companies with a steady stream of information regarding the incidence of fire. In 1856, the PBFU led city underwriters to sponsor the fire-detective police—a forerunner of the modern fire marshal—in order to curb arson. Led by Alexander Blackburn, the fire detective police compiled lists of the causes and costs of fires similar to those statistics kept by the fire department and the PBFU. In the next year, at the behest of the board, Charles Hexamer drew an insurance map of Philadelphia in which he adopted the PBFU’s categories of analysis. As the PBFU
became a conduit of information, it helped Philadelphia’s insurance companies both to manage their business more effectively and to gain a greater understanding of how to evaluate the dangers posed by fire. Eventually, following the Civil War, local insurance organizations, like the PBFU, would become the model for regional and national underwriting associations as well as the glue that bound the fire insurance community together.\textsuperscript{44}

**Morality, Technology, and the Organization of Firefighting**

When Horace Binney spoke to the Philadelphia Contributionship he did not criticize firefighters, but he suggested that insurers question every facet of fire protection, including the work of those actually fighting the blazes. Binney’s recommendation that insurers keep up-to-date regarding the “character of firemen and their apparatus” suggests, too, his awareness of the brewing controversy over the use of steam technology in firefighting and questions about volunteers’ ability to keep the peace. If Binney did not offer a direct critique of firefighting, his long discourse on how to change insurance practice provided an alternative vision of fire protection. If both firefighters and underwriters were specialized work communities staffed by male risk takers, the similarities ended there. In fact, the new work routines of underwriters differed dramatically from the physical labor of firefighters. As insurers quantified company loss histories, mapped space, and standardized bureaucratic routines, they objectified the danger of fire as an economic abstraction. No longer a purely physical danger, the problem of fire could also be managed through organizational procedures and information technologies. Moreover, the insurance industry advocated an approach that held distinctively middle-class notions of propriety, which did not mesh with the complex and contradictory culture of volunteer firemen. In the end, however, perhaps the point at which underwriters’ approach to fire danger most differed from firefighters was where it located control over fire protection. The fire insurance industry articulated a vision of safety that prioritized economic and contractual communities over face-to-face social relationships based in geographically or socially determined communities.\textsuperscript{45}

Quite suddenly, insurers and property owners who had once supported volunteer firefighters became their most vocal critics during the 1850s. They began to argue that fire extinction was a potential cost liability and demanded that fire protection be organized in a more economically rational fashion, akin to the organization of factories. Reformers agitated politically for change by a creating a powerful economic coalition of property owners that included merchants, manufacturers, and insurers. Of course, discontent with volunteer firefighting had been
percolating since the 1840s, when underwriters, property owners, and even some firemen had begun to express reservations about the organization of firefighting labor. Although such dissatisfaction had been dispersed across many cities, it presaged later more focused efforts at reform. Led by the fire insurance industry, lingering concerns about volunteer firefighting exploded into full-blown opposition, and fire underwriters articulated a forceful case for reform that contributed to a shift in the provision of fire protection.46

Philadelphia’s underwriting community mounted a campaign to reorganize the city’s firefighting that would become a model for reformers nationwide. Insurers helped to convene and to lead a committee appointed by “a very large meeting of the citizens of Philadelphia favorable to the introduction of a Paid Fire Department.” This group, which referred to itself variously as the “committee of twenty-five” or “committee of citizens” (hereafter referred to as the citizens’ committee), orchestrated a methodical campaign that “urged the necessity of abandonment of the present voluntary system.” The secretive gathering included a broad spectrum of property owners and the city’s economic elite. Interestingly, the first meeting of the cloistered committee coincided with Horace Binney’s speech and the formation of the Philadelphia Board of Fire Underwriters. Perhaps more important, this group crafted a critique of volunteer fire companies that united three disparate and seeming discontinuous strands of thinking—cost-benefit analyses, scientific objectivity, and moral reform. The committee’s efforts spawned or influenced debates in other cities even as it led to the prototypical showdown between Philadelphia’s business community and its firemen.47

The citizens’ committee argued that the system of volunteer firefighting jeopardized the city’s future and that fire protection should be reorganized. Generally, it noted that firefighting should be organized along the lines of industrial society more broadly, in which each person performed a particular task. As the committee declared, “The business of protecting the community from loss by fire should as properly be a special business as that of the police or any other occupation.” Besides positing a general position about social organization, the coalition also argued that the volunteer fire department increased the costs associated with living and doing business in Philadelphia and created a climate inhospitable to economic development. In this connection it cited “frequent and disastrous fires” and “the disorder and violence manifested by a portion of the firemen.” Such problems, the group complained, dissuaded “strangers from making their home and spending their income among us.” If disorder discouraged entrepreneurial investment, so too did the potentially high cost of doing business that resulted from inadequate fire protection. The committee argued that because too much property was de-
stroyed, insurance premiums were raised, and that, because of the police and courts necessary to control riots among firemen, taxes were increased to support municipal government.⁴⁸

The committee produced a remarkable amount of evidence to support its case, most of which was generated by Philadelphia underwriters and commercial interests. It argued that the financial and moral benefit of reorganization far outweighed any costs associated with establishing a municipally controlled, and paid, fire department. The increased expenses of outfitting and maintaining such a department could not compare to the large financial outlays that Philadelphia residents paid in high insurance rates. Impugning the performance of volunteer firefighters, the committee complained that local insurance firms expended an extraordinary sum to cover fire losses at industrial locations; “so much so,” the committee reported, “that even the high rates of premium charged for this description of risk has fallen far short of repaying it. One office alone, we are credibly informed, has paid within that time [the last two years], the immense sum of three hundred and fifty thousand dollars!”⁴⁹

The committee also generated detailed cost-benefit analyses to illustrate the advantages of reorganization. Both Philadelphia’s board of trade and its fire underwriters produced a cost-benefit analysis during the early 1850s. The board of trade’s analysis revealed that insurance rates more than doubled from 1832 to 1852. This report contrasted the average rate of 1852 premiums, which was about $0.80 (per $100 of insurance, depending on the type of risk), with average rates twenty years earlier, which it calculated at $0.225. Next, it estimated (conservatively, it said) that about one million dollars in property was insured in Philadelphia. According to this calculation, the increase in premiums between 1832 and 1852 cost local industry $575,000. The representatives of the board of trade further argued that this “tax” had been irretrievably lost. Moreover, it had “not been productive of the slightest good, but on the contrary . . . the whole amount has been irretrievably lost, and . . . the loss is the fruit of a system deplorably pernicious to all the other interests of the community.” A pamphlet issued by the insurance industry provided yet more dire quantitative evidence to bolster the case of the citizens’ committee. It stated that premiums tripled in a single decade; in one instance, rates paid by a bookseller were said to have increased from $0.30 in 1844 to $1.75 in 1852. Thus the reports generated by Philadelphia’s commercial interests left little room for doubt—the benefits from reorganization outweighed the costs associated with reform.⁵⁰

The coalition of reformers and its backers in Philadelphia’s financial community did not end their attack with the cost-benefit analyses. No indeed. They trans-
formed their economic understanding of the incipient industrial order into a moralistic commentary on volunteer firemen, in rhetoric that reflected the values that the nascent middle class held about manliness, family, and work. In a section of its report titled “The character of fire companies, and the causes of disorders,” the committee remembered the noble, heroic, and public-spirited duty of firemen past and commended the sentiments of “a large proportion of Philadelphia firemen.” However, in the context of the changing demographic character of Philadelphia’s volunteer fire department, the committee’s assessment seems less a sincere recollection than an expression of middle-class fears of the growing power of immigrants and workers. Perhaps most importantly, the committee especially mourned the loss of face-to-face social relationships: “We have become so numerous that it is impossible for us to have knowledge of each other that may be, and is had in small towns.” The only remedies to the social problems and transformations wrought by industrialization and urbanization lay in the introduction of new social values. The values of industry and economy, the committee argued, should replace traditional social arrangements.51

Reformers were especially critical of the manliness demonstrated by firefighters. Though it did not doubt firefighters’ seriousness of purpose, the committee complained about how they expressed their zeal. In addition, it argued that the volunteer fire department had passed from the hands of “men . . . into those of minors—half grown boys” who delighted in ruffianism, fighting, and other extralegal behaviors. Although the report did not document instances in which boys performed firefighting work, it did not matter, because to a large degree the point could be had in the metaphor it provided. Once men had protected the city, but firemen were no longer men. They were boys incapable of protecting the public safety in a sober, effective manner. This critique also offered an additional attack on the boisterous culture of firemen—whom many in the middle class perceived as working-class thugs. Firemen, the committee insinuated, were not men enough to govern their passions; if they could not contain themselves effectively, how could they control nature? The committee drew upon values expressed by the middle class, which increasingly, as the Victorian age progressed, believed that men should govern their emotion and self-expression.52

As debate about the volunteer fire department grew more heated, two artists sympathetic to the reformers’ message graphically depicted the shortcomings of volunteer firemen. In 1858, Henry Harrison and William Weightman published a series of four satirical prints, which they titled The Fireman. In these scenes, firemen fight fires wearing full parade regalia and display foppish manners. At a time when the middle class eschewed extravagance, such pomp and costume seemed in-
decorous and even ridiculous. In addition, the prints displayed evidence that firefighters were unable to govern themselves with decorum and modesty—under-scoring their inability to control the powerful forces of nature. The satire acquired further power by depicting firefighters as absolutely incompetent. Whether knocking people over or misdirecting hose streams, the firemen bungled basic tasks, and wrought havoc. One print contained a more sinister subtext; What Boys May Expect When They Get in Firemen’s Way shows a child endangered by a fireman’s buffoonery. The city’s merchants and underwriters expressed this same sentiment when they wrote that “just as the influence of the young is injurious to the system, so is the influence of the system injurious to them.”

Middle-class critiques of firefighting gained their widest distribution in a novel by H. C. Watson, Jerry Pratt’s Progress; or Adventures in the Hose House. Originally published in the North American and United States Gazette during 1853 and 1854, Watson’s story argues that creating a paid department was a moral necessity. Jerry Pratt, an unskilled farm boy from Bucks County, journeys to Philadelphia to find work and a future. There he begins a promising life as an industrious apprentice in a tailor’s shop, only to be corrupted by the glamour of shiny firefighting equipment, the dandyish swagger of his newfound friends—the “b’hoys”—and the “rowdyism and coarse fun of the engine and hose house.” Impressionable and young, Jerry loses his innocence; he begins to smoke, to drink, and to fight. Even the beautiful vision of pure womanhood, Becky, cannot alter the terrible path that leads to his ruin and death. The argument is that, not only were women unable to domesticate the men and boys who served in fire companies, but also engine houses removed those men from the sphere of women’s influence—the home. The rough-and-tumble engine houses turned good men into “drunkards, rioters, incendiaries and even murderers.” It is helpful to note that Watson made these arguments at a time when Harper’s reported that “no civilized man is so helpless and dependent in certain respects as an American gentleman, and the reason is obvious: our wives do our thinking.”

For the most part, Watson’s moral critique did not expressly identify volunteer firefighters as the problem. Although the story is set against the backdrop of a “hose house,” it was not actually firefighters who corrupted young Jerry Pratt. Alcohol, tobacco, a dandyish obsession with costume, and a youth gang ruined him. It was these aspects of the story—often associated with working-class community life and appearing in nearly every critique issued by reformers—that Watson emphasized. Thus the relative absence of volunteer firemen (except for their apparatus) suggests that the morality novelist was hesitant to pin Pratt’s debasement on volunteers specifically. Perhaps he was among those who feared alienating the
Making Fire Risk Objective

thousands of volunteers charged with protecting their property (which perhaps also helps to explain the secretive nature of the committee of citizens). More likely, though, the dearth of firefighters suggests reformers’ broader political and social aims. Like other middle-class critics, who criticized firemen’s style, not their efficiency, reformers demonstrated little interest in the particulars of fire protection and more in promoting their own agenda. Claims about disorder provided a rhetorical means to assert the values of industrial economy over a society in which diverse local communities held considerable social, cultural, and political power.55

An echo of the political tracts distributed by the city’s business interests, Watson’s novel linked his “true” stories to economic arguments supporting the creation of a paid fire department. In fact, in the preface, Watson restated reformers’ cost-benefit equation, noting that municipal control of firefighting would be economically beneficial. Yet, in the novel’s final sequence, as Watson once again presented lurid images to his scandalized readers, the lines between morality tale and political tract blur. Watson laid responsibility at the feet of the city’s citizens, when he beseeched them to make the changes he advocated: “Fathers and mothers, if this system is continued, you are responsible, for with you rests the power of its annihilation. What is your reply?” With rhetorical flair, Watson presented his readers with the political problem of the day—should Philadelphia support the creation of a municipally controlled fire department? He argued that by supporting order, discipline, and regular behavior, Philadelphia could avert the moral disaster that would come from prurient impulses of physical, working-class culture. However, financial good sense and middle-class morality could protect the city from fiery disaster.56

According to the reform coalition, a solution to the spiraling cycle of immorality, growing fire danger, and fiscal decay could be had by adopting the specialization of function characteristic of industrial labor. The committee reported that the “business of protecting the community from loss by fire should as properly be a special business as that of the police, or any other occupation; as it would be more economical to the community.” The pamphlet also captured the individualistic ethos so central to the capitalist economic order, suggesting that people should not expect to be shielded by broad communal efforts. Further, critics argued that there was a “special propriety, and obvious economy in every man adhering to his own.” As this statement underscored the importance of workplace specialization, it may have possessed also a subtle encouragement to individuals to protect themselves by purchasing fire insurance. Ultimately, however, the citizens’ committee focused on transforming the system of fire protection, making three interrelated suggestions: reorganizing the fire department, disciplining firefighters, and adopting new
methods and equipment for putting out fires. Almost simultaneously, the municipal government considered the possible role that two new technologies—telegraphic alarm systems and steam fire engines—might play in fire protection, debates that included at least some input from firefighters.57

Adopting industrial strategies, the committee argued, would correct the inefficiency that they found everywhere in the city’s fire department. It questioned the costs associated with firemen dragging their engines a long distance, workers—mechanics and clerks alike—missing work to fight fires, and the large contributions made by municipal governments and private interests (estimated in 1852 to have been more than $18,000 and $36,000 respectively). As if systematic inefficiency of the organization and financing of labor were not enough, the committee complained that large crowds and competing fire companies further impeded efficient extinction of fires. It reported, “There is a want of harmony and co-operation; a want of that order, discipline, and subordination, which ought to characterize their efforts, to render them effective, and which wastes the energies that ought to be directed by the skill and authority of a general.” The work of fire extinction, according to the committee, had been neither performed nor organized in a rational fashion. Discipline and order could be achieved only by creating a special occupation.58

For guidance in disciplining firefighters, reformers looked beyond Philadelphia. In Paris, London, Boston, and Cincinnati they found what they expected—evidence that firefighting could be performed as wage labor under tight municipal control. Referring to those places, the committee argued that authority over firefighting should be lodged in a board of control, which would administer the fire department for the entire Philadelphia region. Elected by the councils of the city’s regions, the board would select a chief engineer to operate the fire department on a daily basis. In addition, the group recommended that the board be given the authority to select equipment, locate engines, and generally exercise “direction and supervision” over the entire department. The consolidated city (consolidated around the needs of fire protection according to this plan) would be divided into several fire districts. An assistant engineer, reporting to the department’s chief engineer, would be appointed to command fire extinction efforts in each section of the city. Candidates for the position would be nominated by the fire companies of the city’s districts but selected by the board of control. By centralizing authority of this newly rationalized urban space into a single body, the committee challenged the autonomy of fire companies, and by extension their local communities.59

The committee feared that its program would be abandoned if the municipality consolidated into a single unit, as was being considered in Philadelphia about
this time. The committee made it clear that the changes it recommended should happen in addition to municipal consolidation, but it advised that consolidation alone would not be sufficient to create the change of climate needed in order to make the fire department acceptably efficient. Although the committee acknowledged that unitary municipal control over firefighting was good, merchants and underwriters wanted nothing less than to rationalize all aspects of fire extinction. The committee reiterated its goal of restructuring the department into a single organized, hierarchical unit that stretched across Philadelphia.60

Although paying firefighters a wage for carefully prescribed work was central to the new departmental order, this was not the only recommendation made by reformers. They also argued that a formal and hierarchical bureaucratic structure between officers and firemen would lead to more orderly and superior firefighting. Each man would have an assigned duty and work in harmony with the other firemen at the scene—whether from his engine company or not. Competition between companies would be supplanted by a more universal esprit de corps. In addition, firefighting efforts should be commanded more efficiently. A corps of officers would direct well-trained men about where to use axes or apply water. As a result, firemen would no longer be subject to the disorder of the crowd, nor would those immoral elements among them be included in the new department. Strikingly, the committee hatched a plan for organizing firefighting that recalled the sentiments of the founding members of the Philadelphia Hose Company five decades earlier.61

The committee’s program also included provisions for new equipment that promised to reorganize firefighters’ work. In addition to recommending that fire departments substitute “horse power for ‘human labor,’” the group especially emphasized using steam technology to extinguish fires. For a number of years, underwriters had supported using steam technology, and in the 1850s steam engines became a critical element in insurers’ arguments for reform. Following the recommendations of insurers, the committee argued that steam-powered apparatus offered three primary improvements: steam engines pumped a more powerful stream of water than men could; they reduced the amount of labor required to fight fires; and they could extinguish fires using steam itself. In making these claims, the reform coalition looked to Cincinnati’s use of steam technology as a model for Philadelphia. Using articles from two Philadelphia newspapers, the committee discussed demonstrations of steam fire engines in Cincinnati. It argued that those exhibitions had succeeded remarkably and had led to more efficient organization of firefighting. Each argument also reinforced the moral dimension of the committee’s program and offered a stinging critique of the masculinity of Philadelphia’s
firemen. According to one report, during a contest with firemen, the steam fire engine threw “a vast body in a solid stream of two hundred and twenty-four feet.” By contrast, firemen, using a hand-pumped engine, “bore down and up in quick succession, and strained every nerve, but gave up exhausted.”

Even as reformers criticized firefighters’ lack of manliness, they argued that firefighters were considered too vital. For instance, the *Public Ledger* reported that steam alone could be used to extinguish fires, and could replace water. Using a section of rubber hose attached to the engine’s boiler, steam was applied to the fire—“a vast volume of steam, sufficient to saturate air and penetrate into every crevice where fire could possibly lodge, completely extinguishing fire.” Underwriters argued that the application of this technology would reduce water damage, which was an issue of particular importance. The first pamphlet published by the committee to reform the fire department had included a two-page diatribe on excessive water damage at fires. The committee related an incident in which firemen had caused thousands of dollars of unnecessary damage when they directed their hoses into the upper floors of a building with a fire in its basement. The group further related several examples of wasteful water use on property “not really in danger.” It concluded that firemen behaved according to their own “discretion” and “from a boyish love of mischief.” Once again, the committee had emphasized firefighters’ failings as men—only this time their childish lack of restraint produced economic loss.

Using steam fire engines also would reduce the amount of labor needed to put out fires. This promised to make firefighting more efficient and economical because it reduced the city’s dependence on undisciplined firefighters. The committee expected to reduce the number of engines and hose apparatus needed by three-fourths or two-thirds, and operating a steam fire engine required a much smaller work unit. To wit, hand-pumped fire engines required as many as thirty or forty men—sometimes more—to keep a steady stream of water flowing, not including the dozen or more additional men required to draw the engine, to guard a hose connection, to tend the hose, or to play water on the fire. By most accounts, operating steam engines required a much smaller work group. One or two men operated the machine, while between six and eight others handled and directed the hoses. Additionally, because the apparatus was heavy and ungainly, most observers assumed that steam apparatus would be drawn by horses not large groups of public-spirited citizens. And, finally, promoters of the new apparatus expected that steam engines would be used only by a well-disciplined, paid workforce, thus eliminating competition and removing the need for firemen to guard hose connections. The *Public Ledger,* for example, reported that work crews could be reduced to a half
dozen men; according to its calculations fewer than four hundred men would be required to operate the department’s sixty engines, as compared to the six or eight thousand it estimated served as volunteer firemen.\textsuperscript{64}

The committee, looking to London as an example, especially recommended that the new fire department use horses to draw its engines. They argued that this would not only reduce the large number of men needed to pull apparatus but also minimize the labor expended “running long distances, to drag the engine,” thereby insuring that the firemen were fresh and energetic when they arrived at the scene. Again reinforcing the interrelationship between the moral and economic dimensions, the committee noted that firemen’s contests and races to fires were a source of great pride, competition, and rivalry. Rather than seeing firemen’s races to fires as beneficial—i.e., promoting fast extinction—the committee emphasized that such vigorous displays of masculine prowess prevented “efficiency.” By eliminating sources of competition and conflict between companies the committee sought to regularize the behavior of the men who fought fires. Indeed, disciplining the expressive behavior of firemen was a crucial part of the committee’s program for reform.\textsuperscript{65}

Adopting steam fire engines drawn by horses, then, accomplished several of the major goals of the committee seeking to reform the fire department. Primary among them, it promised to reduce the number of firemen and placed them within a hierarchical organizational and management structure. At the same time, the cut-back in the number of firemen also accomplished a political goal of those affiliated with the committee (though it was not central to their program of reforming the fire department). In theory, reducing the number of firemen minimized their political impact as a voting group. Although it is not clear whether firemen regularly exercised great influence on elections, at times they had mobilized themselves as a voting bloc. There is evidence that reformers and elite Philadelphians feared, at least tacitly, the united political interests of firemen.\textsuperscript{66}

Additionally, reformers sought to circumscribe neighborhood autonomy and limit the cultural authority that those communities exercised over their own physical spaces. The committee’s plan to reorder the city’s fire defenses depended upon two related elements: dispersing engine houses throughout the city and joining them together into a systematic network of alarm wires, which would provide more thorough and coherent information about a fire’s location and improve the response time. A major, though implicit complaint of the reform committee involved the perceived concentration of the volunteer fire department in space. It argued that, like London and Paris, Philadelphia should have “stations in different parts of the city.” Related to the spatial dispersal of the department was a standard sys-
tem of signaling fire alarms. The group suggested that by dividing the city into different sections, responses to alarms would be more efficient and direct. And, just as horses would reduce company rivalry, so too would a regularized alarm system and routing to fires.  

As critics demanded radical change, the city council and firefighters embraced incremental but significant reforms. A new fire alarm system represented just such an innovation, as well as firefighters’ and elected officials’ continuing efforts toward making the system of fire protection increasingly rational and disciplined. The common council adopted the fire alarm telegraph after a relatively quick review of available options in Boston and New York. After visiting both cities, an appointed committee recommended a modified version of Boston’s system of alarm telegraphy. To facilitate the telegraph’s use, it urged dividing Philadelphia into seven districts in conjunction with the ongoing reorganization of the fire department. Signal boxes, strategically and regularly located in each district, would be connected to a central alarm station. Once cranked, the box would transmit a signal to the central station, which, in turn, would inform a district’s fire companies with another current of electricity. Through the telegraph, the department could alert firemen to the signal box where the alarm originated, thus helping them find the fire quickly. The committee appointed by the Common Council proposed that signal boxes be located within “two hundred fifty yards of every house in the city.” Recommending the immediate placement of 150 alarm boxes in the city’s seven districts, it provided a map to accompany the report. Signaling alarms by telegraph promised greater efficiency in firefighting by shortening response times and making those intervals more uniform. For reformers, it also promised to remove “moral hazards,” such as false alarms. Mostly, though, the telegraph literally and figuratively bound firefighters and the landscape together into a single system. Firemen no longer worked in communities defined by them, but in neighborhoods organized by the city. As the city’s fire protection grew increasingly bureaucratic and rational, only one issue remained for reformers: the division of firefighting labor itself.

By 1855, although the pace of change frustrated reformers, Philadelphia’s system of fire protection was nonetheless being recast. Philadelphia was subdivided into seven fire districts. In addition, the municipal government passed an ordinance in 1855 that reorganized the volunteer fire companies under a single chief engineer and seven assistant engineers. Each company was given a $400 annual appropriation, company membership was limited, and each was required to elect a director, who reported to the department’s new bureaucracy. Although firefighters elected the chief engineer, they came under the city’s direct administrative su-
pervision for the first time. And, by 1859, Philadelphia’s councils once again explored the possibility of establishing a paid fire department. Its committee corresponded with departments in other cities, consulted with the Philadelphia Fire Department’s chief engineer, and reissued the economic cost-benefit analyses of the city’s underwriting community. Many of the report’s criticisms and conclusions mirrored those made five years earlier by the citizens’ committee. Despite the changes, however, underwriters and other reformers remained dissatisfied; they continued to push for technological and administrative reform.

After years of supporting volunteer firefighters financially and morally—even manning engines with them—fire underwriters abruptly had withdrawn their support. If the repudiation of the division of firefighting labor occurred for basic economic reasons, it contained a moral component as well. Fire department reform developed out of the daily experiences of businessmen seeking to profit by selling safety. As underwriters began to apply actuarial principles, they developed a new perspective on the problem of fire. The insurance industry connected fire department reform to broader programs of economic change and ideals about the importance of rational behavior—expressed in terms of management strategies, manliness, and business procedures. The insurance industry had reorganized its practices around quantitative reasoning and intensive information gathering, and it allied with mercantile interests to demand new institutional arrangements. Designed to preserve the integrity of the built environment and protect capital, these new arrangements also affected cities more broadly. Fire insurance maps and the fire alarm telegraph represented the spatial dimension of this change. Disparate geographic communities were literally and figuratively joined into a single urban network. In addition, through its agenda of moral reform Philadelphia’s insurance community sought to implicate the city’s firemen, and by extension all citizens, in their categorizations, calculations, and geographic representations. Together with other reformers, underwriters articulated an alternative vision of social organization in which economic rationality characterized community, masculinity, and social relationships.

Conclusion: A New Vision of Fire Risk

In the 1850s fire underwriters took their first tentative steps toward making the insurance business more rational when they and their representatives gathered information more intensively and filtered it through the lens of quantitative reasoning. If sound actuarial practice imbued everyday practices with new significance, insurers also implemented more invasive modes of surveying property and gath-
ering information. By the 1870s, underwriters and their agents still visited clients seeking insurance, and they still inspected property. However, few insurance agents produced handwritten descriptive diagrams as they might have in the 1840s. Instead, specialized mapping agencies, such as Sanborn, precisely mapped cityscapes and factories. These diagrams complemented the extensive classification systems that firms now connected to statistical data. As insurers read these maps, statistics, and categories of risk, they revised their understanding of fire risk. Maps and categories expanded in detail and coverage and urban landscapes became colored by the dynamic interplay of danger and safety. At the same time, maps, categories, and statistics represented quantitative portraits of company loss histories. The problem of fire was becoming an objective, financial risk divorced from the material reality of urban life.

As insurance capitalists used information technologies to reorganize daily practices, they reconfigured the relationship between cities, public safety, and manhood. Insurers reached beyond their boardrooms and offered an alternative vision of environmental and community order in which technology, bureaucratic social relationships, and economic exchange became the basis for fire protection. Fire insurance maps categorized the city according to classifications devised, in part, from observable statistical experience. By objectifying the problem of fire in terms of statistical categories, underwriters created order where seemingly none had previously existed. In the same manner, the urban fire alarm telegraph network and fire districts re-created the city as a single, rationally organized unit. Volunteer firefighters—exuberant heroes within their local communities—became obstacles to this vision of a well-ordered society in which functional specialization dictated economic and social relationships. Underwriters especially sought to reform the division of firefighting labor. Like industrialists, fire insurers argued that individualism and function specialization were the best way to organize society, including public services like firefighting. If underwriters’ emphasis on making firefighting rational and efficient ran contrary to volunteers’ rhetoric, it nonetheless matched the trend already under way among volunteer firefighters toward the same end. In fact, the vision of safety that underwriters developed—in which risk was rationalized, quantified, and objectified—mirrored the broader cultural shifts of the industrializing nation. The informal bonds between individuals and society were replaced with economic and contractual obligations—represented by wages or insurance policies.70

Ironically, although insurers sought to circumscribe the role of urban neighborhoods in fire safety, the responsibility for the problem of fire remained a community endeavor, although its nature was changing. Insurers established new types
of connections between people, organized around economic risk rather than based on particular geographic locales or social categories. The industry distributed the risk of fire beyond local neighborhoods, individual cities, or sectors of the economy throughout the entirety of American society. To a degree, the purchase of insurance policies—a commodity bought and sold in the marketplace—repudiated a vision of environmental order in which everyone in society, if not the polity, shared equally in the danger of fire. Even so, individuals and businesses that purchased insurance did not reject the idea that environmental risk should be shared. Rather, they supported insurers’ methods for organizing and managing the problem of fire by spreading responsibility among others who had purchased safety via insurance contracts. Certainly, the boundaries of this financial community were circumscribed by the relatively limited scope of the industry, which underwrote risks primarily for businesses and well-healed property owners. In fact, the purchase of insurance policies and safety may well have been one of the many consumer choices through which the middle class began to define itself in the 1850s. More significantly, as middle-class Americans forged communities of risk defined by corporations, they contributed to the narrowing of public responsibility for safety.