

A Lifelike Energy 1838–1865

As a great building and industrial boom rose to its peak from 1848 to 1852, Baltimore journalists burred over each new and beautiful piece of Baltimore mechanism. The Vulcan Works of Murray & Hazelhurst built an engine for the new steamship *Republic*. John Rodgers exported a handsome fire engine. Lapsley devised a valve for extinguishing fire by steam, and Collier, Shaney built gas meters for the White House and Capitol. Most magnificent were the trial trips of the new locomotives. Two hundred were built in Baltimore in those five years, and each was an event. With suitable talent in their design and skill in their manipulation, they represented power, speed, and control. The *Lion*, a twenty-one-ton coal burner, "a really noble specimen of American mechanism" built under the direction of Thatcher Perkins for the B&O, could be "handled with the ease of the valves of a trumpet."¹ Energy involved risk and daring. The boiler explosion on the trial trip of the *Medora*, a steamboat built by Watchman and Bratt, killed twenty-five people, including "an extraordinary aggregation of mechanical talent of South Baltimore."

Baltimoreans celebrated the victories of the Mexican War with fireworks. German residents hailed the revolution of 1848 with torchlight parades. They also enjoyed the fireworks of the glass blowers, the copper smelters and iron-rolling mills "hammering, blowing, and beating away with a life-like energy."² At the Vulcan works, the pouring of nine tons of molten iron "emitted the most brilliant corruscations, variegated stars, and figures of dazzling brightness."³ Thomas Lovegrove patented a process for casting iron pipe through centrifugal force: "suddenly, but noiselessly, with a discharge of flame, the metal has taken its place at the surface of the mould. . . . The time occupied from the tapping of the furnace to the lifting the perfect pipe from the mould, was precisely two minutes."⁴

Radical transformations of the city as a living space took place with all the suddenness and intensity that those industrial descriptions convey. The drama lay in the grand sweep of international, national, and local events. From Britain came the technological momentum of the shift to iron, coal, and steam. The U.S. national economy slowly recovered from the crisis of 1837. Prolonged agricultural depression in Europe produced waves of immigration from Ireland, which peaked in 1847, and from Germany, in 1854. These spectacles were played on different stages, but were mutually reinforcing. For example, each push to extend

the B&O to Cumberland (1842) and then to the Ohio River at Wheeling (1853) depended on a favorable capital market in the national economy, and stimulated technological change in Baltimore. Transatlantic migrations rose and fell, depending on the relative states of European and American economies in the grip of reciprocal long swings in construction and public works.⁵ The waves of immigrants provided labor for construction of the railroads and the city itself.

The net effect in Baltimore was a rhythm of recovery and prosperity toward 1845, rising to euphoria in 1852, then anxiety and ambivalence, severe problems in 1857, and a brief renewal of industrial activity in 1858 and 1859. In the late '30s construction levels were under 400 houses a year, and the year 1842 was still "shrouded in the darkness of general gloom." By 1845 construction reached 600 houses a year, by 1851 2,000 a year. An "excitement" of property values was remarked upon. Violence and sanitary problems intensified. Great urban projects were proposed and discussed on all sides. Construction was reduced during the commercial crisis (1857), but rose again in 1858 and 1859 to 2,000. It came to a halt toward the end of 1860, as related political crises gripped Baltimore City, then the state of Maryland, and then the Union. Over the full swing, 1837 to 1860, Baltimore doubled its population, its work force, the number of houses, its built-up area, and its street mileage. As I shall show, the changes of scale required reorganization.

The passion for mechanism stimulated new ways of looking at the city. The factory itself was perceived as a mechanism, and so was the residential neighborhood. Public services and institutions of government were viewed as complex pieces of mechanism requiring skillful design. Properly manipulated, there was order and harmony in all their working, but they, too, harnessed terrifying energies and explosive powers.

The steam locomotive was a model for the factory, and the factory was the model for the modern dwelling, the public institution, and the social structure. Knabe's piano works was an example of the kind of factory organization introduced in Baltimore about 1850. There was no distinction among entrepreneur, manufacturer, wholesaler, and retailer: the enterprise was integrated from start to finish, from earliest manufacturing stages to the retail customer. A multistory work space, a volume, was organized for an elaborate division of labor, a flow of goods through the factory, and a flow of customers through the store. In the first story was a powerful steam engine for sawing and planing. The lumber was hoisted to the second story, where workers made the piano cases and tops, which were transferred to the third floor to receive sounding boards, strings, plates, and keys. The fourth floor was used for polishing and varnishing the instruments and preparing them for the salesrooms. The sales space on Baltimore Street included a music store, a department for the sale of foreign pianos, a basement for rentals and repairs, a ladies' parlor, and upstairs "a musical sanctum for professors and gentlemen."⁶

Curlett's carriage factory had a similar layered organization: heavy work was displayed on the ground floor (coaches, cabriolets, chariots), lighter equipages were displayed on the second floor (buggies, hickory wagons, sulkies, family

The Factory As Mechanism



The Sachse bird's-eye view illustrates the Spring Garden district in 1869. The Timber Neck tract is apparent in the patchwork of streets west of the new Camden Station. At the lower center can be seen Knabe's five-story piano factory and the Maryland Glass Works. John Boyd, owner of a five-story malt-house and wharf, built eleven two-story dwellings with back buildings for his workers. Shaum, the glass house proprietor, and his thirty blowers, who had combined their capital, all lived in the vicinity before the war. As late as 1837 there was fine fishing from Mud Bridge across the mouth of Chatsworth Run.

carriages), painting and polishing were done on the third floor, and trimming was on the fourth.⁷ Mathiot, furniture maker, had manufacturing operations in various parts of town, but in a six-story building in Gay Street he coordinated the sequence of finishing, polishing, upholstery, display, and boxing.

The Stein Brothers' ready-made clothing enterprise on Baltimore Street carried even farther than Mathiot a system of flows of goods and movement of people. On the fifth floor, thirty employees cut out the work. On the fourth floor work was given out to two thousand hands employed to sew at home. The lower three floors were devoted to the display of ready-to-wear merchandise. In the basement were stored bolts of woolens. New internal mechanisms improved the flow of goods and connected all parts of the plant: hoisting machines, bells, speaking tubes, and gas from the basement to the roof. Other industries devised ingenious systems for moving goods. At Whitman's farm tool factory in Canton a "fall" extended through the four buildings; work was lowered on carts as they drove through. Under the two-story copper smelter at Canton, 230 feet long, ran "a perfect labyrinth" of vaults and arches leading to a 100-foot stack.⁸ At the Mason bakery on McElderry's wharf, bread passed through a steam-powered revolving oven thirty feet long, with iron plates forming an endless chain, and the furnaces underneath. The loaves baked and dropped into baskets

for packing. Numsen's pickling and preserving works consisted of a pier and dock where the oysters were received. On the second floor, the oyster packers dropped the shucks through trap doors into a trough that carried them away.⁹

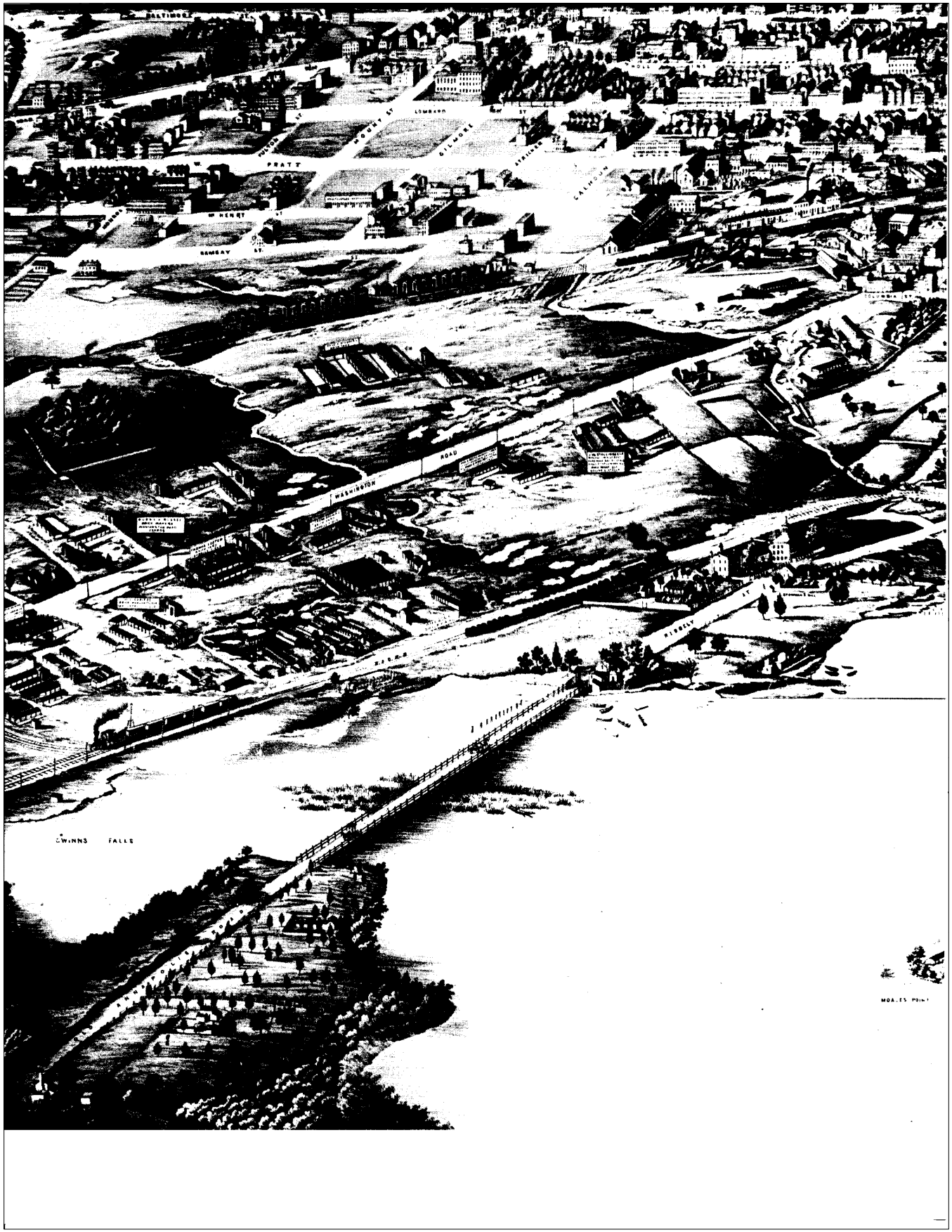
The spatial elaboration of these factories was necessary because of the simultaneous increase in the scale of enterprise and the complexity of tasks. At their peak the B&O shops employed 1,000,¹⁰ A. & W. Denmead and Sons (Monumental Locomotive Works) employed 350, Poole and Hunt at least 250, Bartlett Hayward 350, and most of the other foundries 100 to 150. They were all large family firms or partnerships.

The B&O Railroad was the head of steam for all this industrial activity. Its line reached the Cumberland coal region in 1842, and in 1849 there was an important change of management. Thomas Swann became president, and Johns Hopkins and George Peabody were involved in obtaining municipal and state financing to push the B&O westward to Wheeling, on the Ohio River. Continuing rivalry with the C&O Canal and the railroads of Pennsylvania goaded them on: "The fact is, that Philadelphia is gathering the cream of the rich trade of the West, whilst Baltimore and New York must content themselves with the blue milk."¹¹ The city once more poured \$3 million into improvements conceived as tributaries to the B&O and B&S.¹² Five million dollars was raised for the B&O itself, first in the form of a municipal guarantee, then as a direct loan. At a meeting to boost stock subscriptions for the Cumberland Valley tributary to York, someone objected that millions had been sunk already. But others pointed out that the city property assessment had increased from \$15 million to \$85 million. "And what would the city be worth if these railroads were torn up?"¹³ As they put it that night, it was, over and over again, "a question of Death or Go-ahead."¹⁴

Like any other city or nation, Baltimore sought to insure the greatest possible multiplier effect. To recapture the purchasing power from local investment, the B&O did its shopwork, manufacturing, purchasing, and subcontracting in Baltimore. Although we think of railroad building in terms of gangs of Irish and German laborers in the mountains of Virginia, the impact of the construction effort on Baltimore was startling. It was intensely concentrated because it involved equipping the whole western division in four years (1848-51). The shops adjoining Mount Clare built 190 locomotives for the B&O, at eight thousand to nine thousand dollars each. (Another fifty were built in Philadelphia.) The B&S built or bought at least ten more locally, and Ross Winans, contractor to the B&O, also sold some to the Reading and other lines outside Baltimore. The B&O bought thirteen hundred railroad cars, the B&S at least two hundred. Every machine shop in the city had railroad orders. Poole and Hunt built gondola cars, Watchman cast car wheels for the B&S, Abbott shifted from ship anchors to car axles. The wire weavers built spark catchers, and the locksmiths manufactured padlocks for all the B&O freight cars. The penitentiary contracted a hundred men, at fifty cents a day, to make railroad spikes.¹⁵

Of great value was the B&O's ability to attract and develop talent. Ross Winans, Henry Tyson, Benjamin H. Latrobe, Jr., Mendes Cohen, Thatcher

The Impact of the Railroad



This segment of the Sachse bird's-eye view details the Union Square and Mount Clare district in 1869. Mount Clare mansion stands surrounded by trees at center left, and the B&O Railroad shops are at the upper right. Spring Garden and Long Bridge are in the foreground.

Perkins, Wendel Bollman, Albert Fink, and John Tegmeyer were all mechanical or civil engineers of this generation on the B&O. James Milholland, A. Denmead, and George W. Fulton played similar roles on the B&S, and I. R. Trimble on the PW&B. All made valuable contributions in terms of mechanical innovation and the hiving off of enterprise.

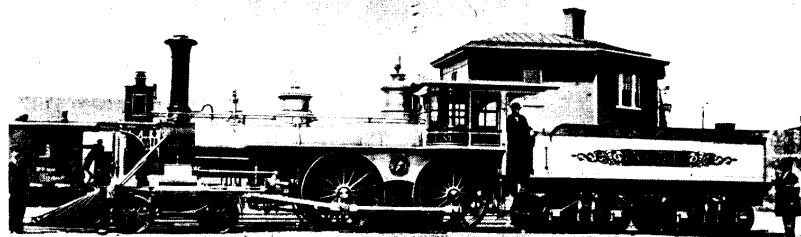
In addition to rolling stock, there were the bridges. The B&O built sixty bridges for the Cumberland-Wheeling section, all at its Mount Clare shops under the direction of Wendel Bollman.¹⁶ The company shops built a huge chain pump for the coffer dam at Wheeling. In 1857 Bollman started a firm of his own that obtained considerable B&O work. The B&S was laid out with an incredible number of bridges, eighty of them in the fifty-eight miles to York. Most were hasty trestle work, and James Milholland, master mechanic, in 1845 began replacing the larger ones with iron plate structures of his own design, probably the first of their type in the world.¹⁷ They were built in the B&S Bolton shops.

Each railroad also built its most substantial shops, offices, operating structures, and stations in Baltimore. The B&O Camden Station, designed by Niernsee and Nielson, cost two hundred thousand dollars.¹⁸ In 1848 the B&O began developing its Locust Point coal piers. In 1850 the B&S finished Calvert Station, in a "neo-Italian" style, and an adjoining plain and practical freight station,¹⁹ and the Philadelphia, Wilmington and Baltimore built its President Street Station, to a Trimble design.²⁰ Four years later the Northern Central Railroad (formed by consolidation of the Baltimore and Susquehanna with other lines from Harrisburg, Pennsylvania), developed carshops and an engine house on the site the Canton Company had long reserved. All of these stations involved redevelopment of the surrounding district to widen streets and provide housing for employees.²¹ Near Camden Station, a site was developed for a hotel. In the vicinity of Calvert Station seven express companies built warehouses. The railroad supplier industries chose sites next-door to the railroads' own shops, or on the line: Denmead near Calvert Station, Bartlett-Hayward next to Winans at Mount Clare, Poole and Hunt on the Northern Central at Woodberry, and Wells & Miller at President Street.

If those jobs represented a second round of effects of railroad construction, there was also a third round—the impact of the construction of buildings for the supplier industries. Construction was based on the expectation of contracts or income over several years to come. Incestuous local credit allowed these investments to "crank up" the Baltimore economy. For example, among the heavy machine shops, Denmead and Murray & Hazelhurst supplied castings for Abbott's new rolling mill. Murray & Hazelhurst provided the steam engines for bringing the Oregon and Ashland iron furnace back into production. Wells & Miller fitted out the new copper smelter.²²

In the larger realm of city building, the railroad boom and expectations of railroad-related commerce created an immense demand for brick and iron. The iron and steam technology of the railroads was related to breakthroughs in other forms of architecture and engineering. The railway engineers played important

The Bartlett-Hayward Company, which was active in many areas of iron working, built this engine for the Philadelphia, Wilmington, and Baltimore Railroad in the 1860s. It was formally photographed at the B&O's Mount Clare Station, located adjacent to the Bartlett-Hayward shops.



roles in public debate and provided the imagination in municipal engineering in this generation and the next, notably the design of iron bridges²³ and proposals for sewers and flood control. The railroad suppliers played a role in other construction sectors. For example, Bartlett-Hayward made Latrobe stoves, cast-iron shutters for the new warehouses, storage tanks for the gas company's new works at Spring Garden, Oldtown, and Canton, iron fronts for downtown warehouses, iron balconies for Barnum's hotel, and a portico for the cathedral.²⁴ Denmead built engines for the waterworks (1850), and Fulton made plans for the reservoir. Brick production rose to meet the demand for two thousand houses a year and five-story warehouses. Brick kilns were enlarged, and patents developed for molding machines. The 1850 census lists fourteen hundred brickmakers in Baltimore City and County, mostly black workers.

Falling Behind

But while Baltimore seemed to be enjoying remarkable growth, other American cities were growing still faster in population and in diversity of enterprise and ingenuity. After 1852 the city's economic climate was anxious. The city was not holding its own. Why did Baltimore's new industrial mechanism run down?

First, the railroad core industry collapsed. The immense B&O demand for equipment was a one-shot affair. Even repair work was not all done in Baltimore, once the Martinsburg and Wheeling shops were developed. The western division began to operate independently. In the intensive drive to build the B&O, market development was neglected. Baltimore had bought little from the Philadelphia railroad manufacturers, and subsequently Baltimore manufacturers received few orders from the Philadelphia railroads. Milholland moved to Reading. When Ross Winans and Henry Tyson disagreed, Winans shut down his shops. Winans and his son began selling their talents elsewhere, and derived personal fortunes from their important work for the Moscow-Saint Petersburg Railway on the same buy-at-home policy: they created company shops and manufactures in Russia. Baltimore investors in the Georges Creek Coal and Iron Company helped to develop Cumberland and Lonaconing with relatively prosperous mines, furnaces, and integrated enterprises; Baltimore owners and investors prospered, but they did not produce many permanent jobs in Baltimore.

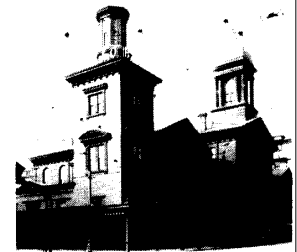
Second, Baltimore capitalists were old-fashioned. Some authors claim that Baltimore had less capital than other cities. It had fewer millionaires than

Boston or New York and a smaller bank capital relative to its population than most big cities. But there is also evidence that the city followed a very conservative banking policy, recirculating within a small circle. The Savings Bank of Baltimore expanded magnificently in this period (1836-1860), from \$1 million to over \$6 million in assets "by purely conservative management."²⁵ They made loans on real estate only within the city limits. They made very few industrial loans and accepted only local securities: city stock, stock in the B&O, gas and water companies, or local banks. Their borrowers were local people, "the tip of the ton." In the years from 1832 to 1844 they lent primarily to John S. Gittings, and from 1845 to 1866 the largest borrowers were Johns Hopkins and George Brown (of Alex. Brown & Co.). Although the Savings Bank, a depository for workers' savings, might be expected to be the most conservative, its policies were nevertheless characteristic of the city's entire banking style. For example, the cotton duck mills were at their peak in innovation and market acceptance. They sold to the U.S. Navy and the foreign merchant marine. McMullen's netting machine, their machine that would "tie a fisherman's knot," was exhibited at the London Crystal Palace. But they were outside the city limits, and had great difficulty finding capital in Baltimore.

Those conservative policies reflect the strikingly commercial nature of Baltimore industrialists. Just as Stein's clothing factory and Knabe's piano factory showed a basic retailing orientation, commercial interests dominated every industrial sector in Baltimore. The machinists were involved in shipbuilding, and shipbuilders were dependent for capital on shipowners and shippers. Hugh Jenkins owned an iron furnace as well as a coffee fleet. Another large shipowner built the copper smelter. The largest industrial promoter, the Canton Company, was still basically a real estate venture owned elsewhere. Johns Hopkins shipped oysters and coffee by wagon to Wheeling before he got the B&O finished. In addition to B&O stock, he invested in building warehouses on Light and Lombard streets. Enoch Pratt, a hardware merchant, had an iron yard at Canton, and was worth three quarters of a million dollars by 1850. John Gittings had an interest in cotton mills at Warren, but he invested more in building fine houses in the Mount Vernon area. In his business life he was concerned with the mechanisms of money and trade rather than the machinery of production. He became a stock exchange and commission agent, and the president of the Northern Central Railroad.

A large part of any economy consists of taking in each other's washing, and it is a relatively dependable or stable sector. But this kind of back scratching does not generate growth and innovation. Hezekiah Niles would likely have seen the problem. He conceived of manufacturing as an "export base" with outside markets to support a productive local labor force. The Baltimore merchants of the 1850s, in contrast, conceived of manufacturing merely as a means of building an infrastructure for their mercantile operations. Therefore, the same multiplier that allowed Baltimore to pump up its economy so quickly also allowed it to deflate swiftly.

Third, there were severe limits on the potential of Baltimore's commercial markets in this period. The direct commercial advantages of the railroad were



This photograph, ca. 1920, records earlier proportions of the towers at Camden Station. The main tower will be replaced in a \$170 million development begun in the 1970s. The proposal emphasizes office, retail, and residential uses but little of the original transportation functions.

overrated. Coal was a large item. The B&O brought down a hundred thousand tons a year and took one-fifth of the haul for its own use; a thousand tons a year supplied the gas company at its expanded level, and much of the rest was exported directly from the B&O piers, contributing little to the Baltimore economy except the meager livelihood of immigrant coal heavers on Locust Point. Westward shipments of coffee and oysters increased, but there were no sizeable new markets to be found in the Maryland-Virginia region. There were no new tributary areas filling with population such as the midwestern cities—Cincinnati, Pittsburgh, St. Louis, Kansas City—were contending for when they built railroads.

Where, then, did Baltimore merchant princes see a commercial frontier? What was their market strategy? Toward the end of the 1850s there was a definite orientation toward market frontiers of four widening circles: a local trade, a bay trade, a Southern trade, and a South American trade. All four were destroyed by the Civil War, but provided at least a scheme for postwar development. The first was a local luxury market, which can be seen in the "residential mechanism." The second was the bay trade. Truck gardening and shellfish were sectors of growth.²⁶ Daily steamboat service to Norfolk, a new bridge to Anne Arundel County, and a large number of bay craft brought strawberries, cabbages, watermelons, and the crabs and oysters to Baltimore. There was no increase of population in the tidewater region, but agricultural development was possible because of the size of the Baltimore market itself and because of the Baltimore-built transport facilities. Baltimore canners took out a succession of extremely promising patents for hermetically sealing oysters, for canning peaches in syrup, and for cutting down the cooking time of corn.

The third frontier was the Southern market. Baltimore merchants were well placed to cater to its special tastes and political sensibilities. Thomas Swann at the opening of the Maryland Institute emphasized "the peculiar relation of Maryland to the whole South" owing to the presence of slavery in the state. Boston, the center of abolitionism, had offended the South, and Baltimore had already profited by "this unnatural strife."²⁷

The fourth market frontier was ocean trade in the hemisphere. There was a sizeable increase in exports of flour to Brazil, in exchange for coffee. Trade with west-coast South America shifted from gold and silver to copper and Peruvian guano.²⁸ (Guano was bird manure imported from the truck farming region; racketeers even bagged a guano-colored earth from Hampstead Hill for this market.) Two large sugar refineries were (re)established in 1855, and the Baltimore and Cuba Smelting Company introduced Cuban copper ores. Ships were built for the Rio trade. Several carpenters shipped prefabricated frame houses, shops, and sawmills to San Francisco during the gold rush. Bollman built some bridges for Cuba and South America, and James Bruce some portable gasworks for Cuba and Ecuador.

The older businesses of farm tools, mills, seeds, and the new fertilizers looked promising in the markets of the bay, the South, and South America, while the peddlers, notion counters, dry goods merchants, and ready-to-wear clothing businesses adopted the Southern market orientation. Small-scale enter-

prise still allowed newcomers to get a foothold. William Rayner, for example, once an immigrant peddler on the Eastern shore and now a large dry goods merchant and real estate investor, sent Simeon Hecht, an immigrant goatskin trader from Hessen-Cassel, as a peddler to Kent Island. Once he was able to set up his own store, Hecht brought to Baltimore his four brothers, his mother, an aunt, five uncles, and a grandmother. He set up ten persons in business, first as notions peddlers in the Shenandoah, on the Eastern Shore, or on the Cumberland Road, then as storekeepers in Baltimore neighborhoods. But merchandising operations were now placed on a much bigger scale, and through the peddlers and storekeepers Baltimore suppliers were reaching out to larger markets. Merchandising was a piece of Baltimore mechanism that provides insight into this generation's renewal of the downtown area.

Baltimore saw itself as a wonderfully central location, the hub of "great arteries of travel" and a "political pulsating center."²⁹ Communications were revolutionized. A. S. Abell founded the *Sun* as a new-style "penny-paper" in 1837, and he prided himself on using every means of speeding the news.³⁰ In 1841 horse relays were organized to bring news of a court case in Utica, New York. Abell and John P. Kennedy maneuvered to get the Maryland legislature to appropriate money for Samuel Morse to build his experimental telegraph line between Baltimore and Washington. On 25 May 1844, in the B&O station, Alfred Vail received Morse's first message. The *Sun* commented on his "complete annihilation of space," and began using telegraph dispatches. In 1845 Abell organized an elaborate mechanism for hastening European news. A "horse express" met mail steamers at Halifax, crossed the 150 miles of Nova Scotia, then took steamers to Portland and the railroad from Boston to Baltimore. In April 1849 the *Sun* received news of the fall of Vera Cruz by special overland express a thousand miles long, and telegraphed the news to the president in Washington.³¹ The Sun Building at Baltimore and South streets was itself a five-story marvel of mechanism symbolizing the nerve center of the nation. Its new-fangled eight-cylinder Hoe presses and their steam engines were in the basement, with business offices on the street floor. The second floor was occupied by telegraph companies—the Magnetic, the Western, and the Southern.³² It was elaborately lit up at night with gas light. As Baltimore's first iron-front building, it was a model for a whole generation of downtown buildings.

The downtown area was rebuilt for higher throughput. German Street (Redwood), "a squalid place," was widened and redeveloped with a continuous row of five-story structures. In 1851 construction centered on Baltimore and Hanover streets, with iron fronts described as imitation brownstone. A block of five was built from the brick of the Eutaw shot tower. In breadth and depth the new "warehouses" were not much larger than before; they occupied the same blocks and lots. But they were taller. Inloes' was typical. For a \$1 million a year commerce, they built a five-story building, 30 feet wide by 175 deep, with a steam air furnace, dumbwaiters, and an elegant iron front by Hayward Bartlett.³³ The greater volume of such buildings allowed for the new scale and intensity of activity, but required ingenuity to circulate light, heat, air, goods,

A Downtown

and people into the interior. They introduced gas light, steam heat, hoists, bells, Venetian slats, and speaking tubes. Fickey's notion house offered customers baskets on wheels with portable desks.³⁴ At Hamilton Easter's, light was introduced by a skylight twenty feet long and six feet wide, "the openings of which on each successive floor are encircled with cast-iron railing, of handsome pattern, and bronzed in the most admirable style of work."³⁵

Just as each of the new factories and warehouses had to have more elaborate internal communication systems, the industrial-commercial city as a whole had to improve its internal flows. In 1845 the first horse-drawn omnibus lines were organized. There were two round trips a day to Towson, and hourly departures on the line between Fells Point and Canton, with "gay and stylish vehicles" like the *Neptune*, the *Isabel*, the *Flora*, and the *Mars*—built in Baltimore, of course. On the waterfront, piers and channels had to be enlarged to handle the swell of trade. In 1853 the federal government dredged the four-hundred-thousand-dollar Brewerton Channel, 22 feet deep and 150 feet wide. (The steam dredges were built in Baltimore.) The port wardens' line was extended to allow longer wharves at Fells Points, Canton, and Locust Point, to handle a new generation of larger vessels, up to 200 feet long.

As in each downtown reconstruction, the higher buildings, their higher throughput, and the higher level of business activity and property values resulted in traffic congestion. Baltimore, Lombard, and Pratt streets were "occupied constantly, mostly to their utmost capacity." The railroads worked horsepower in Pratt Street, and were allowed steam engines at night in Preston Street, Cathedral Street, and Guilford Avenue. In 1847 Fayette Street was at last put through; it was heavily used for herding cattle and swine through town. Iron bridges over the Jones Falls increased capacity for heavy traffic. The drawbridge was rebuilt across the mouth of the falls, and a steam ferry was put into operation between there and the foot of Federal Hill. Fort Avenue was graded and paved eighty feet wide, at the request of Federal Hill interests. "The boys there are far-seeing; and they know that everything which tends to bring remote portions of our city closer together, tends also to the general good."³⁶

The Residential Mechanism

The new warehouses replaced the old merchants' homes. In the vicinity of the present custom house, mansions like John Donnell's gave way to business. "The whole place is now nearly filled with extensive warehouses."³⁷ Sol Etting's family mansion was torn down for a four-story shoe, hat, and straw firm. The commercial specialization of the downtown area had a reciprocal in the emerging residential "uptown." The new complexity of the industrial and commercial mechanism produced a new kind of residential mechanism, with neighborhoods sorted out by social class.

James Silk Buckingham in 1841 described Baltimore's newest and finest houses around the cathedral as being handsome and commodious "without the least attempt at display,"³⁸ but as the building boom set in and the upper class reaped the harvest of industrial boom and real estate speculation, their houses became decidedly more showy. John S. Gittings's row of eight mansions, "the handsomest row of buildings in the city," displayed flues of Maryland soapstone



This 1935 aerial view of Spring Garden shows the gasholders and illustrates the extensive sedimentation.

and mantels of elegant Italian marble. They were of "chaste design, in fine ornamental brickwork, painted dove color."³⁹ On Franklin Square, Waverly Terrace had iron verandas and another set of townhouses consisted of four-story dwellings with porticoes and Ionic columns. For interior decoration, American-made wallpaper was available in twelve colors. Sewing machines were introduced for home use, and the new scale of production of pianos and rocking chairs in Baltimore factories found its market in such homes.

Each elegant townhouse was worth the price of a locomotive. Three stories tall, they had twenty-two- and twenty-four-foot fronts, double the width of the workers' homes built at the time and six times the volume. Twenty such "princely dwellings" were under construction on the four Mount Vernon squares.⁴⁰ Others were under construction on Charles Street and Madison Avenue, Bolton, Hoffman, and Preston streets, and Lexington Street near Pearl. As late as 1840 only 10 percent of new houses were three story; by 1857 a majority of new homes were three or three and a half story. The three-story building ran back about forty-eight feet, with a two-story "back building" that extended another forty-eight feet.⁴¹ Fire regulations of 1834 required "parapet walls" extending above the roof line, and roofs sloping back to the alleys. Because of the reach of fire ladders, the height restriction encouraged the practice of



The cast-iron elegance on Baltimore Street before the fire of 1904 was copied on a less grand scale elsewhere in the city. The Oldtown site still stands today.

developing the basement as a lighted half-story. Therefore, the new building boom broke with the tradition of gable roofs and dormer windows. Older houses were rebuilt by raising the roof line to the new standard.

This generation of townhouses became complex residential mechanisms. In the spring of 1850, the Devries house on Washington Place was described as having "the most complete bathroom we ever saw,"⁴² and patent water closets were reported "very general in the better class homes." A row on Madison Street had sliding doors, inside shutters, patent force pumps, a hot water system and central furnace, and, of course, speaking tubes and bells in every room and gas light throughout.

All these functioning systems within the upper-class home implied new exchanges with the surrounding community. A townhouse was not a self-sustaining plantation: it was dependent on its elaborate connections like so many umbilical cords. An important one was gas light. In 1838 gas was not used in residences, and there were only two miles of mains in the city, but it now became the distinguishing characteristic of wealthy homes. Because it depended upon the extension of the gas company mains through the streets, it implied the concentration of elegant homes in select neighborhoods on a select street network: "As the company look to this solely as a source of profit, their outlay in laying pipes is confined to such parts as will pay an interest of six per cent on the extension."⁴³ In fact, the gas company in the early '50s was paying 9 or 10 percent dividends. The extension of gas mains to Broadway in 1849 meant that a new class of construction would begin. Those who could pay interest also demanded company water, at reliable pressures to supply the complete bathrooms and put out fires that threatened these ten-thousand-dollar investments and their furnishings.⁴⁴ The attractions of carriage roads and the need for building carriage houses became evident. In 1832 there were only sixty-five carriages registered in the city, a tenth of the number of carts and drays. But Curlett's display rooms have given some idea of the wide range of private family vehicles by 1850. The elegant residential districts like Mount Vernon and Bolton Hill were located on hilltops, sixty to a hundred feet above downtown places of business and entertainment. The owners of the townhouses also had country houses for summer, on hills at elevations of up to 350 feet and twelve miles from the center of town. The hilltop locations were, of course, chosen for their healthfulness. The 1853 estimate that a seventh of the population lived at elevations above 100 feet is a measure of the size of an upper class, together with its servants, live-in help, and washers and laundresses in nearby alleys.⁴⁵

The creation of "squares" supplied a nucleus for the joint effort of public and private enterprise in defining and planning such elite neighborhoods. Baltimoreans were embarrassed at the lag with respect to New York. The *American* and the *Sun* in the late '30s both complained of the want of open squares.⁴⁶ The Canton Company proposed to lay out four elegant squares "on the Commanding Eminences" in imitation of the great squares of Manhattan, and to preserve the forest trees on them. In 1839 the *Sun* gave sanitary, esthetic, and economic arguments for squares, and complained of "the indescribable irregularity" of new streets in East Baltimore, "intersecting each other at all degrees of angles,"

producing a crop of small tenements on small parcels of small value. The Mount Vernon squares were the unique local model. Poppleton submitted his plat for the division of the Howard estate in 1832 with the unusual feature of a cross shape centered on the Washington Monument. Subdivision proceeded swiftly, and its success as a speculation, combined with its attraction as a social summit, contributed to the demand for making more squares and terraces. By 1860 half a dozen new squares on hilltops beyond the built-up city had become centerpieces for small webs of development. Among them were Franklin Square,⁴⁷ Union Square, Ashland Square, Jackson Place (east of Broadway at Monument), Madison Square, Lafayette Square, and the Battery. Squares were planned in Broadway, Eutaw Place, and Park Avenue.

Buckingham described a class of small shopkeepers, mechanics, and tradespeople "who appear to be better informed, more industrious, and in better condition as to circumstances than the same class of persons in England."⁴⁸ He attributed this to the fact that labor was better paid, and provisions of all descriptions more abundant and more cheap. Toward the end of the period the health commissioners described roughly the same group:

There is, perhaps, no city in which the industrial and laboring classes are better housed and fed, than in Baltimore. In some of these families may be seen the highest degree of social and domestic enjoyment, in connection with great moral worth, and the sternest integrity. But the improvident and thriftless are less comfortable, and proportionably less happy.⁴⁹

It does not seem to have been a large class of people, and in both cases refers to skilled workers born in the United States. It was definitely a class to which immigrants and free blacks aspired and occasionally attained. It was a market for new housing. One can distinguish three types of workers' habitats: the mill villages, urban industrial neighborhoods, and a belt of modest rows. The common feature of demand was the need to live within walking distance of work places, but in family dwellings.

The mill villages grew in size but did not change in their traditional social organization. The labor force was all white, native born, and English speaking. Whole families worked in the same mill. The mill owners also owned the land and the houses. They excluded alcohol and introduced religion, temperance and beneficial societies, primary schools, and the company store. On the Jones Falls at Woodberry by 1847 there were at least forty dwellings for the operatives of Carroll's and Gambrill's cotton mills. Two to a block, three stories high, they exhibited "the appearance of prosperity and taste." "They occupied the face of the hill which is divided from the factory by the Baltimore and Susquehanna railroad. . . . The summit is ornamented with the beautiful mansion of Mr. Gambrill. Centrally situated among the dwellings is a handsome Gothic church."⁵⁰ Adjoining them, their machinists, Poole and Hunt, developed two acres of shops and twenty dwellings on Brick Hill for their own operatives. On the Gwynns Falls, Wetheredsville had a population of six hundred and was laid out on 300 acres, with a school, church, Oddfellows Hall, and two company-

Paternalistic
Landscapes



A once grand residential row, Waverly Terrace was rehabilitated in the 1970s by the city of Baltimore for use as apartments.

owned stores.⁵¹ Other mill villages had reached roughly the same scale at Calverton, Franklin, Ashland, and Rochdale, at Washington factory and Phoenix.⁵²

In contrast to the mill village operated by a single firm, the strategy of the Canton Company was to develop a complete industrial neighborhood with a number of different enterprises. In 1845 the company rebuilt the wharves between Fells Point and Boston Street and located a four-story warehouse at Chester and Aliceanna. It was sustained by fifty-six massive columns of iron and had iron doors, shutters, sashes, and frames. The investment may have been premature, but the company continued to work eastward, confident that "Canton in the progress of time and things, indicated by a cycle of twenty years, has ceased to be 'Out of Town.'" ⁵³ By 1850 it was finishing the Atlantic Wharf at the mouth of Harris Creek, with 752 feet fronting on the railroad and 1221 feet fronting on the water. The company contracted to build private wharves jutting out from it for lumber and coal yards and shipbuilders. The company bridged the creek and continued to grade and pave streets to the east: Hudson, Chesapeake, Elliott, O'Donnell. There were 350 brickmakers at work. The corporation received roughly equal thirds of its income from sales of brick clay, ground rents, and the sale and lease of industrial property. The ground rents assured a relatively steady income, while the other sources augmented cash flows during high-investment periods, for the development process. It was a strategy of balanced investment and balanced land use. Residential and semipublic facilities were provided to encourage industrial growth. Workers could purchase homes, subject to the ground rent; they did not need to purchase the land. A village of more than a hundred neat two-story brick homes for workers extended along Aliceanna Street and down Clinton Street. Population was estimated at twenty-five hundred, while a thousand more workers commuted to Canton to work at the three blast furnaces, forge, steel-rolling mill, two copper smelters, bridge factory, cotton duck mill, or distillery. The several chapels and the "pretty little schoolhouse" opposite the copper smelter filled and overflowed.

Employers closer to the center of town could depend on the private housing market. Any concentration of labor provided a market for mass rental housing. For example, the B&O workers at Mount Clare shops lived in the neighborhoods roundabout. Entrepreneurs occasionally managed to make a neat speculation of housing their workers. Several blocks west of the Mount Clare shops, properties bought for \$33,000 in 1835 were resold in 1851 for \$127,000.⁵⁴ Charles Keener and John Garrett, associated with the B&O, bought and resold them within a few weeks as 267 house lots for another 30 percent markup. Homes were built and rented to employees of the B&O. Those who earned more and those who earned less than \$1.25 a day were separated not by districts, but by local variations in elevation, width of street, and height and breadth of the houses.⁵⁵ They did not have servants, and these neighborhoods had few blacks.

On the speculative frontier of the city, a new belt of housing was built, much of which was also destined for the class of employees, mechanics, and shopkeepers. Because of the diversity and smaller scale of enterprises in Old-

town, along the Jones Falls, and out Gay Street, Pennsylvania Avenue, and Frederick Road, these districts did not have the character of company towns. The roles of developer and speculator are more apparent, at a scale of scores of houses. On the west side the process continued to be more orderly, as estates were subdivided.⁵⁶

Essential to the construction of new houses for the working class were the financial innovations that allowed them to purchase homes. The ground rent remained important; as at Canton, the home owner did not need to buy the land. The new device of the generation was the building and loan association. In the 1840s several German Catholic societies, in particular St. James parish, served by the Viennese Redemptorists, sponsored the first savings societies for building.⁵⁷ The mechanism became much more important in the building booms of the 1880s and 1900s, and remains an important institution in Baltimore today.

Previous generations had depended on a patriarchal household of apprentices for industrial labor. The mill villages were a paternalistic landscape at a different scale; they allowed a degree of family privacy. The Canton Company landscape offered the worker even greater autonomy through the purchase of a dwelling. In the new belt built up around the city, the distinctive neighborhoods were a landscape of paternalism blown up to the scale of the whole city. Owners, entrepreneurs, and managers lived together on the hills, and a stable core of skilled workers lived together close to the enterprise, within call of the factory fire alarm and dinner bell.

While the wealthy extended a tracery of elegant streets onto certain hilltops and squares and rebuilt the downtown commercial core, while new industrial activities and worker housing spread over the low-lying districts, and while modest respectability girdled the old city, other sections of brick and dormers looked much the same. But the old city, refilled with new populations, had swelled and changed. In the ring built in the last generation there was secreted a lining or interfacing four miles long, of narrow streets and alleys less than twelve feet wide. Additional small lanes, courts, and alleys were privately developed and owned. Some were known only as X Alley, Y Alley, or Painter's Court. In this lining lived, half-hidden, the masses of the poor and casual workers. It represented 4 percent of the length of paved streets. Most of the remaining length was the standard thirty-nine feet.⁵⁸ The dual system of streets and alleys was laid out by Poppleton, but it took a generation of building on his model to discover the social implications.

The same health officers who spoke of the comfort of the industrious mechanic sought to distinguish between "a very large class" of virtuous poor who were "compelled to practice the most rigid economy" and below them "the great horde of the idle and the dissolute, the immoral and the depraved." But they suffered the same housing problem:

The necessities of these people induce them to huddle together in houses greatly disproportioned in size to the accommodation of such numbers. . . . A necessity is thus

The Genius of Poverty



Little Rock Street, which extended from Lexington Street to Saratoga Street, was one block long and only six feet wide for one-third of its length, yet the street contained thirty-five houses and a stable.

created for obtaining rooms at the lowest possible rates, and there has been in many instances an attempt to meet this want by building small, unventilated, and inconvenient houses, in narrow and blind courts. . . . These houses are badly constructed and crowded upon small side or back portions of lots.⁵⁹

In these lanes were played out the demographic dramas of this generation—the arrival of new immigrants, the competition for jobs, the crowding to make the rent, the winnowing of death. The essential features of the immigration were a swelling rhythm that matched the building cycle, the predominance of Germans (half) and Irish (over a third), of men over women (three to two), and of persons in their twenties. At their peak, arrivals at the port reached twelve thousand a year, well beyond the peak of the 1830s.⁶⁰ These simple facts produced complex changes in the balance of the several ethnic groups in the labor force.

Any effort to compare the rise and assimilation of the several groups is hampered by the ambivalence of public opinion as expressed in newspapers. In 1837 and 1838, despite the business depression and the poverty of many Irish immigrants, they are reported to have sent home at least \$30,000 to parents and brothers in Ireland, through Alex. Brown & Sons.⁶¹ The moment of deepest crisis in European departures was at the onset of the boom in Baltimore. In 1847 200 "poor" were shipped from Hesse via Bremen, and landed at Baltimore.⁶² In the same summer, three ships arrived from Ireland "freighted with human misery and death."⁶³ The captain wanted to discharge the sick and dying on shore, but Father Dolan had them put on scows for the Lazaretto at lower Canton. Carpenters hired to build a temporary hospital fled. Some of the immigrants staggered into the woods to die, and Dr. Donovan had the rest removed to the hospitals. Father Dolan set up a house for orphans, while the Hibernian Society supervised the "binding out to trades" of others. The number of persons the society relieved with cash increased from 105 in 1838 to 700 in 1852. The society was also placing 25 Irish immigrants a month on railway jobs. The boom made possible effective action to absorb immigrants into the local labor force and to move others on toward the agricultural frontier. The German Society had an Intelligence Bureau, which in 1846 placed 3500 laborers in Cumberland, York, Pittsburgh, and Washington. By 1856 large proportions of Irish and German names appear on B&O payrolls, including scores of cases of brothers and relatives, and many were already doing skilled jobs.

Because German and Irish immigrants were arriving in such large numbers, competition was aggravated for unskilled and dirty jobs. Incidents of intimidation were frequent in 1858 and 1859, as employers tried to cut wages following a bank and business crisis. Episodes recall the depression sequels to heavy immigration in 1832-36. When a German crew was hired to unload barges at Fells Point for seven dollars a boat, "the Roughs," a gang of fifty, assaulted them and forced the captains to hire their gang at the old wage of nine dollars. When coal dealers brought in new hands for a lower wage, "collusion occurred between the two gangs," and their "mutiny" was celebrated over a quart of whiskey. At the end of a week the old employees were reengaged.

Black workers felt the fiercest pressure.⁶⁴ Formerly, no white men were employed as stevedores on Fells Point or as laborers in the coal yards.⁶⁵ A gang of

twenty-five drove black workers from Canton brickyards. At Thomas's and Donnelly's brickyards near Federal Hill they were driven off by rioters with guns.⁶⁶ A mob displaced black laborers on horsecar construction in the city and stopped all work until \$1.25 was offered.⁶⁷ The most vicious attacks were, as in the '30s, directed at the caulkers. At Federal Hill they traditionally worked for \$1.75. J. T. Fardy & Sons hired on a white gang at \$1.25. The whites promptly sought to displace black caulkers at Hooper's yard adjoining, but Hooper refused to discharge them. As quitting time approached, a crowd gathered, the police suddenly disappeared, the bell rang, and the mob stoned the black caulkers. Some jumped into the harbor and were rescued by ship captains "at their peril." Demands were extended to other yards, one by one, until William H. Skinner "positively refused to comply at any risk." Taking two revolvers, one in each hand, Skinner got into the boat with his colored caulkers to protect them from an armed gang on a schooner alongside. Skinner shut down his yard and sued the city for police protection. All the shipbuilders in South Baltimore were hiring white caulkers, who next extended their tactics to Fells Point. There several black caulkers were beaten up. One had a facial artery cut and his jawbone fractured: a seventy-year-old man died of head wounds. "There were no white witnesses" until the shipyard owner himself, Hugh O. Cooper, was beaten and kicked in the abdomen. The law then intervened, and the black caulkers continued at the point.⁶⁸

Irish and German laborers were also frequently pitted against each other. On the C&O Canal between Hancock and Cumberland, ethnic rivalry depressed wages. On 11 August 1839, a hundred Irish laborers reportedly assaulted sections being built by German contractors and German laborers. The German priest gave names of "Irish villains" to the management. Federal troops shot eight or ten rioters in the presence of the company engineer, destroyed numerous worker shanties and two unlicensed taverns, and took twenty-six prisoners. Wage rates fell from \$1.25 to 87½ cents a day.⁶⁹

The violence in the white community and the vulnerability of the black community were associated with the changed ratios of age and sex. Throughout the censuses of 1840, 1850, and 1860, the free colored population of Baltimore had more women than men in every age group, with the greatest difference among persons in their teens, twenties, and thirties. People over fifty were a sizeable proportion. The slave population was even more lopsidedly female. The case was quite the opposite in the white population: men exceeded women by a large margin in their twenties and thirties, and persons over fifty were few.

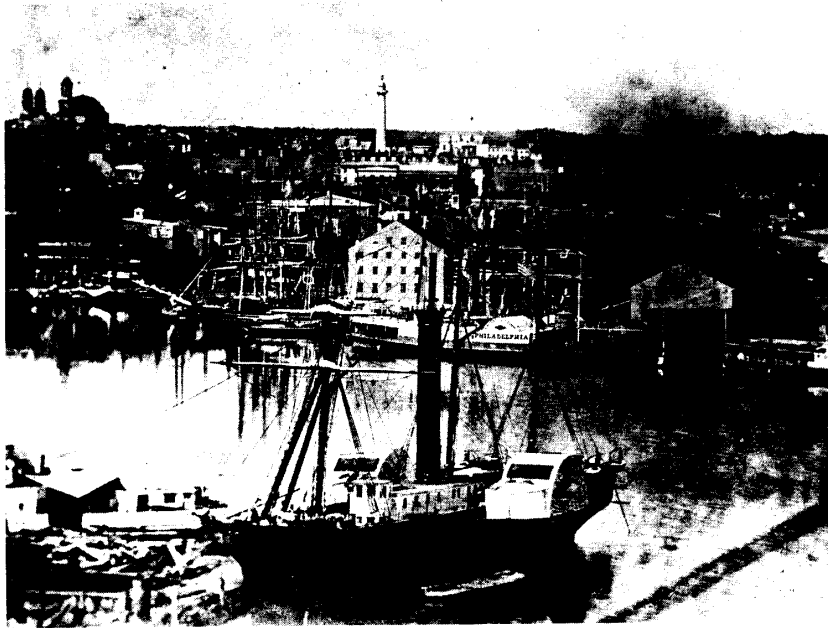
Forms of violence are familiar from the 1830s. On New Year's Eve 1838, a fire engine was thrown off the dock. The *Sun* referred to rivalries among gangs from different parts of town, and blamed "five or six dozen of flash fellows,—fancy rattlers—tie and jewelry, who drink liquor enough to make it necessary either to go to bed or do something to work off the excitement."⁷⁰ Beginning in 1847 there was a notable increase of fires and false alarms; by 1851 the city averaged one of each per day. A new sport was to insult religious congregations and to disturb evening services. From about 1850, riots were associated with elections as well as fires, and German immigrants as well as blacks were victim-

ized. "The subject of conversation, the themes of ambition relate to broils and rowdyism, everywhere."⁷¹

The case of the black community is most difficult to evaluate because of the political rhetoric that overwhelms fact. The *Sun*, a young firebrand paper with respect to many issues, mixed occasional sympathy with low wit. It recounted how a "crooked little lump of humanity of ebony hue"⁷² resisted arrest, how two colored women fought and one scalded another. "When their cart wheels locked, a German milk man beat a poor negro slave driver over the head. Such gusts of passion and their bloody sequels should not be allowed."⁷³ Three slaves of Gorsuch escaped to York in 1850. When he tracked and cornered them, they killed him. The incident led to new attacks on the free blacks, who still had no right to carry weapons or give court testimony against whites. A gang of youths attacked passers-by nightly in Baltimore Street. "They are especially unpleasant to the unprotected Africans."⁷⁴ A gang stoned the house of a "most respectable, worthy, and inoffensive colored woman."⁷⁵ Rowdies attacked a colored man leaving Lexington Market with his few groceries.⁷⁶ Two men accused of a "vicious murder of an estimable colored man" were freed because no white testimony was brought.⁷⁷ There were wide differences of class among the free colored, but all were vulnerable to the racism of the law. The grip of tidewater slave holders over the legislature was complete. The constitutional convention of 1851 prohibited any change in "rights and liberties" of slave holder and slave.

In spite of the pressures, the black community managed to cultivate a degree of freedom and solidarity and to consolidate families, some institutions of mutual assistance, and sometimes property. Throughout this period, the black population of Baltimore did not increase in numbers, but the proportion who were free approached 100 percent. Blacks maintained or improved their positions in water jobs, such as oystermen and seamen, and as hucksters and brickmakers because of types of local experience with which immigrants could not compete. A larger proportion of free blacks occupied domestic or personal service trades—barbers, cooks, waiters, laundresses, and porters—in spite of immigrant domestic workers. Market conditions did not favor slave labor in Baltimore or its agricultural region, and some slave owners were satisfied to sell out.

The instance of Noah Davis shows how little by little the proportion of free persons increased. Raised in slavery in Virginia and licensed as a Baptist preacher, in 1847 Davis obtained from his master a pass to go to Baltimore to serve a colored church and earn the money to pay \$500 for his own freedom. He then raised \$800 to buy his wife and two youngest children, and had to pay another \$100 because the children increased in value while he saved. His salary was \$300 a year, his wife took in washing and did daywork, and they put their daughter "in service" to pay off the last of the loan, bond, and life insurance on the other children. To prevent his twenty-year-old son from being sold south, he had to raise \$700 in haste: the boy was already in a trader's jail in Richmond. For two others he paid \$560 and \$570, but a daughter, offered at \$990, was "run up by a trader who agreed to let my friend have her for \$1100." To raise money to buy the last of seven born in slavery, he published his life story.⁷⁸



Before the Civil War, Baltimore achieved an intensity of construction that did not depend on buildings of great height. The Washington Monument and the cathedral define the skyline.

Nelson Wells, a free drayman employed by Charles Crooks, managed to save twenty dollars a month in the Savings Bank of Baltimore. About 1830 he began investing in property—first a ground rent on Ruxton Lane, then the leasehold, then a house on South Charles Street. When he died in 1843, he left several thousand dollars to provide for Negro education. The Savings Bank of Baltimore directors used it to found the Baltimore Normal School.⁷⁹

The social layout of Baltimore is nowhere adequately described for this period, because the segregations of ethnic groups occurred at a fine scale below the size of wards and because they were in constant flux. A reshuffle of population occurred as those who could afford new housing and urban services moved out, and as immigrants scrambled for the smallest spaces. Job competition, combined with the need to live near the job, sharpened competition for housing. Fells Point had the boardinghouses for receiving arriving immigrants. Starving Irish arrived at Thompson's Sign of the Harp on Ann Street near Thames in 1847. By the early '50s the point swarmed with German immigrants, and the black population, which had been numerous in the north-south narrow streets such as Happy Alley and Star Alley, tended to move out, consistent with job pressures on shipyard and dock labor. They occupied alleys in other parts of the city, chiefly the middle ring. In West Baltimore, convenient to the new neighborhoods of the wealthy who used laundresses, porters, cooks, and waiters were Union Street, Biddle Alley, Greenwillow Street, and, running east-west, Sarah Ann, Pierce, and Raborg streets and Chestnut and Cider alleys. In 1850 many of these alleys were jointly occupied by Irish, German, and free colored householders.⁸⁰ The pattern continued in South Baltimore: Dover Street, Wayne Street, Welcome Alley, York Street, Little Hughes and Little Montgomery streets, and Sugar Alley. In Oldtown, blacks and some Germans occupied the irregular lanes along the axis of Bel Air Market: East, Chestnut, French, Low, Stirling, and Mott streets, and to the South Douglas Street, Necessity Alley, Half Moon Alley, Comet Alley, and Forest Street. All of these linings were growth tissue for postwar black neighborhoods, although they were hidden from the "respectable streets," like a reverse side of the urban fabric.

Draymen, carters, and other "horse" trades were increasing also in cheaper

housing and shanties farther out in the northwest and northeast. The Irish were particularly numerous along the axis of Harford Road and the Germans along Pennsylvania Avenue, as butchers, tanners, harness makers, and grain handlers, while the blacks were decidedly absent from the fast-growing outer ring of the city.

As tenants, the poor were at the mercy of their landlords, and had to move out to make room for commercial expansion. As second-class citizens, they were at the mercy of public improvements aimed at creating "decent" residences and a better tax yield for the city. The widening of Ruxton Lane and the rebuilding of Balderston Street, for example, were undertaken to destroy the rookeries and places of gambling and vice.⁸¹ "Several fine warehouses have been built, others erecting, now respectable and business-like." Because the demolitions merely dispersed "foul deeds," *Sun* editors recommended that work be extended to Guilford Alley, Liberty Street, Brandy Alley, and Perry Place, "to pull down the old tottering buildings, which were inhabited by the most degraded and vicious part of our population." Redevelopment coincided with the appearance of "a new system of grinding the faces of the poor."⁸² During the winter of 1839 landlords raised the rent, asking for a month in advance. "Every hovel" was rented.⁸³ In Oldtown a poor widow with three children had her stove and furniture taken from her for a rent of \$3.50 "run up with costs to \$5.26."⁸⁴ The continuation of a tight housing market for the poor was shown in the fall of 1843 by the appearance of squatters and resistance to ejections.⁸⁵ But each wave of construction produced another wave of evictions. In 1850 the elegant improvements in Centre Street, between St. Paul and Charles, replaced a "half dozen little shanties, pigpens and stables," former residences of black workers and porters. The population of the city's central ward declined 10 percent in the '50s. When the B&O acquired the land for Camden Station, they tore down five squares occupied by "rude and dilapidated tenements."⁸⁶ The bricks were to be used in the new depot, but there was no such plan for recycling the tenants. The *Sun* editor was led to question the value of cities:

They harbor, as it were, the genius of poverty; accustom the masses to privation; and expose them to the wrongs of the oppressor. And that oppressor is found, wherever the use of capital is active, under the discipline of men indifferent to the rights of their fellow men, and unscrupulous about the invasion of them.⁸⁷

The "personal" crises of the poor continued to occur chiefly in winters of business depression, every three or four years. Seasonal variation of casual labor was so great that the penitentiary released prisoners only between April and August, or they would be forced to steal to live. The crises of the poor were characteristic of certain parts of the city. As surely as the floods in the Jones Falls, they perennially victimized certain classes of neighborhoods. An epileptic woman ragpicker was found with marks of burns all over her. A policeman sent to the almshouse "a family of destitute negroes, some of whom were impregnated with loathsome diseases." In the upper room of a small hovel in Aetna Lane a poor widow who had lost her husband in the Mexican War was huddled on sacking, with her child. They had no furniture, no food, no fire.⁸⁸ In 1858 Mrs.

Thomas Winans organized a soup kitchen in her mansion in West Baltimore Street: she was feeding six hundred persons a day.

The several forms of discrimination in the labor market were reflected in the structure of wage rates, which in turn reinforced the vulnerability of the several classes of people. The black laborer generally earned \$1.00, where the white on the same job earned \$1.25. The inequality of wages between male and female labor was more extreme. The *Sun* commented, in July 1839, that where a brother and sister were both house servants, tailor and tailoress, or agricultural workers, "the one is earning more in one day than the other in seven. How shameful. Are not the labors of each class as necessary in their respective spheres?"⁸⁹ Instant destitution was often the fate of the woman whose husband died, fell ill, abandoned her, or simply could not earn enough for a household. She was reduced to "the grinding poverty of the widow of avaricious man," as the *Sun* called it. "From every view we take, we find injustice staring us in the face, like the eyes of a family portrait."⁹⁰

In this generation, church and school became neighborhood institutions, and the base was laid for an ideology of neighborhood integrity. In Baltimore both the public and parochial school systems took root, and their roles were defined in relation to religion, ethnic identity, and class.

At the end of the 1830s churches and schools were still concentrated in the downtown area and three subcenters—Fells Point, Oldtown close to the falls, and the southwest near Hanover and Lombard streets. But the number of churches and chapels tripled—from 50 in 1837 to 100 in 1845 and 150 in 1860. As the city grew, sheer distance forced the hiving off of new congregations. Parents demanded schools and Sunday schools spaced over the city's much greater area. At the same time, the increase in population made it possible to support a greater variety of movements, and with the immigrants came a transfusion of new ideas and fresh zeal. At least twenty-five of the new churches were of German language, and there was some duplication for linguistic reasons: a second New Jerusalem church, a tract society of colporteurs to the German speaking, a second Catholic parish on Fells Point. Disagreement over the cultural adaptations to be made to American conditions gave rise to five new synagogues and a rich variety of Lutheran and Reformed churches, with varying degrees of emphasis on English or German in worship and schooling. The fear that loss of language threatened faith was important among the Germans—Lutheran, Catholic, and Jewish alike. In Germany it was a period of intense revival of religious tradition, personal piety, and controversy, entwined with Romantic literature and music and a language-conscious nationalism. It was through German religious connections that Baltimore in this period was most intensely in touch with Europe.

The greatest growth was shown by the Catholics and the Methodists. Consistent with the past, Baltimore remained their national center of management and publishing, and Catholics and Methodists continued to make the greatest evangelizing efforts in the city. Small Methodist chapels were a quarter of the total of 1860. About half of the eighteen new colored churches were Methodist

Church and School

independents, and a number of the German churches were "Methodizing" groups, such as the Evangelical Society.

The Catholic church had to create new parishes and new orders of priests and teaching nuns to cope with ethnic differences. Jealousy occurred between immigrant Irish and German elements, as in the labor market. Most distinctively Irish, St. Patrick's Church on Fells Point grew rapidly, and its pastor, Father Dolan, was a key figure in services to immigrants. The parish school expanded to 250, and the Brothers of St. Patrick were imported to teach them. Small missions were started, St. Bridget's in Canton and Our Lady of Good Counsel and St. Laurence O'Toole at Locust Point. The Brothers of the Christian Schools had 500 pupils at the new St. Vincent de Paul's school, 180 in the cathedral school for boys in Calvert Hall, and 550 at the parish school of St. Peter the Apostle, convenient to the railroad shops.

The development of German Catholic activity in Baltimore in the 1840s was based on runners of thought that grew from Baltimore and Cincinnati into France, then Bavaria and Vienna, and back to Baltimore. Several of the exiled Sulpicians who had traveled widely in America, in particular Father Dubourg, had returned to France as bishops. Their connections with lay persons, refugees from the West Indies (such as Madame Petit) and émigrés, resulted in the founding of the Society for the Propagation of the Faith, at Lyons (1822). It rapidly became an international organization with strong participation in Belgium. Organized on a decimal basis, ten persons pledged a penny a week and a daily prayer for the missions; one of them forwarded the money and accounts to a central steward for ten cells. The society forwarded the gifts to the bishops nearest to mission frontiers, and their newsletter reported back to contributors. Similar mission societies were organized in Vienna (the Leopoldine Foundation, 1828) and Munich (the Ludwig Society, 1838).⁹¹ The Congregation of the Most Holy Redeemer, which had its important bases in Vienna and Belgium, decided to send missionaries to America to convert Indians on the frontier. They found this exceedingly frustrating, and seeing everywhere en route German settlers "already of the fold" but without pastors or schools, they moved into a role of serving the German Catholics in America. The combined effects of the infusion of money, German-speaking personnel, and excellent communications resulted in a remarkable exchange of ideas within the American church and at the international level. From 1840 Baltimore was the American headquarters of the Redemptorists, as well as the home of the nation's archbishop, and a major port for travel from Germany and Belgium. Consequently, Baltimore—more precisely St. Alphonsus Church—was the center of this information system.

The Redemptorists organized a headquarters and seminary at St. James Church, Eager and Aisquith streets, and new German churches, St. Michael's on Fells Point and Holy Cross on Federal Hill, with parish schools at each location for some two hundred children, and an orphanage, St. Anthony of Padua.⁹² The Redemptorists had lay brothers who assisted with the schools, and they developed a close working arrangement nationwide with the School Sisters of Notre Dame, introduced into America from Munich. Tireless travelers, the Redemptorists radiated out of Baltimore into its hinterland of railroad and mining towns,

and even into areas of new settlement. In 1843 Father Alex Czvitkovicz attempted to salvage a pioneering venture in Elk County, Pennsylvania. A dozen families from Baltimore and a dozen from Philadelphia had contracted for thirty-five thousand acres at seventy-five cents an acre, and formed a German Catholic Brotherhood for a refuge from persecution. Father Alex surveyed the virgin forest for them, platted the townsite of St. Mary's, designed a church, prepared rules for the community, and arranged for them to receive German immigrants who might arrive at Baltimore. He finally suggested they send for German Benedictines: "They are farmers."⁹³ Not only were the Redemptorists great preachers and builders, but they were also known for their orderly reports and organizational skills.⁹⁴ There is reason to think they created the first building and loan societies in Baltimore in their parish of St. James. The mission societies themselves were the model of decimal organization, weekly saving, and accounting.

Catholic work in the black community was also renewed by the Redemptorists. By the time Father Joubert died, the Sisters of Providence were reduced to twelve sisters, ten free scholars, ten orphans, and a mortgage. "By degrees it appeared that everything was falling."⁹⁵ Archbishop Whitfield suggested they ought to return to the world, and his successor, Archbishop Eccleston, despaired that he could not even take care of his overwhelming immigrants, much less the blacks. But in 1847 Father T. Anwander from St. James begged to be allowed to serve as chaplain and confessor to the Sisters of Providence. Regular masses were again held, new buildings were bought for St. Frances Academy, and by 1853 there were 135 children in the school, with 30 to 50 boarders, a group of orphans, and a school for boys. Each Easter season 40 or 50 persons were baptized and confirmed. The impression that this institution made on visitors to church councils was considerable, and influenced the conviction nationwide that a separate colored parish was the best way to organize missions for Negroes.

The Jewish community was nearly all German, many from Bavaria, some via Holland and the West Indies. It may have numbered two hundred families in 1840, seven hundred families in 1850.⁹⁶ They were found in the three older subcenters of the city. Except for the Sephardic temple, Beth Israel, all of the new synagogues grew out of the original Baltimore Hebrew Congregation, known as Stadt Schul. From a rented room over a grocery in Fells Point, the congregation moved to a one-story dwelling in High Street, then to a three-story house on the corner of Harrison Street and Etna Lane, and in 1845 they built the Lloyd Street synagogue. Their rabbi, Abraham Rice, represented strict orthodoxy. Har Sinai Verein broke away to experiment with Reform. They built a temple in High Street, and in 1855 called Rabbi David Einhorn from Germany. He became a national spokesman for Reform Judaism. The other new synagogues represented middle paths between these two positions. Hebrew Friendship was created at Fells Point and later chartered and rebuilt as the Eden Street synagogue. When Rabbi Rice retired from Baltimore Hebrew Congregation to attend to his dry goods business, he officiated at a small service on Howard Street, uncompromising in its orthodoxy; the members eventually formed the congregation of Shearith Israel (Remnants of Israel). Oheb Shalom (Lovers of Peace)

was founded in the southwest part of the city, first in a home, then in the third floor of a coach factory, and finally on Hanover Street. The rabbi, Benjamin Szold, was a conservative.

The German-language community was complex, ranging from the merchants of the Germania Club to the poorest immigrants. Among the Germans, religious divisions cut across class divisions, and there were numerous possibilities for communication among the different elements. Pastor Scheib, who arrived in 1835, developed a school at Zion Lutheran Church, and the Singeverein and Liederkranz performed a Beethoven symphony in 1837. The '48ers were less important in Baltimore than in Cincinnati or Milwaukee, but several liberal figures nevertheless played a role. George Fein founded the Concordia Club, which developed German music and theater, and Carl Heinrich Schnauffer wrote songs popular in the working-class Turner movement. He founded *Die Wecker* (1851), the German newspaper that stubbornly opposed slavery and promoted the Republican vote. When Emerson visited Baltimore in 1843, he complained that he could not "hear of any poets, mystics or strong characters of any sort."⁹⁷ If Emerson had spoken German, he might have discovered the strong characters in Baltimore.

In the architectural and artistic arrangements of the new churches of the 1850s can be seen the greatest extremes yet displayed. External sobriety hid the interior impression of warmth, ecstasy, comfort, or order in which each group made itself at home. Class differences produced surprising contrasts with ancient tradition, and with their relative status today. The Catholics, who had recently finished their magnificent cathedral for the whole nation, now built some of the plainest chapels. The Baltimore Hebrew Congregation in Lloyd Street built a synagogue whose sun-splashed and whitewashed pews and railings are reminiscent of New England meetinghouses or the eighteenth-century Anglican churches of Maryland. The Methodists built the Charles Street Church, while they continued to hold camp meetings under the tent and to erect frame chapels in the mill towns and factory settlements. The Presbyterians, raised in the austerity of John Knox and John Calvin but grown rich in Baltimore, ordered cushioned pews and stained glass.⁹⁸

The new neighborhoods of elegance and respectability are most apparent in the older denominations of affluence, Presbyterian and Episcopal. First Presbyterian moved to Madison Street and Park Avenue, and numerous congregations grew from it: Westminster Church and the churches in Aisquith Street and Franklin Street. Its Sunday school missions developed into Franklin Square Church, Green Street Church, and Central Presbyterian. St. Paul's Episcopal Church was rebuilt in 1844 and again in 1856 as Italian Romanesque. There emerged from it in this generation five new congregations: Ascension, St. Stephen's, St. Mark's, Emmanuel, and All Saints Zion. St. Luke's, on Carey Street, was undertaken adjoining Franklin Square. Each congregation reflected and enhanced a conception of neighborhood and status.

The colored churches, associated with a sponsoring white congregation to meet the legal requirements of permits for gatherings, also seem to have developed some differentiation of class. Among those that moved uptown were

Pennsylvania AME Zion and Madison Avenue Presbyterian.⁹⁹ Particularly handsome were Union Baptist, First Baptist, and the Methodist Protestant. But most of the colored churches were still clustered in the center of town on Saratoga and Courtland streets, or in the three emerging black neighborhoods: in East Baltimore in narrow north-south streets such as Dallas, Wolfe, Spring, and Chestnut; in West Baltimore on Tessier and Orchard streets; and in South Baltimore on Sharp and Montgomery streets.

The proliferation of churches and their new architectural visibility offered an illusion of health and energy, but all of the churches were deeply threatened by rivalry and internal division. The visible differentiation of congregations by class, race, language, and attitudes toward religious tradition was a framework within which the passions of the nation were working. In the church as in national political life, Baltimore was a pivotal location, a fulcrum with respect to hostilities between Protestant and Catholic, conservative and reformer, and pro-slavery and antislavery factions.

In spite of the separation of church and state, the rhetoric of religion and the rhetoric of politics were hard to distinguish. Both political and religious leaders fostered "gusts of passion" and have some responsibility for "their bloody sequels." Reverend Robert Breckinridge, pastor of Second Presbyterian Church, accused the Irish keeper of the almshouse of operating a papal prison, and was sued for libel. Five hundred Baltimoreans crowded the Criminal Court for eight days, listening to all the distinguished lawyers and senators "in the finest effort of oratory" directed to the "agitation of the public mind." The jury, James S. Buckingham observed, seemed more and more puzzled the longer the case lasted. When they could reach no verdict, both Catholics and Protestants were enraged.¹⁰⁰

As early as 1835 dozens of abolition societies were springing up in the North under Protestant evangelical leadership. In response, southern states curtailed freedom of the press. In Baltimore, caught in the middle, a vociferous rhetoric of union meant silence with respect to abolition. National splits within Presbyterian, Methodist, and Baptist churches involved alliances between an "old school" theology and a southern faction seeking to silence abolitionists. Critical national conferences were held in Baltimore, and Baltimore clergy played important roles in compromise, postponement, and extreme legalism.¹⁰¹ Breckinridge was a major figure in the Presbyterian split, Stephen Roszel among Methodists. The Methodist general conference held in Baltimore in 1840 ruled out the testimony of black against white in states where it would not be allowed in trials at law. Two black congregations of Baltimore protested the "soul-sickening" decision, but their memorials were suppressed. The Baptists, convened in Baltimore in 1841, voted "not to deny any courtesy to a Christian brother because he is a slaveholder." The Society of Friends urged its members to avoid agitation as counterproductive. The Catholic councils and pastoral letters made no statements whatever on the abolition of slavery, and the editor of the semi-official *Catholic Mirror* contended, "It is fanaticism or hypocrisy to condemn slavery as in itself opposed to the law of God." The churches of Baltimore were morally paralyzed.

The public schools, founded in 1828, began developing rather suddenly ten years later. In a miniature building boom between 1838 and 1855, enrollment rose from a thousand to ten thousand,¹⁰² the number of teachers from ten to two hundred, and the annual budget from ten thousand dollars to a hundred thousand dollars. The swift growth of clientele and political and financial support involved a definition of the institutional role: what groups in the society would be served? The public schools were grounded on ideas of religious neutrality (King James and Douai Bibles were authorized), individualism, and egalitarianism. Yet their growth took place in an age of widening class differences, divergent ethnic and religious identities, and a rigid color line. They were located and built in a context of social reshuffle and neighborhood segregation. A permanent gap appeared between ideology and practice in the Baltimore public schools.

The ideas upon which the city's public schools were founded and justified were expressed in a *Sun* editorial of 1843, when the state legislature was trying to withdraw the school fund and apply it to the public debt.

In the first place they are purely democratic institutions. It is the glory of the constitution that we recognize no privileged ranks or classes, or State religion. Notwithstanding these public provisions, however, society is much disturbed by the contests of political parties, the rancor of religious strife, and distrust and jealousy between the rich and the poor. These sever the bonds of a common brotherhood, and segregate society into divisions which become hostile in proportion to their isolation. It is the necessary tendency of a system of public instruction to heal these divisions.¹⁰³

But even at that moment, who would control and benefit was being settled. The sudden popularity was associated with the creation of a high school for boys (1839) with a distinctive middle-class curriculum. Likewise, when the high schools for girls, Eastern and Western, were founded (1844), female enrollment in the system immediately rose from a third to half the total, and more women teachers were employed. Primary schools were distinguished from grammar schools, and school teachers, like garbage contractors, were reorganized as part of the new ward politics and patronage.

By 1854 there was a wide variation in the proportion of school-age children who were actually enrolled in the various wards, from none to half. Enrollment was lowest in the richest and poorest areas of the city; the public school had become a mechanism of social promotion of classes in the middle. Of the fathers of girls in the high schools, half were merchants and professionals, minor officials and clerks, and the other half were mechanics or skilled craftsmen such as plasterers, bricklayers, or upholsterers. A unique "floating school" was organized in 1857, and half the parents were in seagoing or shipbuilding occupations; a third were decidedly among the mercantile and professional class, the other two-thirds were mechanics. Only a handful had possibly Irish or German names.

As the budget rose, economy enforced a compromise that widened the gap between a small number of advanced pupils and a terminal education for the great majority. The Baltimore delegation managed to save their school fund in 1843 by arguing the efficiency of mass schooling "productive of the greatest good to the greatest number at the least expense." Rigid economy was evident

in the ratio of fifty pupils to each teacher, and the investment in the average schoolhouse of five thousand dollars, or twenty dollars per pupil. The thirty school buildings were small, usually forty-three by sixty-five feet or fifty by seventy-five, on lots about double their size, with a main story and a basement beneath, "either on a level with the ground, or more or less sunk beneath the surface." The schoolrooms were heated by stoves, without flues except "a few holes perforated in the ceiling." Ventilation was so poor that teachers complained of headaches after two or three hours' confinement.¹⁰⁴ Contrasting with these were the new buildings for Eastern Female High School on Mullikin Street and Western Female High School on West Fayette Street near Paca. Conceived as monuments to learning and respectability, they merited the employment of an architect, and the interior arrangements were those of a far more complex mechanism.

The public schools were only a part of a still larger mechanism. They had two-thirds of the total number of children in school, and emerged as a white Anglo-Saxon Protestant institution. Twelve hundred black children were in schools, all private and church sponsored. They were not admitted to the public schools, although colored citizens paid the school tax. In 1852 the archbishop failed in a vigorous bid to obtain state funds for the parish and orphan schools of the Irish and German Catholics. All of those "free schools," parochial and charitable, had plain schoolhouses much like the public primary schools. German Protestants, however, developed private schools on a more elaborate model; the most important were Knapp's Institute and Pastor Scheib's at Zion Lutheran, under Pestalozzi influence. Other high schools were founded as private institutions, to serve the most respectable class, but they took the exceptional talented pupil on scholarship: Loyola College, the Academy of the Visitation, Mount Washington Female College, and Lutherville Female Seminary.

The most popular view of Baltimore in the 1840s was one imitating Constantinople. Buckingham had lectured here on the architecture of Turkey, and the comparison of the cathedral dome on the hill, its towers like minarets on the skyline, had an exotic appeal. In 1850, photographs began to show the city as a sea of brick and chimneys, punctuated by its steeples. The clustering of communities around their steeples reinforced the segregation of communities of race, language, origin, and social class, as well as of religion. The churches stimulated new kinds of societies, new institutions, a great organizational ferment. Yet the fragmentation of ideas, identities, and social responsibilities meant a loss of a sense of *civitas*. Common purposes were splintered, and great issues were set aside. Ethnic identity and status were structured by the churches, in worship, education, and welfare, from the cradle to the grave.

The builder, the school superintendent, the city council, and the church extension society were alike prepared simply to develop more of the same in the new districts—another pump, another chapel, another 180 feet of cobbles. New watch houses were built at Fells Point and Federal Hill. New markets were built in Richmond Street, Cross Street, and Hollins Street, and the older ones expanded with gas lighting and cast-iron columns. Rigorous adherence to Popple-

The Municipal
Mechanism

ton's plat made the extension of streets and rows appear orderly. Each year's street extensions provided the warp and woof of a new bit of the urban tapestry. But the very defects of Poppleton's plan were thus built into the landscape. His two-dimensional regularity was imposed at the cost of ever more serious defects of grades and drainage. His layout of streets and alleys developed into a schizoid social landscape of rich and poor, native and foreigner, white and black, in back-to-back rows. The problems of physical and social engineering were interwoven. The development of new neighborhoods of the wealthy meant the abandonment of waterfronts, lowlands, and central districts to the poor and the concentration of new stresses in these environments. Hostilities of class and ethnic origin were reinforced by the scarcity of good environments.

Organisms do not grow merely by accretion, and overloads were produced on the city's metabolic system and its vital organs, particularly the hospitals and prisons. At the high tide of construction, the recognition that people were dying and killing each other at a higher rate stimulated examination of the mechanism and new attempts to reengineer the city. With the same rhythm observed earlier, a relatively healthy period in the early 1840s was followed by a frightening increase in death rates as the building boom hit its stride. The city was experiencing the highest infant and child mortality in its history. Half of all deaths were of children under five. The proliferation of churches, the advance of evangelical religion, and the introduction of cherubim in stained glass coincided with Baltimore's contribution between 1837 and 1860 of forty-four thousand little angels.

This was also the only time in Baltimore's history that death rates among whites rose to match those of blacks. This is what one might expect, knowing that the Irish and German immigrants were competing for the same kinds of ill-paid jobs and the same dwellings in alleys and courts. In every year consumption (tuberculosis) was a leading cause of death. With heavy immigration, European epidemic diseases were reintroduced.¹⁰⁵ In 1847 two hundred cases of smallpox were received by ship, but were successfully confined to the new marine hospital. Medical students were able to observe there a case of simultaneous smallpox and typhoid, and an Irish mother and daughter had typhus and typhoid fever at once. Scarlet fever was epidemic and exceptionally deadly from August 1847 to May 1848, followed by infant cholera in July and August. The next summer eighty-three cases of typhus were sent to the almshouse, "invariably from filthy and unwholesome localities." According to Buckler, in rows of houses occupied by Germans, Irish, and free blacks, it would single out the blacks, seizing an entire family.¹⁰⁶ The evidence suggests differences in levels of immunity in the several populations, rather than differences in living conditions. The manner in which typhus was transmitted was not yet recognized, but the presence of "the loathesome disease" in Louse Alley was not a coincidence. The physician at the marine hospital, noting the origin of cases of smallpox, questioned whether "the alley system" ought to be continued.

Next, the fever diseases reappeared in their usual locations. In 1851 a grave epidemic of intermittent and remittent fevers occurred at the penitentiary and on

both sides of the Jones Falls north of Centre Street. In 1853 yellow fever appeared on Thames Street, traversed one block, and suddenly stopped. Eighteen died. The next year a malignant fever occurred in Will, Block, Philpot, and Canton streets, and in 1858 "a very malignant fever" occurred at Fort McHenry and Spring Gardens, where standing water in the extensive brick clay pits was favorable to the breeding of mosquitoes.

A sense of crisis rose to a peak along with the building boom. The search for explanations was based on the old theory that the putrefaction of solid wastes produced noxious gases that generated disease. Therefore, the effort to regain control involved improvements to solid waste collection and ventilation, and only later to water supply and drainage.

The city street was the physical framework for removing wastes as well as supplying goods. Garbage, street manure, and night soil had to be carried ever greater distances to rid the city of them. But street paving, repairs, cleaning, and garbage collection were all services in which the city had been holding the budget line since 1835, when it began to feel the pinch of debt service on its railroad investments. The garbage contract system, for example, initiated in 1845, degenerated quickly. Spending had gone down from twelve thousand dollars to five thousand dollars a year. Comparison of 1848-50 mortality figures with those of 1845-47 showed that July deaths had doubled. The health officer figured that a monthly economy of six hundred dollars was costing fifty to one hundred lives. More important, ran his cost-benefit argument, the hazard would cost Baltimore its economic future: "A tenacity for life is inherent in all, and just in proportion as the cancers of mortality are increased in any given place, in the same ratio will capital and enterprise contract or expand."¹⁰⁷ Therefore, in 1852 a public service corps of garbage cart drivers and street scrapers was created. They were paid a dollar a day, hired and assigned to their own ward, and enjoined to "strict sobriety and a becoming degree of politeness." The policy change was characteristic of the main lines of debate for the next seventy-five years: a seesaw between the demand for service and the demand for economy, and between the contract system and the public service corps.

In street cleaning the problem of social class was highly visible. The cancers of mortality were not the same in all parts of the city. The filth was found where the poor dwelled, and interpretations were various. "The narrow lanes, inhabited by the poor, although more liable to become filthy, receive less attention than the more public thoroughfares, and are always in a more dirty condition."¹⁰⁸ The small lanes and courts were private property, and there was little pressure on property owners to provide services. In years of epidemic, thousands of sanitary notices were issued, but only a score of police actions followed. Fells Point was described as an "augen stable . . . a mountain mass of nuisance,"¹⁰⁹ but a council member who owned property there pleaded that the alleged nuisance had been tolerated for at least ten years.

The dirtiness of the city also contributed to concern about its ventilation. Rising summer mortality reinforced the feeling of everyone in a Baltimore heat wave, that hot stagnant air was unhealthy. A bad smell was believed dangerous,

and Baltimore had plenty of bad smells. Seafood consumption was rising, and there were new noxious fumes from industry. Twenty thousand privies drained illegally to the Jones Falls. When the wind was from the south, it wafted sewer odors through the city.¹¹⁰ Experiments were made with "stench traps." New studies of human and animal physiology attracted attention to respiratory circulation. The role of the lungs in the human organism was easily extended: a city, too, needed to breathe. As early as 1839 the *Sun* made the analogy and attributed the "summer disease" of infants to the effects of "undue heat and vitiated atmosphere."¹¹¹ The atmosphere of cities, the editor argued, tended always to deteriorate. The houses retained heat at night, and to restore equilibrium he recommended squares numerous and exact in proportion to the height of houses and narrowness of streets. Dr. Wynne was explicit about the volume of air required per person for ventilating schoolrooms and public buildings, and he extended his notion to the mechanism of gas exchanges of the entire city.

While solid waste, heat, and foul smells were most easily perceived, we know from the vantage of hindsight that the critical problem was still the invisible pollution of the water supply by human sewage, compounded by grave difficulties of personal cleanliness without adequate water. The increase in deaths from intestinal diseases should be attributed to this cause. The differentials of death between rich and poor neighborhoods were the result of the geography of water pollution.

Water supply was a dual system, class structured. The elegant residential districts and the central business district used the piped water of a private corporation for an annual fee. The company extended its service somewhat, in order to postpone threatened municipal takeover. To protect its right to the flow of the Jones Falls, it acquired several valuable mill properties north to the city limits: Lanvale factory, Mount Royal mill, Rock mill, and the Eagle works. The company built one reservoir at 135 feet elevation (later the site of Belvedere Hotel at Chase and Charles streets) and a larger one at 67 feet elevation (near the east end of the present Pennsylvania Station). The lower reservoir filled directly from stream flow, and its capacity was expanded to 25 million gallons, to improve its function as backup supply in summer low flow.¹¹² Despite these improvements, by 1850 only half the city's built-up area was serviced by water mains, and about a quarter of its households were consumers. Builders of fine homes were encouraged to drain bathrooms and water closets "to water," in spite of legislation requiring that privies be sealed and emptied regularly. The poor and most of the middling population east of the Jones Falls had to carry their water from the eight hundred city pumps, that is, they depended on the shallow wells polluted from surface drainage, privies, and defective sewers or covered streams.¹¹³ There were no free hydrants and no public baths, and the nearest public swimming place was at Ferry Bar.

The city's efforts at storm drainage had also lagged. Both surface grades in the streets and underground drains were makeshift. Problems were handled piecemeal, so that little was accomplished for the money spent. After twenty-two years (1829 to 1850), the cutting down of Hughes Street at the foot of

Federal Hill was still imperfect. The docks were filled at the southeast angle with mud washed from adjoining streets, "owing to a bad grade and the want of paving."¹¹⁴ The ordinance of August 1837 ordering the bend in the Jones Falls at Centre Street to be straightened had not been implemented fifteen years later. Meanwhile, a new drain from Centre Street discharged so much water that it modified the channel and made a sandbank across three-fourths the width of the stream.¹¹⁵ Such accumulations contributed both to stagnation in time of drought and to the risk of destruction in time of flood. Downstream, the old meadow remained the perennial flood district, and in 1858 "the usual people" were forced to remove.

The fundamental problem was that no overall engineering concept or system was applied to grading. The city surveyor complained of the defective system of establishing grades "one, two and several squares at a time."¹¹⁶ Wyeth and Walker streets had "a vertical step" of over three feet where they joined St. Peter's Street. The Northern Central Railroad was located without presenting a topographic profile or any study of how it would affect the crossings of future city streets. Baltimore, the surveyor complained, possessed the most favorable ground for proper and economic grades of any city in the union, but "probably her grades are the worst." He urged a systematic topographic survey, which would make possible a rational organization of storm drainage. By planning all the grades at once, millions of dollars could be saved, and property owners could build and excavate efficiently.

At the same time, the board of health commissioners urged attention to underground storm drainage:

It appears that no survey of the sewers has ever been made. We are informed by the proper officer that there is not now, and apparently there never has been, a plat of the sewers prepared or recorded in his office. No one can now tell the forms, sizes, grades of decent [sic], connections nor directions of the sewers.¹¹⁷

Urban growth increased the load on the system, and the alternation of summer storms and summers of drought produced periodic crises, each worse than the last, of stench and disease. July or August storms produced freshets, followed by fill during the following winter. "We stood yesterday and watched the liquid mud running into Jones Falls. . . . It is nothing but mud, mud, mud, almost knee deep."¹¹⁸ The low summer flow of the falls was reduced by the expanded reservoirs and aggravated in years of drought.¹¹⁹ The water in McClure's dock was less than eight feet deep; a sewer emptied under it, and privies were built over it. When it was dredged in 1853, the stench was unbearable. In 1855 and 1856, at Smith's dock and Frederick Street dock, "the beds of the docks were deeply covered with a foul sediment, which, in the process of decomposition, was constantly emitting volumes of offensive gas."¹²⁰ By 1861 the bed of the Jones Falls was filled with smelly black mud nearly to the surface of the water as far up as Gay Street, and by 1862 the shores of Spring Gardens and Harris Creek were in the same state.

Conditions in the almshouse illustrate what was happening in the city as a

whole, in terms of the relation between drainage and water supply, the impact of congestion, and the differential impact on various classes of people. Dr. Thomas Buckler's investigation of crisis in the almshouse furnished the medical profession with a model of the engineering mechanism of municipal public health. It was built for five hundred. The management was considered respectable, and reports of 1843 were congratulatory of improvements in both sanitary and social engineering.¹²¹ They sought to separate "the virtuous poor from the dissolute vagrant," and the white from the colored women. Each group used its own stairway and dining rooms. There was a new mill and apparatus to lift water from Rutter's Run. An experiment with steam heat did not work, and the iron pipes were readapted for effluent. Water closets were introduced instead of buckets. Eight medical students lived on the premises, as well as an apothecary, an overseer with his family, and several hired hands. Attendants for the insane were chosen from among other inmates of the house. All the work on the improvements was done by inmates, rewarded by "a separate table."

But in 1844 and 1845 every lying-in woman died of childbed fever. In the history of the establishment no foundling had lived to the age of three years. Population rose to 750 persons, and in July 1849 86 died in a cholera epidemic.¹²² The spatial arrangements of the almshouse not only reflected a social order, but offered clues to the order of dying. In the main building, the basement was occupied by dining rooms, kitchens, and small rooms for "the more refractory class of maniacs." The ground floor contained the matron's office, diet kitchen, sewing room, dormitory for working hands, and a schoolroom. Upstairs, the men's hospital occupied the east wing, and the west wing contained the lying-in ward and the hospital for colored women. In the attic were sleeping rooms for the aged colored women. Few from this building died.

A two-story building known as the black hospital was on lower ground than all the rest. Male surgical cases were on the lower floor, female surgical cases on the upper. In this building more men died of the epidemic than women. The water closets opened outside the east wall. Through another opening in this wall the pigs were fed. On higher ground opposite, a new four-story building contained on the top floor "the most respectable aged women"; on the next floor a room for children, foundlings, and their nurses; in the ground floor and basement were cells for lunatics. In the lower cells all fourteen lunatics and their three attendants died of cholera, while above none caught it. A few feet from the north basement entrance was a "ley-hopper" connecting the water closets above with an underground drain and discharging through the north wall.

When Buckler inspected the premises beyond the wall he found on the east side the overflowed cesspool from the black hospital, and along the north side dead pigs floating in a pond several feet deep, "a pestilent fermentation," the overflow of the men's privy, the piped outfall from water closets of the men's wing of the main building, and also washings from the dead house (which averaged one postmortem a day), and a foul ditch from the linen wash house. Buckler blamed the contagious air from the piggeries that came into the buildings through the drainage openings. His analysis of the mechanism was in-

correct, but his actions were effective. He hired three free Negroes, two night-soil men and a hodcarrier, to fill the pond and clean out the ley-hopper. Two of the laborers fell sick with cholera (they recovered), but the disease then ceased.

In facing its crises of growth, Baltimore was handicapped by its relationship to the state and the county. The city's chartered powers and its representation in the state legislature had not grown in proportion to population or needs. For certain purposes of representation, taxation, and criminal justice, the city was merely a part of Baltimore County. The act for rebuilding the courthouse and record office after the fire of 1835 explicitly recognized the possibility that the city and county might be separated. The jail visitors recommended separation, as overcrowding became acute in the obsolete structure. In 1841 when the city modernized tax assessments, a clamor arose over tax evasion by wealthy persons who claimed their summer homes in the county as residences. In 1845 the city council objected to the legislature's interference in the reorganization of wards, and compared a "special, unjust and onerous tax upon the city of Baltimore" with the Stamp Act.

All of those issues contributed to the calling of a constitutional convention in Maryland in 1851. Political alignments in the convention appear sectional. The tidewater counties resisted constitutional reform and sought to guarantee property rights of slave holders. Eastern Shore delegates tried to reserve an option of eventual secession from the state.¹²³ A complete description of the constitution is beyond my scope, but its importance to the transformation and self-consciousness of Baltimore should be underscored. Baltimore obtained some increase of representation, although it was not satisfied, and was still outvoted by rural and hostile interests in the legislature. The new constitution strengthened county governments, increased the number of elected officials, and divorced Baltimore City from Baltimore County.

Like the incorporation in 1796, the crucial impact of the divorce was psychological. The separation of the city from the county gave Baltimoreans a new conception of the meaning of the city boundary, and the territorial integrity of the city was essential to a new conception of the urban mechanism. Divorce was attended by the usual unpleasantness over division of joint property: the almshouse, the jail, the courthouse, the tobacco warehouse.¹²⁴ The inventory itself suggests how weak were the collective instruments. Boundaries were reexamined, and Poppleton's plat was "corrected" and updated. The county proceeded to build a courthouse and jail at Towson, while the city built a grand new jail on the old property and selected sites for a bigger almshouse and a city hall. These were all of symbolic importance. That much might be expected. But there was beyond that a startling appearance of new initiative, a new sense of system, and a new long-range horizon in the plans proposed in Baltimore City beginning in 1851. As I shall discuss, most of the grand plans arose from problems of properties, boundaries, and powers of the city, rooted in the divorce proceeding.

The mayor appointed a Boundary Avenue Commission in 1851 to develop a plan for extending the benefits of squares and open spaces to the city as a whole,

The Political Mechanism

by surrounding the city with a parkway 250 feet wide.¹²⁵ The width between house fronts would allow a 20-foot walkway with a row of trees, a 40-foot carriageway (as in Broadway), a 130-foot median of trees, shrubs, walks, and benches, then a second carriageway and footway. The plantations would relieve the eye from glare and diminish the dust. It was a city-building scheme, just as Franklin Square and Broadway were neighborhood-building schemes. Its circumference would attract taxable improvements. The plan also reflected the concern with breathing spaces. The accumulated deficiency of places of recreation "caused us to look to our outskirts for what should have existed in our midst." Part of the stimulus came from South Baltimore interests who wanted to make Federal Hill a park "ere it be too late." Opportunities would have to be seized quickly, or property values would place the entire program out of reach. At the rate the city was being built up, they reckoned the territory within the boundaries would suffice for ten or twelve years.

John Latrobe was president of the commission and wrote their report. Other members were James Carroll, Fielding Lucas, Jr., Mayor Jerome, and the presiding officers of the city council. The city surveyor, Captain Thomas Chiffelle, prepared plats, profiles, and cross sections with the help of Augustus Faul, and the commission obtained free engineering advice from Latrobe's brother, B. H. Latrobe, Jr. Poppleton had reserved an easement along the city boundary for such an avenue, but it was a purely geometrical design, and the commission recommended certain departures in the interest of esthetics and economy. These departures were adaptations to the natural topography. "The noblest would be level," but there were perspectives to be included, and developed sites to be avoided, such as Mount Hope asylum. On the northern boundary alone there were seventy-five intersections that would have to be met at grade or rebuilt. Crossing the Jones Falls and the railroad would require a viaduct whose cost would increase with height. The estimate for the whole project was \$675,000.

The plan foundered on the elegance of its conception. Because it was strikingly sensitive to terrain and vista, the departures from Poppleton's plat would require city-county cooperation, or the legislature would have to adjust the city boundary again. Both solutions were unrealistic in 1852. "Under the present system the work cannot be done."¹²⁶ Once again the city was hampered by the flaw of the original Poppleton plat. Adequate for the speculative concept of exploiting flat raw space, block by block, acre by acre, it proved hard to restructure into a working mechanism in a real three-dimensional landscape.

Water, Parks, and Horsecars

The political growth and self-consciousness of the city after 1851 led to a new debate on water supply. It was resolved by a politically ingenious scheme, which joined together the mechanisms of water supply, green spaces, and horsecars. The first step was public acquisition of the water company, for \$1,350,000. The arrangement was completed in July 1854. The new city water board promptly doubled the length of distributing mains and the number of users, to half of all households.

Expansion of supply was more difficult. The board and council commissions of the '50s reviewed all the alternatives considered twenty years earlier. En-

gineering consultants were instructed to contemplate the needs of a future city of five hundred thousand and a per capita use of thirty gallons a day. One team, headed by James Slade, gauged the Patapsco River by night with floating candles to estimate velocities, and made the most elaborate topographical surveys so far done in the city.¹²⁷ He ran the 100-foot contour line, to evaluate what portions of the city could be served from reservoirs at elevations of 125 feet or higher. A second corps under Chiffelle surveyed the topographical problems associated with the Gunpowder supply and a conduit to Mine Bank Run.¹²⁸ Virtually all the engineering consultants recommended the introduction of water from Gunpowder Falls, a much larger supply, but at greater capital cost. The bold plan of T. E. Sickels called for a seven-mile "air line tunnel" through rock 50 to 270 feet below the land surface. Opponents muttered about a Gunpowder Plot: the "Know-Nothing" mayors, Samuel Hinks and Thomas Swann, favored expanding the Jones Falls supply to reservoirs upstream beyond the city limits. Looking back, Buckler attributed their reservoir schemes to "hydraulic rings, each having some plan of personal or general aggrandizement for the parties interested."¹²⁹ It was touch and go from month to month, but the final decision to develop the Jones Falls supply represented a failure of nerve. The difference was a question of vision, as one can see in Mayor Hinks's argument for it: "I am inclined to believe that the youngest male child of the present day would be an old man, before the city of Baltimore will number 600,000 souls, hence the utter folly of incurring now, for our posterity, such a debt as recent projects would entail."¹³⁰ Baltimore had made another compromise between Death and Go-Ahead.

Work was started in 1858 on Lake Roland (or Swann Lake), a four-mile Jones Falls conduit, Hampden Lake (Roosevelt Park), and a new Mount Royal Reservoir above North Avenue. All these works were outside the city boundary. Expenditures ran over the maximum ever seriously discussed, and the works immediately proved inadequate. By 1862 plans were under way to add another reservoir on Nicholas Rogers's hill, Druid Lake.

The reservoir plan was grafted onto a vision of Mayor Swann's that compensated for his earlier failure. Druid Lake would be not only a reservoir, but an ornament to Baltimore's first large park. To finance the development of Druid Hill Park, a boundary avenue, and parks for other sections of the city, a tax would be levied on the new horsecar system: a penny park tax on a nickel fare. Most cities, eager to grasp the benefits of the new mode of transport, missed the opportunity to cut in the city collectively on the profits. Swann's plans were stalled by negotiations with the omnibus proprietors, objections in the legislature, an uproar over the sellout of the franchise to a Philadelphia capitalist, and disputes over wages for construction labor. Nevertheless, service began on the first line in July 1859, and other lines were under construction. The horsecar itself was a simple device—a boxlike car for twenty-two passengers, much like the omnibus, and far cruder than the railroad Baltimore had built thirty years earlier. But from the first, horsecar service was conceived as an elaborate mechanism. Its network of rails would connect all parts of the city, including the several railroad stations. Swann's reasons were his own. The horsecar

Drains and Dredges

debates, like the water debates, revolved around the credibility of cost estimates, and allowed behind-the-scenes manipulation of participation in corporations and contracts. Baltimore was way behind in water, parks, and horsecars, and Swann had introduced his share of the delays. But his stroke of genius was to put it all together, to see the mechanism as a whole.

In this era of grand thinking, problems of drainage and development also came together into a grand scheme. In 1859 Thomas Buckler, who analyzed the epidemic at the almshouse, extended to the city as a whole his solution of filling the pond—he proposed shoveling Federal Hill into the basin. He argued that it would produce a vast level building area “of the best description,”¹³¹ solve at once the problems of drainage and dredging, and improve air quality. Buckler and Thomas Winans privately hired Benjamin Latrobe, Jr., for \$1200 to devise engineering estimates and a system of storm sewers for the new land. Augustus Faul mapped the topography. Latrobe figured that the enormous mass of clay and sand that would be removed from Federal Hill to reduce its “inconvenient height,” undo its “beetle brow,” its “ragged edge and winding gullies,” would correspond nicely to the 3 million cubic yards required to fill the basin and docks. Otherwise, Federal Hill would continue to stand, “an unhealthy looking tumour upon the lower limb of the city, covered with mean dwellings and unsavoury manufactories.”¹³²

There was widespread agreement on the inconvenience of the inner harbor, but the project was blocked by two considerations. First, the estimate of \$750,000 over three or four years seemed enormous at a time when the city was deeply indebted. A third to a half of the city’s annual budget was already interest on its debts. Second, there was resistance from Light Street property owners fronting on that “pampered and cherished puddle.” These “mysterious busybodies,” whom Buckler later referred to as “the House of Piers,” included Johns Hopkins.¹³³ They were presumed responsible for the disappearance of the printed engineering reports from the desks of city council members moments before they met to consider the issue.

The city did, however, create a sewerage commission to study both storm drainage and sanitary drainage. It was a commission of honor, that is, unpaid: Henry Tyson, John Dukehart, and J. Morton Saunders. They reviewed sewerage practices in London, Paris, and certain U.S. cities. Their engineering conception took into account three types of hydrological variation. The first was the normal seasonal variation. They recommended against connecting water closets and privies to the sewers, for fear that they would turn the inner harbor into a vast cesspool dangerous to health in the summer months. (In fact, it was, with over 20,000 illegal connections.) The second type of variation was the rare occurrence of extreme rainfall and flashfloods, say two or three inches in an hour. “Such occurrences do not take place once in ten years; if the sewers were made to carry off this excessive amount of water, their cost would be greatly increased.”¹³⁴ They undertook to calculate the sizes of the drains in a systematic manner, taking into account the size of the drainage area and the gradient, for rainfalls

up to one inch per hour. The third type of variation was the trend toward greater flow to be expected from further urban construction:

In the extended growth of most large cities, many difficulties have arisen on account of an improper appreciation, during the early stage of improvements, of the quantity of water which it would become necessary to void through them, after the cities became paved and compactly built.¹³⁵

The commission members figured that the difference between natural soils and urban terrain would at least double runoff. They recommended main drains of brick set in hydraulic cement, of circular form and diameters up to eight feet. All would function by flow of gravity, with only two or three small siphons of a standard still reasonable today.

Their 1862 report served as a guide for the city commissioner's office for location and construction standards for storm sewers for the next thirty years. For example, when the B&O built a sewer from Camden Station, it was instructed to conform to the plan. The older lines of storm sewers in the city today follow the lines of drains constructed under this plan. They did not, however, suggest any priorities of construction or estimate the costs, and there was no immediate action taken for orderly implementation. An accurate topographical survey would still be needed for actually building such sewers. In municipal engineering, Baltimore habitually chose neither Death nor Go-Ahead.

As at the almshouse, problems of physical and social engineering were interwoven. The fire riots and gang activity reflected to some degree the intensified spirit of neighborhood, the ethnic rivalries, the hell raising of the remarkably youthful population, and the concentrations of males in waterfront wards. To get control of the volunteer fire companies, the mayor and council, who paid for their equipment, repeatedly set forth new regulations. In 1856 they were "nationalized" like the water system. Fire fighters became paid professionals. The city appointed a fire chief and inspector and appropriated money for modernization. The new mechanisms were the fire alarm telegraph—a wonderfully rickety affair carried over the housetops—and seven steam-powered pumpers. It was a symbolic finale for the age of mechanism, and fire-fighting efficiency was greatly improved.

Waves of crime and violence were far more difficult to control. Numbers jailed for arson and murder were especially high in 1844-45 and 1850-52. Homicide and suicide taken together doubled. In 1857, 11 percent of deaths were from "other than natural" causes. The penitentiary population by 1853 had reached the level of 1835, and a quarter were serving terms for killing. The messages of Mayor Jerome in 1850 indicate the tendency to associate the poor, the unproductive, the violent, and the criminal with the foreigner. In January, after congratulating the city on its unparalleled prosperity and the police on a momentary improvement in quiet and good order, he expressed disgust at new forms of depravity: "A few years ago, and scarcely a beggar was to be seen. . . . Now every steamboat landing, every railroad depot, the doors of hotels, the post

Social Engineering

office, places of amusement, and our most public streets are literally crowded with filthy vagabonds."¹³⁶ He complained of women thinly clad or wretchedly dressed in rags, seated on the ground, on steps, or in corners, with a child at the breast, imploring relief. "These scenes ought not to be tolerated—they are not the growth of the United States or legitimate offspring of our government or institutions."¹³⁷ On 20 November the mayor reported a fearful increase of crime, disorder, and bloodshed for the past several weeks. He recommended gun control, law and order, an increase in the police force, and more street lighting. The identification of a foreign threat became more explicit throughout the fifties.

Violence both came from and was directed at the repression of Baltimore's second-class citizens. If one adds together the fifth black, the fifth foreign born, and their children, at least half the population was defined from the outset as a nuisance or threat, to be repressed in some measure. The traditional mechanism for processing healthy dependent young persons was binding out to trades. In a case of destitution, the "interesting looking" four-year-old was adopted, and the mother was "placed" in domestic service. But this mechanism failed, now that a great pool of labor was available. Industrial employers preferred to manage their labor force by hiring and firing at will, not by long-term contract or by the whip. And there was no "place" for the weak, the sick, or the intractable. The hospitals, asylums, or prisons that would accept the social refuse were overwhelmed. New mechanisms of social engineering were devised that might reform, cure, or render productive these troublesome elements, or at least remove them from the public streets.

The penitentiary population rose. Built for 256, it held 450 when in 1857 Dr. Charles Frick publicized its condition. In the penitentiary throughout the 1850s one finds about 25 percent foreign born and 43 percent black. Two-thirds were under thirty. The 100 most productive were contracted out to work in the day, the rest included a half-idiot girl, a number of old and infirm persons, and several insane who had to be watched closely. A third were in such bad health they could perform no more than "half labor," that is, sew carpet rags or pick wool. The overflow was housed in damp basement cells and given cod liver oil. The prison hospital ward was close packed; a third of its deaths were from tuberculosis.¹³⁸

The city jail, of course, had a much greater turnover. The number jailed rose from fifteen hundred in 1844 to thirty one hundred in 1854. The new jail was designed by one of the fine church architects of the city in Gothic style, with plenty of fashionable ironwork. It had three hundred cells for solitary confinement, about three times the capacity of the old jail. The numbers jailed continued to increase: in 1860 there were ten thousand, plus ten thousand more who were mere "lodgers": tramps, drunks, or homeless persons who spent a night in the watch house to keep warm.

The creation of new institutions for the insane and for juveniles illustrates the trend toward specialization. It is difficult to distinguish new hopes for therapy and reform from new forms of repressive removal and attempts to shift the costs on to the state government. The state opened Mount Hope Hospital in 1842. It was operated by the Sisters of St. Vincent de Paul (Sisters of Charity).



The city jail was a massive, castlelike structure of stone and metal built near the Jones Falls. Designed by Niernsee and Nielson, architects, it was dedicated in 1858 with a grand banquet of the city leaders in the galleries of the prison block.

Twenty of the personnel were supported by the church, seven by the city. Its capacity was 220, at least half in the insane department. In 1845 the Maryland Hospital began receiving state support and was restricted to cases of insanity. Its capacity was also about 200. In 1852 the state chose Spring Grove as a site for the Maryland Insane Asylum. It was high, healthy, and distant from the city. In 1857 Moses Sheppard founded a private asylum at Towson. There were also 73 insane in the almshouse, including some "subject to fits" who were kept chained, and some "old and harmless." The city committed itself to build a new almshouse and hospital that would be larger and healthier. It selected a property from the Canton Company, called Bay View, now City Hospitals.

A joint effort of the city and George Brown was the House of Refuge for delinquent youth, the prize example of a mechanism of social engineering. Brown subsequently left the largest fortune thus far probated in the state of Maryland: it paid for the building of Brown Memorial Church in Bolton Hill. His role was characteristic of a new form of personal philanthropy, very different from the days of his grandfather, Alexander Brown. Instead of a circle of the wealthy getting together to back a public effort for the common good, one sees the single individual who applied his personal wealth, whim, organizing skill, and his own theory of society. A fifty-five-acre site was chosen on

Frederick Road beyond Gwynns Falls. At the laying of the cornerstone the speeches associated crime with foreigners. "The cities of the old world, it is well known, are casting upon our shores, to a terribly fearful extent, the vilest, and most reckless, and desperate of the population that swarm in their deepest and darkest purlieus." Brown blamed foreigners for "rendering the night hideous in parts of our own cities" and for the "horrible multiplications of robberies, and drunkenness and murders." Social ills and dependency he attributed to individual weakness, and the cure was an individual moral battle, in which the House of Refuge would play a role. "Its object is to save, not to punish. . . . It aims directly at the intellectual and moral culture of the poor, friendless and vicious children . . . growing up . . . to be pests and curses upon communities and the body politic."¹³⁹ The refuge was promptly filled to capacity. Statistics were compiled to show that indeed, of 350 inmates, white and between ten and sixteen years old, 60 percent had foreign-born parents. Most had lost one parent or both, and three-quarters were described as "offspring of intemperance."¹⁴⁰

In spite of his logic of work, order, and discipline, Brown, too, participated in the rhetoric of violence. Like Mayor Swann of the Know-Nothing (American) party,¹⁴¹ Brown preached a racism directed against the foreigner, in particular German Catholics. His opponents (Democrats) preached a racism directed primarily against the free blacks. One form of racism vied with another. Violence was part of the politics of the age, as well as the demographic structure of the city.¹⁴² The election riots from 1855 through 1859 became ever more outrageous. The ballots were striped, so one's vote was public, and the polls were crowded. The parties bought votes and let the whiskey flow. Mayor Swann recommended increasing the police force and a penalty for carrying concealed weapons such as ice picks. He also complained of gangs in vacant abandoned houses and of permissive parents. The Democratic governor intervened in the election season of 1857, but the militia refused to support him. At last, in its finest tradition of 1812 and 1835, the state legislature reasserted partisan political repression. The Democratic legislature, on the last day of the session, to "free the city" and "protect the ballot," unseated the Know-Nothing delegation from Baltimore. It empowered the governor to take over the city's police force, liquor licensing, and elections. He appointed state boards of control over these vital municipal powers, and the city was required to pay all costs. The state has kept these controls, an anomaly in American politics, for over a hundred years.

In spite of the stability of political parties and political rhetoric in Maryland from the early '50s through the Civil War, real and important changes took place in the operation of the municipal mechanism. One key to this political puzzle lies in the fact that Baltimore City had such limited powers of self-government. Given a degree of freedom from Baltimore County, after 1851, Baltimore City bestirred itself to face its environmental problems. But new limits were quickly reached. The city could not emancipate itself from the state of Maryland. It could operate only at the whim of a legislature of slave owners. The deep divisions of American society were already present, on the eve of civil war.

In June 1860 the first Japanese embassy to the United States was conducted

to Baltimore. A certain freshness of eye and foreignness of translation reveal features of the city that were new, and in which Baltimoreans took as much delight as the visitors: "On both sides of the street there were buildings of seven or eight stories like great mountains. . . . Ships come up to the very entrance of the doors of the buildings."¹⁴³ The Japanese delegates manipulated, drew, and marveled at each piece of Baltimore mechanism—the water closets, radiators, and bathing facilities, the gas lights and fireplace stoves. They were entertained, along with thousands of Baltimoreans, by a display of the new steam fire engines and the seventy-eight-foot folding firemen's ladder.¹⁴⁴ Unaware of the deep social divisions, the embassy was impressed by the wonderful new connections—gas mains, water mains, horsecar tracks, fire alarm telegraph. Still a primitive apparatus, these connections tied the neighborhoods, rich and poor, commercial, residential, and industrial, into an intricate urban mechanism.

Baltimore had always lived on an emotional roller coaster of passionate rhetoric, courtroom drama, election tumult, and turbulent town meetings. The blow-by-blow pace of wartime meshed with that traditional style to make life a succession of urgent personal crises.¹⁴⁵ Each summer Baltimore entrenched itself for an invasion—in 1862 a whiff of gunpowder from Antietam, in 1863 the arrival of the wounded from Gettysburg, in 1864 the raids of Jubal Early. In the off season there were the commercial blockade, federal arrests, and draft lotteries.

The mob reaction at the outbreak of the war was characteristic of the city's ambivalence throughout. President Lincoln ordered northern troops to Washington. They had to pass through Baltimore by train. On 19 April 1861, Baltimoreans stoned a Massachusetts regiment as it crossed the downtown area to transfer from the President Street Station to the Camden Station to continue to Washington. Four soldiers and twelve citizens died. The railroad bridges were burned to prevent northern troops passing through Maryland.¹⁴⁶ The German community of Baltimore had already secretly sent volunteers to Washington, and on 20 April the symbols of their Republican and Union sentiments were mobbed. The Turnverein hall and the presses of the *Wecker* and the *Sinai* were destroyed. Rabbi Einhorn retreated to Philadelphia. On 24 April John Pendleton Kennedy wrote with regret, "Maryland has found herself impelled into opposition (to the Union) by a popular sentiment no man can withstand."¹⁴⁷ But four days later Henry Winter Davis wrote, "A great reaction has set in. If we (of Union sentiment) now act promptly, the day is ours and the city is safe."¹⁴⁸ The British consul wrote to England, "The character of the people of Baltimore is decidedly impulsive, and many who a week ago advocated the most violent measures, now confess it would be madness on the part of Maryland to precipitate herself into a combat with the North."¹⁴⁹ The struggle of impulse and realism went on throughout the war. As in other wars, Baltimore was a stage for the sublime, the ridiculous, and the sordid, but this time it could not develop the continuity of purpose, the solidarity, or the daring of its wars before or since.

Both impulse and realism were responses to the city's strategic location,

A Position the Most
Delicate

which required a wholly different posture from wars with Britain or Europe. Over ten years the city changed its perception of its location. What in 1851 seemed to Thomas Swann a site of opportunity, a pivot of trade between North and South, profiting from the "unnatural strife" of sectional division, he now perceived as a site of alarming vulnerability.

Maryland of all her sister states occupies a position the most delicate. Situated upon the borders of Pennsylvania, exposed upon an extent of coast beyond her ability adequately to protect—drawing her supplies mainly from the West by a line of intercommunication which has cost her more than \$30,000,000, she may well look to her safety in the event of the severance of the Union.¹⁵⁰

Baltimore was, naturally, subject to that heartbreak of situation between North and South, complicated further by self-interest and class interest. The governor urged a neutral position. The wealthy tobacco men of the Germania Club were "sesesh," while the Turnverein were antislavery and pro-Union. Samuel Harrison claimed that the manufacturers tended to northern sympathy, the landed gentry to southern.¹⁵¹ As in other parts of the nation, families were divided, with sons fighting on either side. But specific to Baltimore was the vise that gripped its history in earlier generations: the political geography of Maryland. Baltimore, with its preference for free labor and its mercantile pragmatism, was embedded in a state founded on the economy of tobacco and slavery. The state's traditional landed leaders, shored up by archaic voter representation, were unable to come to terms with economic, social, and political reality. They postponed each decision, grasped at straws, and allowed themselves to be carried away by the oratory of blood, race, and states' rights. Marylanders were, in turn, embedded in a nation moving rapidly away from their life style and experience, and they were but a tiny element of the nation. They had an old powerful legal claim and eloquent voices, but only a handful of votes. Successive constitutions in Maryland (1851, 1864, and 1867) increased the representation of Baltimore and simultaneously allowed new powers to the several county governments. But such readjustments could not resolve the problems of Baltimore so long as war continued. Any compromise with political forces in the state moved Baltimore away from compromise with the political forces of the nation. The tug of war between state and federal powers took place in the unwilling city. Governor, mayor, police commissioner, and railroad president shuttled anxiously around the Baltimore-Annapolis-Washington triangle.

Baltimore's situation, its extensive border and its railroad lifeline meant that the city would be occupied. Abraham Lincoln's suspension of the right of habeas corpus was directed at Baltimore, to assure the passage of troops through Maryland. On 14 May General Butler ostentatiously camped the Union army on the "beetle brow" of Federal Hill, and began a series of arrests. He refused to bring those accused of treason to court. John Merryman's friends appealed to Chief Justice Taney, a Marylander, who said the power of the constitution and the law "has been resisted by a force too strong for me to overcome." The passions of Baltimore that drove it again and again into impasse and contradiction during the war were passions at the core of the American political ideal—

individual civil rights. The conservative outrage of Justice Taney and the progressive insolence of Henry Winter Davis were part and parcel of that ideal. The apparent caprice of Baltimore was rooted in tough convictions.

The city's delicate position also explains the uneven advance of Baltimore's economy during the Civil War, a case very different from other American cities. The War between the States was a period of little physical or material change in Baltimore, though it was one of intense changes of feeling and activity. Washington, only forty miles away, grew rapidly, and real estate prices rose in its suburbs and along the rail lines into Washington. The Baltimore papers began carrying daily columns of Washington local news. But in Baltimore itself, construction dropped to a hundred dwellings a year, and foreign immigration nearly ceased. Northern and inland cities such as Pittsburgh and Cincinnati, more secure from a strategic point of view, developed new industrial muscle. But because of the perennial threat of invasion as well as the reputation of impulsiveness, Baltimore's industrial development was limited. Its only growth sectors were closely tied to its role as a strategic transportation center. The railroad stations and shops expanded, handling massive troop movements. The Northern Central enlarged Calvert Station, dug great drive-in cellars, expanded the Bolton shops, and double tracked the line north to York and extended it toward Elmira. The B&O shops at Mount Clare kept busy rebuilding the rolling stock and bridges repeatedly destroyed by the Rebels. This was the nation's essential rail line, and Baltimore's essential military role was to keep the B&O Railroad operating. Hayward-Bartlett expanded into the Winans shops adjoining Mount Clare. Its heavy machine and casting operations now covered four acres. It cast round shrapnel for the Union. The shipyards were busy, too. On the south side of the basin the city filled and developed five hundred feet of waterfront at the old city yard, and began filling the marine hospital property. On the north side, the Abbott iron works cast iron plate for the first sixteen Monitors—foreshadowing a postwar decline of the wood shipbuilding industry in adjoining yards of Canton and Fells Point. Oyster and vegetable packers expanded, selling tinned food for the armies, and the garment industry produced uniforms in fits and starts.

Trade was exceedingly volatile. Fortunes were both made and lost. Prices for coffee, flour, and sugar rose, but naval warfare increased the risks. Baltimoreans slipped easily into the wartime commercial style of the white-haired "Old Defenders," quick to recognize shortages and short-term opportunities. The exposed position was convenient for purchases "across the lines"; merchants such as Hamilton Easter and manufacturers like Moses Wiesenfeld were arrested—rightly or wrongly—for selling to the enemy.

Maryland, like other border states and the Confederate states, had passed a "stay law" to try to keep money in the state. The Maryland courts would not enforce payment of debts to outsiders. The ruin of Simeon Hecht was an example of the ethical conflicts implicit in such public policy. Relatives whom he had set up in business refused to pay their New York and Boston creditors. Hecht himself, as intermediary, felt obliged to pay them off (\$60,000), while his local creditors in Baltimore sued him. When Hecht was bankrupted, the chain of credit

was broken, and with it the bonds of family and ethnic solidarity, the relation of trust on which business in the '50s still rested. His son and biographer noted bitterly, "Fortunes were made quickly in those days. . . . There were a great deal of speculators, notably among our leading coreligionists. . . . Some men arose from obscurity and became multimillionaires in a very short time."¹⁵² Hecht started over again with his former energy and \$2000 goods on credit from John Hurst, bought a boat and went down to scavenge old metal from the James and York rivers. This speculation lasted only eighteen months before competition became too severe. William Wilkens was another enterprising German immigrant of the '40s. In the '50s he had sent agents to the battlefields of the Crimea, and now he followed the Army of the Potomac to Richmond and Petersburg, to clip the tails from dead horses. Wilkins himself was a confirmed pacifist. Horsehair was essential for hospital mattresses as well as horsehair sofas and carriage upholstery. At his "curled hair factory" on the Frederick Road, horsehair and hog bristles were spread out like hay over the hillsides to dry. The smell was less sweet.¹⁵³

Those risky and distasteful ventures were nothing compared with the thoroughly sordid commerce in manpower. Maryland supplied its share of the cannon fodder and more than its share of the officers to the Union army. As the war went on, the pool of volunteers dried up. The hospitals filled. Local industrial and farm labor became scarce. During the summer of 1863 the pressure became evident. A federal conscription law was passed, and a confiscation law that empowered the army to free, employ, or induct any Rebel's slave who came to army lines. In May, Maryland planters protested that their slaves were fleeing to Washington. In mid-June as Baltimore prepared for Confederate attack, slaves of suspected Confederate sympathizers were conscripted to build entrenchments. In July, Secretary of War Stanton sent Birney, son of a famed abolitionist, to recruit among them. Birney went farther. He freed sixteen shackled blacks from a slave pen on Pratt Street—pledged to enlist. His boats began slipping into Maryland rivers at night to receive "contraband." After Gettysburg, hospitals, schools, and warehouses were filled with freightcar loads of wounded soldiers. Women of the city nursed them. "That was all Baltimore saw of the war."¹⁵⁴ The largest convalescent hospitals, over a thousand beds each, were in Patterson Park on the east and at George Stewart's residence at the west end of Baltimore Street.

As the labor squeeze continued, Negro recruiting stations were organized in Maryland. City dwellers threatened by conscription saw them as "the poor man's substitute." Free blacks in Baltimore met to demand equal pay from the army.¹⁵⁵ Bounties were bid up to encourage enlistment of Maryland slaves whose masters were presumed loyal to the Union: the slave would be freed, receive \$50 on mustering in and \$50 on mustering out, while his owner would be compensated \$300 to \$400 from federal and state governments. These activities produced a collapse of the market for slaves, and Maryland moved toward an emancipation constitution. The constitutional convention spent two months debating a Declaration of Rights. Baltimore City ultimately voted five to one for the "free constitution and free labor," the state's Union soldiers ten to one

by absentee ballot, while the other northern counties were touch and go, and southern Maryland and the Eastern Shore opposed it four to one.

In September 1864, the announcement of new draft quotas unleashed new anxieties. The city and the several counties were competing in the bounties they offered to persuade men to enroll. In each ward of the city exemption clubs were formed. They put the arm on wealthy citizens to raise money to buy recruits from outside the ward. They pressed the men eligible for the draft to put \$100 in a pot, to be divided among those drafted. The eligibles of the fourth ward agreed to pay a \$200 bonus to any man who would put in a substitute to the credit of the ward, to reduce their draft quota. Throughout the month of September, the price of such substitutes rose. The second ward club had a list of eighty-seven substitutes "who could be got for \$1000 each." Businesses were advertising in the newspapers, "36 Alien or Contraband Substitutes. . . . Quotas filled. Satisfaction guaranteed. Bond for security. . . . Greenbacks! Greenbacks! Greenbacks!" while the editors fretted, "The material for volunteer recruits really appears to be in limited supply as compared with the demand, and, though there may be ever so much money collected, it is difficult to see where all the men which will be wanted are to come from."¹⁵⁶

When the lotteries were finally held, about a third of the conscripts were able to supply substitutes. Some skilled workers were sent to the navy yard. Of those unable to finance substitutes, a large proportion were black or Irish. The colored churches had raised a pot for their draftees, but as in all other economic sectors their reward was smaller. On 1 November 1864 Maryland celebrated statewide emancipation under the new constitution with ringing of churchbells, cannon salutes, and prayers, while "freedmen" were being drafted.

The system of substitutes and incentives naturally provoked resistance, frustration, and innumerable dramas. To discourage attempts to escape induction, bounties were withheld till the men arrived at "Camp Cattlegrounds."¹⁵⁷ A Canadian substitute in Baltimore swallowed his four \$100 greenbacks, but they gave him emetic powders till he vomited up the notes. "Slightly disfigured with the tomatoes, they were cleaned and placed to his credit."¹⁵⁸ The soldiers were kept under guard on their way to the camps. "Bounty jumpers" were shot running up Eutaw Street out of Camden Station yard.

A deserter who left the ranks and went into a fruit store was court-martialed and shot at Fort McHenry. "He died a penitent man, and thus the awful majesty of military law and discipline was satisfied."¹⁵⁹ The railroad stations were surrounded by taverns, lunch rooms, and street vendors of cakes and pies. A Delaware soldier shot a Baltimore boy over the price of his lemonade. The soldier was arrested that evening while he stood guard duty outside the Soldiers Rest Rooms, the Conway Street houses adjoining Camden Station, where twelve hundred to fifteen hundred soldiers were herded. He was hanged at Fort McHenry, a punishment less majestic than being shot. Another deserter suffocated in a trunk as his lover was bringing him to Baltimore to make his escape.

Government detectives or military police were everywhere. Near the President Street Station a government detective shot the proprietor of a lager beer saloon. On another occasion men rushed out of the taverns, beat the government

detective, and took his soldier prisoner from him. The police then closed the tavern for selling liquor to soldiers. On Christmas Eve, while Maryland's soldiers in their camps were eating 1450 Christmas turkeys donated and prepared in Baltimore and three thousand pies donated by the Gilmor House, the provost guard shot a soldier in the snow outside the central police station for failing to halt and identify himself.

The war aggravated the city's old deep-seated problems. The principal cause of death was not battle, riot, or murder; it was smallpox. Eleven hundred cases were reported in 1864 and 1865, adding urgency to the usual litany of urban drainage complaints—the defective sewers, the private dumping of night soil, and the worsening stench from the Jones Falls and the “fetid swamp” at Spring Garden. Druid Hill Park, the city's pride and joy, offered a fresh-air diversion, and pick and shovel work began on Druid Lake. No other major works were undertaken, due to the extra costs of defense works every summer and the irritability of taxpayers in a time of inflation and business risks. The mayor made a habit of overestimating tax collections, overrunning the budget, and relying on short-term loans. His “floating debt” reached \$2 million, setting a pattern for slovenly municipal finance in the '70s.

Such was the war Baltimore saw firsthand. The rest depended on the press (somewhat cowed) and on the thousand little gossip networks of a war of movement transmitting currents of human emotion. Campaign and convention oratory alternated from May to October with camp meeting preachers in the tents. At McKim's mansion (Howard's), three hundred disabled of the colored troops sang hymns together daily. While Grant's army was digging and mining and fighting in front of Petersburg, and the gunboats were shelling Mobile, “A large and very fashionable assembly of ladies and gentlemen in Baltimore attended the auction of a rich and elegant collection of glassware formerly belonging to Charles Carroll of Carrollton. . . . Every article offered sold at most extravagantly high prices.”¹⁶⁰ Alongside the lists of Maryland soldiers captured in front of Richmond and those wounded at Cedar Creek were published the outcomes of the billiard tournament among Baltimore gentlemen.¹⁶¹ Wounded soldiers continued to pour through the “distributing hospital” in West's buildings on Union dock: first the Union wounded, then the Rebel wounded. In April 1865, four years after the mob at the railroad station, the funeral train of Abraham Lincoln passed northward through Baltimore, and the hospital on Union dock received a boatload of released prisoners from Richmond, “living skeletons, covered with filth.”¹⁶²

A Lifelike Energy

Newspaper sources: the *Baltimore Sun* began daily publication in 1837. Phoebe M. Stanton read and made available her notes on the *Sun*, 1837 to 1852. The *American* frequently carries more detail of labor conflicts.

I also used annual messages of the mayor, commissioners of health, school commissioners, commissioners for opening streets (from 1841), city commissioner (public works), and chimney sweeps.

A useful source is Ferdinand C. Latrobe, *Iron Men and Their Dogs: A History of Bartlett, Hayward* (Baltimore: I. R. Drechsler, 1941). Ferdinand Latrobe, son of John H. B. Latrobe, was the mayor of Baltimore for seven terms between 1875 and 1895. The company, depending on dates of partnerships, is variously called Hayward, Bartlett; Bartlett, Hayward; Bartlett-Hayward; or Barlett, Robbins, and is now a division of the Koppers Company.

James Wynne, *Sanitary Report of Baltimore: Extract from the First Report of the Committee on Public Hygiene of the American Medical Association* (reprinted in annual report of the Baltimore Commissioners of Health, 1850).

1. *Sun*, 25 March 1850. On other locomotives, see *ibid.*, the *Tiger*, 12 November 1850; the *York*, 18 September 1850; and 29 June 1849, 19 October 1846, and 25 March 1851.

2. *Ibid.*, 28 August 1849.

3. *Ibid.*, 19 February 1849.

4. *Ibid.*, 23 April 1849; see also 10 June 1851.

5. See Brinley Thomas, *Migration and Urban Development: A Reappraisal of British and American Long Cycles* (London: Methuen, 1972); Richard A. Easterlin, *Population, Labor Force, and Long Swings in Economic Growth: The American Experience* (New York: National Bureau of Economic Research, 1968); Walter Isard, "A Neglected Cycle: The Transport-Building Cycle," *Review of Economics and Statistics* (November 1942), pp. 149-58; *idem*, "Transport Development and Building Cycles," *Quarterly Journal of Economics* (November 1942), pp. 90-110. Construction cycles in Baltimore are discussed in relation to national and regional cycles in John R. Riggleman, "Variations in Building Activity in United States Cities" (Ph.D. diss., The Johns Hopkins University, 1934). Construction figures appear in the *Sun*, 1 February 1844, 31 October 1845, and 13 March 1847.

6. Factory descriptions are primarily from John C. Gobright, *City Rambles, or, Baltimore As It Is* (Baltimore: John W. Woods, 1857), and *idem*, *The Monumental City* (Baltimore: John C. Woods, 1858). These two volumes provide details of factory operations, employment, and organization. The Knabe piano works was located in the block bounded by Eutaw, Cross, Warren, and West streets.

7. Curlett's was at Holliday and Saratoga streets.

8. Whitman's farm tool factory was in Canton, on the block bounded by Cambridge, Essex, Burke, and Concord streets (*Sun*, 23 January 1849). On the copper companies at Canton and Locust Point, see *Sun*, 1 October 1846 and 22 March 1849.

9. On the Mason bakery, see *Sun*, 8 March and 25 October 1847. Numsen's pickle works was on Jackson Street, south of Cross Street.

10. *Sun*, 17 August and 21 September 1852, and 6 May 1851.

11. *Ibid.*, 15 March 1845.

12. The city invested \$1.5 million in the Northwestern Railroad through Virginia to Parkersburg, \$0.5 million in the Susquehanna Railroad to connect Bridgeport and Williamsport, and \$1 million in the Pittsburgh and Connelsville line to Cumberland and the Cumberland Valley line to York.

13. *Sun*, 23 January 1849.

14. *Ibid.*

15. Information on rolling stock and bridge material has been compiled from annual reports of the B&O Railroad and the B&S Railroad. On railroad finance, see Edward Hungerford, *The Story of the Baltimore and Ohio Railroad, 1827-1927*, 2 vols. (New York: G. P.

Putman's Sons, 1928), and Jacob H. Hollander, *The Financial History of Baltimore* (Baltimore: The Johns Hopkins Press, 1899).

16. On the roles of Bollman, Fink, and C. H. Latrobe (all B&O bridge engineers) in railway bridge design, see John E. Greiner, "The American Railroad Viaduct: Its Origin and Evolution," *Transactions of the American Society of Civil Engineers* 502 (October 1891): 349-60.

17. John H. White, "James Milholland and Early Railroad Engineering," *Contributions from the Museum of History and Technology*, no. 69 (Washington, D.C.: Smithsonian, 1968), pp. 1-36. For Milholland's local activities in Baltimore, see also the *Sun*, 19 October and 7 December 1846, 3 May and 24 June 1847, and 9 March and 8 July 1848.

18. *Sun*, 21 September 1852. Camden Station was not built until 1856 and was never completed fully according to the design.

19. Calvert Station was demolished for the Sun Papers building; the freight station still stood in 1973.

20. *Sun*, 27 April 1849 and 28 June 1850.

21. *Ibid.*, 1 April 1851.

22. Gobright, *City Rambles*.

23. Baltimore had three cast iron bridges over the Jones Falls in 1847 (*Sun*, 23 January and 12 February).

24. The popular Latrobe stoves were from a patent of John H. B. Latrobe, lawyer for the B&O and brother of Benjamin H. Latrobe, Jr., their engineer. The Cathedral portico was designed by John (John E. Semmes, *John H. B. Latrobe and His Times, 1803-1891* [Baltimore: Norman, Remington, 1917]).

25. Peter L. Payne and Lance E. Davis, *The Savings Bank of Baltimore, 1818-1866*, Johns Hopkins University Studies 72 (Baltimore: The Johns Hopkins Press, 1954). See also the manuscript compiled by Richard Cluster for 150th birthday of the Savings Bank of Baltimore, which can be consulted in offices of the bank.

26. Avery O. Craven, *Soil Exhaustion As a Factor in the Agricultural History of Virginia and Maryland, 1606-1860*, University of Illinois Studies in the Social Sciences 13 (Urbana: University of Illinois Press, 1925).

27. Thomas Swann, "Address Delivered at the Opening of the Maryland Institute," (pamphlet, Baltimore, 1851). Swann became the mayor in 1856.

28. Frank R. Rutter, *South American Trade of Baltimore*, Johns Hopkins University Studies, 15th series, no. 9 (Baltimore: The Johns Hopkins Press, 1897).

29. *Sun*, 27 April 1852.

30. Gerald W. Johnson, Frank R. Kent, H. L. Mencken, and Hamilton Owens, *The Sun Papers of Baltimore* (New York: Knopf, 1937).

31. *Ibid.*, p. 80.

32. *Ibid.*, pp. 85-86.

33. Gobright, *City Rambles*, p. 83.

34. *Ibid.*, p. 46.

35. *Sun*, 2 September 1851. Similarly, Cortlan's, *American*, 5 July 1858.

36. *Sun*.

37. *Ibid.*, 31 March 1851.

38. James Silk Buckingham, *America: Historical, Statistic and Descriptive* (London: Fisher, Son & Co., 1841).

39. *Sun*, 10 October 1850 and 8 August 1851.

40. Albert Schumacher's home, built in 1850, now Asbury House, belongs to Mt. Vernon Place Methodist Church.

41. The proportions of houses of two and three stories can be estimated from annual reports of the chimney sweeps.

42. *Sun*, 7 March and 17 April 1850.

43. *Ibid.*, 1 September 1849.

44. On the returns of the water company, see *ibid.*, 2 and 30 August 1848.

45. Wynne, *Sanitary Report*.
46. *American*, 1835, and *Sun*, 12 June 1839.
47. *Sun*, 11 April 1850 and 6 May and 11 June 1852, 30 September 1851 and 24 March 1852.
48. Buckingham, *America*.
49. Board of Health, *Annual Report*, 1858.
50. *Sun*, 29 July 1847.
51. Gobrigh, *City Rambles*.
52. *Sun*, 8 and 24 September and 7 October 1847, 29 January 1848.
53. Canton Company, *Annual Report*, 1850.
54. On property speculation near Mount Clare, on Ramsay, Fulton, McHenry, and Mount streets, see *Sun*, 11 April 1851 and 1 December 1858.
55. Information on B&O employees is drawn from published payrolls of 1848 and 1852.
56. On the West Baltimore subdivisions of Riddlemoser, Shirk, and Bolton, see *Sun*, October 1840 and 18 August 1847; in East Baltimore, *ibid.*, 11 June 1839, 18 April 1843, 12 June 1850, and 26 May 1852.
57. The earliest state charters for mutual-type building associations, in 1850 and 1851, were the St. James Building Association, the Baltimore German Building Associations nos. 2 and 3, the Pius Building Association, Metamora Building Association, the Building Association of St. Joseph, the Baltimore City Domicil Society, the Baltimore House Building Association no. 1, the Central Building Association, and the Baltimore German Homestead Association.
58. The city commissioner's annual report for 1860 contains an index of streets, giving their length and width.
59. Board of Health, *Annual Report*, 1858.
60. Immigrant arrivals at the port of Baltimore are accounted from the city's head tax, names on file in city hall.
61. Mathew Carey, *Sun*, 14 September 1838.
62. Ludwig Beutin, *Bremen und Amerika* (Bremen: Schunemann Verlag, 1953). See also Dieter Cunz, *The Maryland Germans: A History* (Princeton: Princeton University Press, 1948).
63. Harold A. Williams, *History of the Hibernian Society of Baltimore, 1803-1957* (Baltimore, 1957).
64. M. Ray Della, Jr., "The Problems of Negro Labor in the 1850's," *Maryland Historical Magazine* 66 (1971): 14-32.
65. John Latrobe, "Address to American Colonization Society," 24 January 1851.
66. *Sun*, 14, 18, 21, and 25 May 1858.
67. *Ibid.*, 3, 4, and 7 June 1859.
68. *American*, 8 July 1858; see also *ibid.*, 12 February and 11 October 1858, and *Sun*, 28 and 29 June, 8 July, and 4 November 1858 and 29 June 1859. Events of 1858 are reviewed, with new testimony, in *American*, letters of 7 and 9 October 1865.
69. W. David Baird, "Violence along the Chesapeake and Ohio Canal, 1839," *Maryland Historical Magazine* 46 (1971): 121-34.
70. *Sun*, 20 January 1838.
71. *Ibid.*, 14 November 1850.
72. *Ibid.*, 8 October 1837.
73. *Ibid.*, 8 October 1839.
74. *Ibid.*, 9 September 1850.
75. *Ibid.*, 28 January 1851.
76. *Ibid.*, 15 June 1852.
77. *Ibid.*, 12 October 1852.
78. Noah Davis, *A Narrative of the Life of Rev. Noah Davis, a Colored Man*, 2d ed. (Baltimore: J. F. Weishampel, Jr., 1866).
79. Cluster, manuscript. Experiences of several Baltimore area blacks in this period (Macks, Foote, Hammond, Wiggins, and Williams) are recounted in reminiscences of the

1930s: George P. Rawick, general ed., *The American Slave: A Composite Autobiography* (1941; reprint ed., Westport, Conn.: Greenwood Press, 1972), vol. 16.

80. Residential patterns of the several ethnic groups and of the occupancy of alleys in 1828, 1850, and 1880 were worked out by students at The Johns Hopkins University and me, from city directories and original schedules of the U.S. census (microfilms in Maryland Historical Society) for sample blocks. Residential geography of the rich can be traced from ward lists of taxpayers with incomes over \$1,000, published in the *American*, 10-18 August 1865.

81. *Sun*, 16 August 1838 and 18 December 1839.

82. *Ibid.*, 14 December 1839.

83. *Ibid.*

84. *Ibid.*, 19 December 1839.

85. *Ibid.*, 25 September 1843.

86. *Ibid.*, 3 July, 26 August, and 9 September 1852.

87. *Ibid.*, 12 August 1852.

88. On several victims of poverty, see *ibid.*, 8 October 1839, 28 May 1849, 20 December 1851, and January 1858.

89. *Ibid.*, 19 July 1839.

90. *Ibid.*

91. On the early history of the mission societies, see Edward John Hickey, *The Society for the Propagation of the Faith, Its Foundation, Organization, and Success, 1822-1922* (Washington, D.C.: Catholic University of America, 1922), and Benjamin J. Blied, *Austrian Aid to American Catholics, 1830-1860* (Milwaukee: By the author, 1944). Baltimore had received some \$20,000 from the Leopoldine Foundation by 1860, as well as a large share of the foundation's direct contributions to the Redemptorists, plus sizeable travel allowances for the Redemptorists. Contributions from the Ludwigsverein and from the Society for the Propagation of the Faith were probably larger.

92. On the Redemptorists in Baltimore, see Michael J. Curley, *The Provincial Story: A History of the Baltimore Province of the Congregation of the Most Holy Redeemer* (New York, 1963); John F. Byrne, *The Redemptorist Centenaries* (Philadelphia: The Dolphin Press, 1932); and St. James Church, *Centenary* (Baltimore: Lewis A. Gorsuch & Co., 1934). St. Michael's Church was built at Pratt and Register streets and rebuilt at Lombard and Wolfe; Holy Cross was on West Street at Light; St. Anthony's orphanage was on Central Avenue near Madison Street.

93. Sister Mary Gilbert Kelly, *Catholic Immigrant Colonization Projects, 1815-1860* (Washington D.C.: U.S. Catholic Historical Society, 1939), pp. 122-29.

94. See Joseph Salzbacher, *Meine Reise nach Nord-Amerika im Jahre 1842* [My trip to North America in 1842] (Vienna: Wimmer, Schmidt, and Leo, 1845).

95. Manuscript journal in the archive of the Oblate Sisters of Providence, 30 June 1846. Father Joubert died in 1843. Another talented Redemptorist, Father Joseph Neumann, was in Baltimore from 1840 to 1844, and again as superior from 1847 to 1852, when he became bishop of Philadelphia; he was canonized in 1977.

In 1857 the Jesuits replaced the Redemptorists as chaplains. They founded the chapel of St. Peter Claver in the basement of St. Ignatius Church, then bought the old Universalist Church for a colored parish, St. Francis Xavier.

96. Isaac M. Fein, *The Making of an American Jewish Community: The History of Baltimore Jewry from 1773 to 1920* (Philadelphia: Jewish Publication Society, 1971).

97. George E. Bell, "Emerson and Baltimore: A Biographical Study," *Maryland Historical Magazine* 65 (1970): 343.

98. On Baltimore church buildings, the role of Robert Cary Long, Jr., and Niernsee and Nielson, see Phoebe M. Stanton, *The Gothic Revival and American Church Architecture: An Episode in Taste, 1840-1856* (Baltimore: The Johns Hopkins Press, 1968), and R. H. Howland and E. Spencer, *The Architecture of Baltimore* (Baltimore: The Johns Hopkins Press, 1953).

99. The uptown moves of the Pennsylvania African Methodist Episcopal Zion and Madison Avenue Presbyterian churches occurred in 1848.

100. Buckingham, *America*.
101. H. Shelton Smith, *In His Image, But . . . : Racism in Southern Religion, 1780-1910* (Durham: Duke University Press, 1972).
102. School enrollment figures were mapped from special censuses of the school board. Annual reports of school commissioners contain the occupations of fathers of high school pupils, as well as data on buildings and ground rents.
103. *Sun*, 5 January 1843.
104. Wynne, *Sanitary Report*.
105. William Travis Howard, Jr., *Public Health Administration and the Natural History of Disease in Baltimore, Maryland, 1797-1920* (Washington, D.C.: Carnegie Institution, 1924).
106. Thomas H. Buckler, *A History of the Epidemic Cholera As It Appeared at the Baltimore City and County Alms-house, in the Summer of 1849* (Baltimore: J. Lucas, 1851).
107. *Sun*, 27 January 1852.
108. Wynne, *Sanitary Report*.
109. *Ibid*.
110. Mayor's message, January 1852; City Council journal, 1st branch, 1852, p. 745; Board of Health, *Annual Report*, 1858.
111. *Sun*, 12 June 1839.
112. *Sun*, 5 January and 8 March 1848, 29 July 1845, 5 December 1846, and 9 October 1850.
113. Deep artesian wells were also introduced as permanent sources at Fort McHenry (145 feet), Fort Carroll (247), and Smith's distillery (132 feet).
114. Board of Health, *Annual Report*, 1851 and 1856.
115. City Commissioners, *Annual Report*, 1852. See also *Sun*, 8 June 1849.
116. City Surveyor, *Annual Report*, 3 January 1857.
117. Board of Health, *Annual Report*, 1856.
118. *Sun*, 11 January 1850.
119. On the relation between summer freshet and winter fill, see the mayor's messages of January 1847 and January 1859.
120. *Ibid*., Mayor Hinks, January 1856; Mayor Swann, January 1857, 1862, and 1863.
121. Baltimore City Council journal, 1st branch, 23 February 1843.
122. Buckler, *Epidemic Cholera*.
123. Jean Baker, *The Politics of Continuity: Maryland Political Parties from 1858 to 1870* (Baltimore: The Johns Hopkins Press, 1973).
124. Baltimore City, *Report in Reference to City Property Made by the Register, on the 2nd of May, 1851* (Baltimore: J. Lucas, 1851).
125. Baltimore City, *Report of the Board of Commissioners to the Mayor and City Council Relative to the City Boundary Avenue* (Baltimore: J. Lucas, 1852). (A copy is filed with the map in the Library of Congress Map Division.)
126. Mayor's message, January 1853.
127. Baltimore City, *Report upon a Supply of Water for the City of Baltimore, by Commissioners . . . together with Reports Made to the Commissioners by Thomas P. Chiffelle and James Slade, et al.* (Baltimore, 1854), pp. 90, 101.
128. *Ibid*.
129. Thomas H. Buckler, *Baltimore: Its Interests, Past, Present, and Future, A Letter* (Baltimore, 1873). See also Thomas H. Buckler to editor, *Sun*, 11 December 1875.
130. As cited by Nelson M. Blake, *Water for the Cities: A History of the Urban Water Supply Problem* (Syracuse: Syracuse University Press, 1956), n. 113.
131. Thomas H. Buckler's address to city council, *Sun*, 24 November 1858.
132. Benjamin Latrobe, Jr., "Report of 23 May 1859," in Enoch Pratt Free Library, Baltimore, Md.
133. Buckler, *Baltimore*.
134. "Report of the Special Commission Appointed to Investigate the Matter of Sewerage," 1862, manuscript, in Baltimore City Department of Public Works.
135. *Ibid*. The extent to which the plan was followed for storm drainage can be

evaluated from consultant studies to Department of Public Works, 1952, containing maps of older storm drains.

136. Mayor Jerome's messages of January 1850, 20 November 1850, and 19 June 1851. See also the mayor's message of 15 January 1849.

137. Ibid.

138. Charles Frick, *Annual Report of the Physician, Baltimore City Jail*, 1857.

139. Baltimore House of Refuge, "Laying of the Cornerstone," 28 October 1851 (pamphlet, Baltimore, 1851). See also George Brown, "Memorial to State Legislature," 5 February 1852 (pamphlet, Baltimore, 1852).

140. Statistics of inmates are found in House of Refuge annual reports.

141. Antiforeign comments of Mayor Swann can be found in his messages to council, 15 November 1858 and January 1860.

142. Baker, *Continuity*. The American party held a parade and an anti-Catholic meeting, "Eternal Separation of Church and State," when Bishop Kenrick attempted to collaborate with the city council for a reform of public schools and a share for Catholics in the school fund (City Council journal, 1st branch, 1853, p. 545; *Sun*, 19 August 1853).

143. Masakiyo Yanagawa, *The First Japanese Mission to America (1860), Diary*, ed. M. G. Mori, trans. Fukuyama and Jackson (Kobe, 1937).

144. *Sun*, 9 June 1860. On the first steam engine, see *ibid.*, 18 May 1858.

145. Wartime party politics in Maryland can be followed in Baker, *Continuity*, and Charles Wagandt, *The Mighty Revolution: Negro Emancipation in Maryland, 1862-1864* (Baltimore: The Johns Hopkins Press, 1964).

146. J. Thomas Scharf, *History of Baltimore City and County* (Philadelphia: J. H. Everts, 1884), and original newspaper accounts.

147. John Pendleton Kennedy to S. P. Chase, 24 April 1861 (Chase papers, as cited in Wagandt, *Mighty Revolution*, p. 11).

148. Bernard C. Steiner, *Life of Henry Winter Davis* (Baltimore: John Murphy & Co., 1916), p. 195, as cited in Wagandt, *Mighty Revolution*, p. 13.

149. Frederick Bernal, British Consul, to Lord John Russell, 29 April 1861, in Public Record Office, as cited in Wagandt, *Mighty Revolution*, p. 13, n. 34.

150. Thomas Swann to Salmon Chase, 28 January 1861, Chase papers, cited in Baker, *Continuity*, p. 51.

151. Samuel Harrison, journal manuscript, Maryland Historical Society.

152. Hecht, memoir.

153. Harry L. Albrecht, "An Economic History of the Wilkens Hair Factory at Snake Hollow" (paper for Broadus Mitchell, The Johns Hopkins University, 1939, in Enoch Pratt Free Library).

154. Hecht, memoir.

155. The meeting of free colored men was held on 29 February 1864.

156. *Sun*, 24 September 1864.

157. Camp Cattlegrounds was actually Camp Bradford, located on the state fairgrounds at Remington.

158. *Sun*, 31 October 1864.

159. *Ibid.*, 22 September 1864.

160. *Ibid.*, 15 September 1864.

161. *Ibid.*, 24 October 1864.

162. U.S. Christian Commission of Maryland, *4th Report of the Committee* (Baltimore, 1866).