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Accidents and Their Prevention

A Revealing Phase of Rochester's History

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Individual accidents, like isolated events of any sort, defy historical interpretation, but a series of similar accidents is quickly recognized as "no accident" by a public which frequently demands that preventive measures be adopted. Unfortunately our popular fascination with accidents is usually confined to those full of novelty or violence and bearing the imprint of chance. We tend to lose interest in mishaps that become commonplace unless they are dramatized in some special way. Three fatalities in succession at one intersection or two drownings in an abandoned cistern will shatter our complacency and produce an alert citizenry. Generally the alert subsides after the first corrective gesture, and it frequently requires a greater catastrophe to renew the alarm. Yet over the years we learn, consciously or unconsciously, to avoid the repetition of old accidents, and both the pattern of accidents and the successive preventive measures comprise interesting phases of our history.

Hazards of the Horse-and-Buggy Days

It is surprising to discover by a perusal of the daily press of one hundred years ago, that our somewhat morbid interest in accidents was not shared by readers of that day, or at least was not served by local newspapers of the period. Equally surprising is the discovery that the indignation we often experience on hearing or reading of a new series of accidents was unknown to, or at least not publicly voiced by, most Rochesterians in the city's early years. That their complacency was not

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due to a dearth of frightful accidents is evident in the several filing drawers of closely packed reference cards compiled under the heading "accidents" in the Rochester Newspaper Index at the Public Library.

While no complete record of the accidents in 19th Century Rochester is available, the several thousand references assembled in the Newspaper Index make it abundantly clear that the horse-and-buggy days were not as quiet and peaceful in Rochester as some have supposed. The accident reports of the early years were brief and to the point, little more than death notices. Some in fact neglected to give the location of the accident, while many other details were omitted by a press which had not yet developed a reportorial zeal. Yet the fact that John Smith was gored by a bull, or bitten by a dog, or lost his hand to an axe, was repeated with change of name a score of times in Rochester papers of the pre-Civil War period. Mary Smith more frequently met death by catching her clothes on fire. Perhaps the few simple words given to each of these accidents were sufficient for the period, though even Yankee restraint seems overdone when the misfortunes of not a few strangers, who literally dropped from view through holes in the town's numerous bridges, were reported with a similar laconicism.

But if most accidents were still regarded as "acts of God," a feeling that some were due to man's negligence began to appear even during village days. Thus the second Rochester charter of 1826 introduced a number of safety regulations, notably in the field of fire prevention. The fire wardens were given jurisdiction over fire places, chimneys and ash bins, while some of the duties of the watchmen were precautionary in character.

Nevertheless the general attitude of fatalism persisted. Except for the health officers appointed under state law in 1832 and 1836 when Cholera invaded the town, and under the second city charter of 1844, Rochester was slow to assume additional powers to prevent accidents. At least five travelers on canal boats suffered fractured skulls when they failed to duck under one or another of the low bridges with which Rochester abounded, and the cryptic accounts of these tragedies generally suggested annoyance rather than sympathy for the victims. Other unfortunates were trampled by runaway horses, toppled on their heads by jolting wagons, crushed by falling trees, or seriously burned by exploding lamps without attracting blame on themselves; but some at least of those who fell into the canal and failed to find a place to climb

out, or tumbled off a bridge into the river, or lost their way in a blizzard and froze to death, or suffocated in one of the recurrent fires were suspected of having indulged too freely at one of the local grog shops, thus prompting the formation of successive temperance societies.

Rochester's most famous "accident" of the early years was the foolhardy leap of Sam Patch over the main falls on Friday, November 13, 1829. Sam's fame as a falls jumper had spread widely from his mill-town home in Connecticut, and after successful performances in most of the towns along the fall line in the East, he had come west by canal to display his skill at Niagara Falls. His return through Rochester brought an invitation, which he could not refuse, to jump the Rochester falls as well. A platform was built making the total height 120 feet above the pool at the foot of the falls. A crowd of over 10,000 spectators, who gathered from the village and surrounding farms, lined the brink of the gorge as Sam Patch, somewhat tipsy from the cheers he had taken at a tavern beforehand, mounted the platform and shouted his favorite motto to the chilly north wind. "Some things can be done as well as others" was his boast as he made his last jump of the season —which turned out to be his last on this earth.

Sam's leap into eternity sent a sobering shiver through Rochester and spurred the activity of many solemn reformers, but it could not restrain the numerous lads who raced with the early fire engines so recklessly that more injuries were suffered in their exciting dash through the streets than from the flames themselves. Yet several of the early fires were destructive enough, notably the great Rochester House fire of April 29, 1853, which destroyed the largest hostelry in town and cost the lives of four guests, three of them women. Many of the members of a dozen volunteer companies seemed more intent on demonstrating their superiority over rival companies than in battling the blazes and some were suspected of lighting fresh fires for new tests of speed and endurance. But when in the sixties the need for troops to defend the Union prompted the introduction locally of horse-drawn engines, the excitement engendered by the sounding of the court house bell and the clanging gongs of the fire engines occasionally drew racing lads under the hoofs of the charging steeds.

Youngsters who escaped such hazards were frequently maimed by falling out of a tree, from a roof top, or down the side of the deep Genesee gorge which presented a constant challenge to youthful adventure. The loss of an eye or some other serious injury from explod-

ing firecrackers were commonplace on successive Fourths even before the Civil War, when injuries from bursting guns or stray bullets became more frequent.

Drownings in the river, the canal or the raceways continued to lead other types of fatal accidents in number and exceeded 150 in Rochester and its adjacent towns during the 1850's. A few of the casualties were courageous men who had leaped in to save a struggling victim. The ability to swim was still a rare accomplishment, but bathing in the canal or river was frowned on by the authorities more because of the indecent exposure of slightly clad males than because of the risk to life it posed—no female bathers were mentioned until after the Civil War when occasional parties of heavily garmented bathers began to visit Charlotte beach during the "melting season."

Many serious injuries and a few deaths resulted from industrial accidents in the early Rochester mills. A hand or foot lost to a whirling saw, an arm to a cog wheel, or a leg mangled while fixing a water wheel, supplied grim little notices for the Rochester dailies. The belts and machinery of other shops exacted their toll among workmen who failed to stay clear of these hazards. Such accidents began to increase during the forties after the arrival of the railroads gave a new impetus to local machine shops.

The early railroads themselves brought new hazards. Rochester's first steam line, the 36-mile Tonawanda Railway claimed two victims within six months. Ten more lost their lives as the trains of that road and the Rochester & Auburn, opened in 1842, jumped the tracks a dozen times during the first decade of operation. The flimsy rails were partly responsible, but a yoke of oxen or a stray cow could derail a train and did so in Gates and Pittsford respectively, though fortunately the number of casualties in each case was small. The first local train collision brought railroading's first decade to a close with one fatality on March 2, 1847.

* * *

Other new hazards appeared as the city grew in size and acquired new facilities. Sometimes a new convenience was introduced with appropriate caution. Thus an ordinance of 1845 directed that matches be kept only in safe places and the general precaution was so great that two decades passed before a child's death was attributed to playing with matches. The Rochester Gas Company commenced to distribute its product in 1848 with such care that, while many deaths from coal gas

fumes were reported in these years, as far as the press notices show the first fatality blamed on illuminating gas occurred in 1862 when a roomer blew out his light instead of turning it off.

The introduction of horse cars the next year brought a first death within a month, yet in view of the numerous fatalities caused by other horse-drawn vehicles the record of the traction company in limiting its toll to nine deaths during its first quarter century was a remarkable one. Meanwhile, racing or runaway horses continued to rank next to drowning as a cause of fatalities. And when we consider the frightful hazards, the number of such victims who were trampled while attempting to halt a runaway calls for a belated expression of honor to these unsung heroes.

Despite the relatively slow pace of the horse-and-buggy days, the proportion of fatal accidents to total deaths during the first ten years for which health board records are available, 1867-1876, was .034 per cent, as compared with .033 per cent during the ten years before World War I, and .061 per cent during the high-tide of automobile fatalities in the early 1930's. Moreover, several of the city's most disastrous accidents occurred during that early period, and while none of them could be blamed on the horse, all were caused by the reckless disregard of safety precautions that characterized the era. Fortunately, as we shall see, these tragedies helped to kindle a new sense of community responsibility.

Rochester's early concern for building safety, evident in the fire precautions of village days, was permitted to lapse as the years advanced. The haste with which many of the early buildings were erected resulted in several collapses during or shortly after their construction. These accidents, together with falling scaffolds, bricks, cornices and signs, accounted for numerous injuries and several deaths before the City Council was moved in 1862 to create the post of Fire Marshal with responsibility for the inspection of new building construction. Unfortunately many other duties were assigned to this official who became a sort of clerk to the fire department. While his early reports to the council frequently proposed increased powers of control over wooden buildings and other safety measures, soon a preoccupation with the details of the numerous fires crowded out the concern for building regulations.

A renewed interest in the problem developed after the disastrous collapse of the S.S. Peter and Paul School building in January 1869.

That tragedy, which occurred during a crowded holiday service, killed eight and seriously injured forty others. But while much sympathy was expressed for the victims the need for more adequate supervision of construction was again deferred. Indeed, even the collapse of a five-story building on downtown State Street in 1878 produced only a new report full of earnest recommendations which were again tabled and forgotten.

Rochester's most terrifying accident was the naphtha explosion of December 21, 1887. There were in fact three successive explosions, and the alarm caused by the first blast brought many startled citizens into the streets where flying objects loosened by the second and third explosions inflicted numerous injuries and caused five deaths. Three large flour mills located near the Vacuum Oil Works on Brown's Race were destroyed and damage to the city was estimated at over \$250,000. A near panic was produced by the mysterious nature of the explosions, which were not explained until the next day, when it was discovered that some naphtha from the Vacuum Oil Works had seeped into the city sewers where various pockets of the gas had exploded. The location of responsibility for such accidents was hotly debated in Rochester that winter.

The city was destined to suffer a much greater catastrophe the next year when the Lantern Works fire cremated 35 trapped workers and inflicted serious injury on many who jumped to safety. The frightful disaster came at the end of a protracted debate over the need for more effective fire precautions and demonstrated the folly of half-hearted measures. The debate had started in 1876 when news of a disastrous fire in a New York theater prompted the adoption of an ordinance requiring the provision of emergency exits in Rochester theaters. The Fire Marshal's successive efforts to enforce this ordinance met resistance because of a doubt of the council's power to apply the regulation to existing structures. Work on a fire escape at the Opera House was held up on that account until 1882 when an impending investigation by the Fire Marshal brought quick compliance there. The investigation covered hotels, factories and tenements as well as theaters, and revealed that, of 120 buildings where numerous people lived or worked or crowds gathered, only one tenth had adequate emergency exits. Many owners were spurred to adopt precautions as a result of this survey, yet the collapse of a five-story building the next spring and the Lantern

Works fire of five years later proved the inadequacy of most of these measures.

The appalling toll of the Lantern Works fire brought a prompt outpouring of relief for the injured and for the families of the dead. A sum of \$27,265 was raised by donations and benefits and a special committee was created to administer the fund. But, as the editor of the *Democrat* declared, generosity after a disaster was no substitute for precautions beforehand, and the Common Council devoted many hours to the problem that winter. Investigations disclosed that most of the fire escapes provided by the Lantern Works had been inaccessible to the workers for one reason or another or had served as fire traps themselves. A new ordinance was adopted requiring the provision of iron fire escapes with stairs where women worked (iron ladders could be substituted if men alone were employed) and guarded platforms at the head and foot of all such escapes. Fire resistant doors were to be installed as directed by the Fire Marshall, and other precautions were adopted. A later amendment exempted buildings adjudged fireproof from these requirements, but under the spur of the catastrophe much was accomplished and the factory inspector was able to report at the end of the next year that 342 fire escapes had been put up in the city within the previous 18 months.

Most of the other major disasters of the city's early years were due to freaks of weather, notably floods in the river, about which little or nothing was done. Fortunately the city's weather extremes were moderated by the great lake to the north, and deaths due to freezing or to sunstroke were rare, yet the lake added to the area's rainfall, especially to its snowfall, and frequently a combination of circumstances produced serious floods in the Genesee Valley. The loss of life over the years was confined to a few excited onlookers who fell into the surging torrent in their eagerness to get a closer view. But the loss of property was great and threatened to increase with the city's growth.

Indeed the city's growth had placed so many obstacles in the river's path by 1865 that its surging flood that year assumed almost a retributive character. The new Main Street Bridge, completed a few years before (and still standing today), had been more substantially constructed than its predecessors. Its five stone arches seemed capacious enough on normal days, but the distance between the abutments had been reduced, seriously constricting the river at this point, while the extension of the piers both north and south of the bridge created traps

for logs and driftwood which threatened to convert, and finally did convert, the bridge into a dam. The buildings erected along the north side of the bridge in effect raised the height of the dam so as to divert any flood waters into the central business district on the low west side. The Erie Canal aqueduct, a stone's throw up the river, presented a similar obstacle and served a similar function. Thus in the spring of 1865 when the surging tide, fed by melting snow and a downpour of rain throughout the valley, descended towards Rochester on March 17, the Genesee quickly filled the arches of the Aqueduct, and of Main Street Bridge as well, and burst over the top to surge through the business district, inundating cellars and first story offices, tearing up sewers and pavements and causing property damage in excess of a million dollars.

Despite this disaster, the most costly in the city's first half century, no effective preventive measures were taken for several decades, and while none of the recurrent floods quite reached the height set in 1865, several posed serious threats, and few years passed without provoking sober debate on the knotty question. The need for precautionary measures was frequently discussed in connection with other types of accidents, but except in the case of fire prevention and some health regulations little was accomplished. The one big achievement was the provision of an adequate and efficiently distributed water supply which so greatly improved the city's fire fighting facilities that the threat of serious fires was cut drastically and fire insurance rates were reduced almost as sharply. The economy was so marked that Rochester was encouraged to take other forward steps in this field, and to consider preventive measures in other fields as well.

The Age of the Bicycle and the Trolley

The complacency with which most accidents had long been accepted was beginning to disappear in the seventies. While the search for preventive measures remained in the discussion stage for two or three decades, a new sense of social responsibility was emerging. The press was discovering a new interest in the details of accidents; welfare institutions were extending relief to the victims; state and local authorities were beginning to compile statistics, and the public slowly came to recognize the need, not only for preventive regulations, but also for adequate enforcement techniques.

The gradual change in attitude was evident in the slow development of precautions against drownings, still the most numerous fatalities in the early seventies. Swimming was an accomplishment many boys had acquired by the old method of trial and error, but the first recorded mention of swimming lessons appeared in 1867 when Doxtater's Bathing House on North Water Street announced the installation of a bathing pool "with swimming instruction available during the season." Doxtater's establishment dated from the mid-fifties and, with earlier and contemporary bath houses, had long served the needs of residents who lacked bathing facilities in their homes. Since Rochester did not get its water system until the mid-seventies, that need was still large, and indeed the lack of convenient facilities in the home may have contributed to the appalling number of drownings, which comprised nearly half the total accidental fatalities in 1869. When the 14 drownings that year were matched again the next summer, the editor of the *Union & Advertiser* urged the city to establish public bathing facilities and to give swimming lessons to interested youths. The formation of a swimming club was proposed, and one writer ventured to suggest that girls, too, should learn to swim as a precaution against drowning.

Bathing at Charlotte beach increased so slowly that a bath house was not considered necessary until 1885 when the managers of Ontario Beach Park finally provided one in order to clear the beach of the bathers' tents that had previously sufficed. A safe area in the water was roped off for bathers and apparently non-swimmers were fairly content with these provisions for it was not until 1890 that two ladies, who waded beyond the ropes and fell into a hole, supplied the first drowning victims.

A lifeguard station had been established by the Federal Government at the port of Rochester in 1878, primarily as a precaution in case of marine accidents. The crew, whose headquarters were located east of the river, would occasionally row around the piers to watch the beach during water events in the eighties and nineties, and Captain Webb, its commander, undertook to stimulate a greater use of the water by staging practice exhibitions by his men once or twice a summer. Swimming was easy to learn if taught scientifically, he declared in 1883, yet a member of the crew drowned a decade later.

Four drownings at the beach in the early nineties prompted the organization of a volunteer lifeguard service in 1895. While no men-

tion of the service appears in later years, some precautions must have continued for only three drownings occurred at the beach during the next two decades. Other and more commercially profitable amusements still dominated the park until 1918 when the city finally acquired it. Public bath houses were erected there and at Durand-Eastman park the next year, and regular lifeguard service was provided by the park department.

The city parks, established in 1888, had been moving in this direction for a number of years. A section of the river in Genesee Valley Park had been roped off in the early nineties for bathing under the watchful eye of an attendant who sometimes gave swimming lessons. Sanitary and other hazards prompted its abandonment after a few years, but an outdoor swimming pool was constructed at that park and at Seneca Park, too, in 1904, a year before the city's first public bath house (opened in 1899) provided a pool. Swimming instruction at certain periods in these pools, and in a half-dozen others provided by the youth associations and social clubs, so greatly increased the number able to swim that, despite a rapid multiplication of bathers at the beach and elsewhere, the number of drowning victims never again reached the high point of 18 in 1887 and averaged around ten a year during the next two decades.

Rochester's success in checking the toll of drownings contrasted with a fluctuating climb of fatal accidents generally, from an early high of 70 in 1882 to a new high of 179 in 1916. Drownings, already surpassed by railroad fatalities in the mid-eighties, were likewise exceeded by fatal falls in the nineties and frequently by fatalities from burns and asphyxiation. One or two deaths were caused each year by falling elevators; a similar number resulted from other falling objects, from poison, from knife or axe cuts. New fatalities from electrical shocks appeared annually after the mid-eighties, and occasional fatalities resulted from sports activities. Individual carelessness seemed at fault in most of these accidents, but striking examples of contributory negligence in some cases prompted a new demand for community safeguards.

Possibly the demand for action was stimulated in part by the more sensational reporting of accidents in the eighties and nineties. No details were too harrowing for the public press in these years as the gory remains of a body severed on the tracks, crushed between the couplings of two cars, or splattered at the bottom of an open elevator shaft seemed to challenge the literary skill of a new generation of

reporters. Obvious precautions, such as the guarding of elevator shafts and the insulation of wires, were required in the new building ordinance of 1897, when additional fire precautions were likewise prescribed. The Fire Marshal who protested the increase of his responsibilities without an expansion of staff, received the aid of one clerk in 1899. As the years advanced his staff, soon named the Bureau of Buildings and Combustibles, was steadily expanded with the addition of several inspectors in response to the needs of the building boom and the more exacting requirements of the revised building ordinances of 1904 and 1911.

Yet, in spite of additional precautions, accidents continued to occur, sometimes in unexpected places. The collapse of the crowded grandstands at Culver Field in 1906 inflicted serious injury on 20 excited fans and resulted in one death. The collapse of a new emulsion building under construction at Kodak Park, causing the death of four workers that November, was blamed on the faulty work approved by the engineer of a Detroit concern holding the contract, but the failure of Eastman executives to check such details emphasized the need for an extension of the city's boundaries in order to assure municipal supervision even over model factories.

The city's reaction to the many frightful railroad accidents of the seventies strengthened its insistence that the New York Central elevate its track through the central district. The completion of that great project in 1882 eliminated several of the most hazardous crossings, but these busy tracks still crossed outlying streets at grade and, with four other railroads, relied on warning whistles to forestall accidents. Thus, after a brief pause, the number of railroad fatalities commenced to mount again, totaling 29 in 1894 when the attempt to operate with unskilled workmen during a strike produced an unprecedented toll of casualties. Improved brakes, block signals and other safety devices progressively reduced the number of such accidents in subsequent years, despite increased traffic, yet casualties in the freight yards and at the grade crossings persisted and, with the fatalities from electric trolleys (which were generally lumped with those of the steam railroads), never fell below 15 a year and reached a new high of 37 in 1912.

The electric trolleys brought new hazards in the nineties. Their speed, in contrast with the old horse cars and other forms of transportation, was so eagerly welcomed that no effort to curb it was made until a series of six fatalities within the first year of operation brought a

change of attitude. Nets were installed on the front of the cars to catch bodies that came in the way and save them from the wheels. Improved brakes were developed and installed. Gradually as horses, pedestrians and motormen became adjusted to the new speeds, the number of fatal accidents was reduced despite a many-fold increase in the traffic.

The appearance and extension of the trolley lines aggravated another hazard and speeded its elimination. The increased number of electric wires had commenced in the late eighties to crowd the downtown streets with colonnades of poles and to blot out the sky with a mesh of wires. The havoc created among these wires by a heavy snow fall or by a wind strong enough to topple a few trees or poles was appalling; with the arrival of the trolleys the chance that a falling electric or telephone wire might cross one of the high voltage wires made the situation still more frightening. After a sobering taste of the dangers involved, during a severe storm in October 1900 when two businessmen lost their lives from wires dangling in front of their stores, the Main Street community united to demand a removal of the wires into a conduit tunnel under the street. The debate over its proper management and its slow construction consumed two years, but by the second fall Rochester could take pride in an open Main Street, free of telephone and electric wires and poles, and was ready to extend its model system of underground services into other parts of the city.

Another cause of accidents which aroused great concern, although few fatalities resulted, was the bicycle. When these machines first made their appearance on the city streets in the early eighties their number was small, but after the perfection of the "safety" bicycle at the end of the decade the number of wheels and the number of accidents mounted rapidly. By the mid-nineties, with nearly 20,000 wheels in the city (and doubling in number by the end of the decade), accidents were being reported at the rate of 100 a day and the threat of \$5 fines seemed to have little effect. An ordinance banning cyclists from the sidewalks was hard to enforce, though not as difficult as the 6-mile speed limit. To make the regulation more enforceable the limit was raised in 1895 to 10 miles an hour (8 in the central district) and bicycle police were sent out to catch "scorchers" who violated the rules. Scarcely a day passed during summer months without at least one arrest, and of the many injuries to pedestrians or cyclists at least a dozen proved fatal.

Many cyclists resisted the adoption of regulations requiring the use of lights at night and the installation and use of bells and brakes, but many likewise joined with great enthusiasm in the move to develop separate bicycle paths along the principal highways. Rochester was soon equipped with the most expensive array of side paths in the state, greatly reducing the pedestrian hazards, though head-on crashes between racing "scorchers" continued to occur, and the danger of a broken wheel and a painful injury from an unexpected rut in the poorly tended cinder paths persisted. Cycle accidents began to decline only as the bicycle was abandoned for the automobile.

The first appearance of the automobile caused immediate consternation among the city's numerous equine residents. The sight of J. B. West's horseless carriage steaming down State Street on April 1, 1898, was no April Fool's joke to a placid Dobin drawing a milk wagon, and before bystanders could stop the horse he had spilled 200 gallons of milk, knocked down and seriously injured a passing cyclist and wrecked the wagon against a telephone pole. J. B. West, Rochester's pioneer automobilist, soon had a number of suits on his hands as a result of the excitement his home-built steamer created. While he was held responsible at first for the injuries thus produced, his appeal ultimately won exemption for automobilists from any such damages unless caused by an illegal or reckless use of the car. By the spring of 1901 Rochester had fifty horseless carriages of all types, and already the problem of checking reckless "biling" was troubling the authorities. Accidents increased as the automobiles multiplied, and the first fatality occurred in 1903, but it was not until the number jumped to five in 1909 that a real alarm was sounded.

The first ordinance regulating the use of automobiles was passed in January 1901. Speed within the central district was limited to 6 miles an hour, with 8 miles the limit in the rest of the city. Each machine was to be registered and to be equipped with two lamps and a bell or gong, and all passing of on-coming vehicles was to be on the right. Twenty miles an hour was the state limit set for the open roads beyond the city's borders, and when one Rochesterian, who had paid \$10,000 for a car imported from France, exceeded that limit, a fine of \$50 was levied and collected. It was not unusual for a speeder to wave in scorn at the pursuing bicycle cops; moreover, as the number who owned cars mounted, their identification became more difficult, and a requirement that each must obtain and display a license number was adopted by the

state in 1903, though it was not put into force locally for another year. State and local regulations did not always agree, and some drivers, who claimed the right to go 10 miles an hour within the city, as permitted under the state law, took advantage of Rochester's lenient enforcement of the license tag law by removing their license number when an accident occurred in the city. Hit-and-run drivers made their appearance, as well as drivers who raced the steam trains to a crossing without success.

When the number of automobiles owned in the county reached 1000 in 1905, Rochester created its first traffic squad for control of the busy intersections downtown. Soon the bicycle squad was equipped with motorcycles, but Rochester did not resort to the use of shotguns to halt speeders, as some neighboring towns, following Buffalo's lead, ventured to do. Most of the early cars were driven by the sons of well-to-do families, and the officers were inclined to be lenient in their enforcement tactics; but when a drunken driver of good name crashed into a tallyho carrying 25 ladies on an outing and threatened to shoot any who reported the accident, the police were ordered to bring in all drunken drivers. Popular indignation mounted when an auto ran down and fatally injured a man alighting from a trolley in 1906. The 300 influential members of the Automobile Club were able to defer action on a new ordinance until 1910 when, in a calmer mood, the speed limits were increased to 10 and 15 miles an hour in the downtown and outlying districts respectively and limits were set to parking on many business streets. Still some wild races occurred on Rochester's principal thoroughfares as the police tuned their motorcycles up to 25- and even 35-mile speeds in an effort to overtake and stop some of the more reckless drivers. A rumor that automobilists who maintained speeds of 20 miles an hour for long periods developed an ailment known as "automobile heart" failed to provide a deterrent. Local members of a National Highways Protective Society supported its campaign for a state law requiring all drivers to secure licenses and all cars to display two registration plates. Such a law passed in 1910 and stipulated that drivers must be at least 18 years of age; driving tests were required of all who drove for hire, who on passing received special chauffeurs licenses.

While the early automobiles created a great deal of excitement and caused many accidents, the number of fatalities was not as large as those from several other causes. Illuminating gas was taking a

larger toll after the wider introduction of gas burning stoves in the nineties; fatal burns and scaldings became more frequent but not as numerous as falls, which now regularly took second if not first place among causes of fatal accidents. Fatalities resulting from runaway horses or other wagon accidents persisted and exceeded those directly attributed to automobiles each year until 1910 and in several years thereafter.

Again a number of accidents stood out because of their horror. The most tragic of all was the fire which broke out during the night of January 8, 1901, at the Rochester Orphan Asylum on Hubbell Park, quickly converting the crowded dormitories into a blazing inferno and claiming the lives of 31 children and adults. The awful blow shocked the whole city, and while some hastily blamed the trustees for their failure to provide more than two fire escapes, the facts disclosed a strict compliance with local regulations and reemphasized the city's failure to adopt more adequate precautionary measures. The trustees, recovering from the stunning catastrophe, replaced the old asylum with a model new institution, Hillside Home, built on a spacious site south of the city and incorporating the new cottage system in order to give its children a homelike atmosphere in small supervised groups.

Fortunately no other accident of the period rivalled the orphan asylum fire in horror, though the wreck of an excursion train on the narrow gauge Bay Railway in 1899 was frightful enough, inflicting many injuries and causing two deaths. The New York Central's crack express, the Twentieth Century, jumped the tracks near the Culver Road crossing in 1908, but none of its 90 passengers was injured. Several large and destructive fires, including one at St. Mary's Hospital, required heroic efforts on the part of firemen and volunteers to hold their personal injuries to a minimum. The great improvements in the city's fire fighting equipment belong to another story, but the net effect of an epidemic of fires Rochester suffered in the early years of the century was to prompt the city, under the leadership of Mayors Cutler and Edgerton, to develop a fire department of exceptional quality.

Constant vigilance was necessary, even with the best of measures, as the city discovered in its effort to curb accidents on the Fourth of July. An ordinance banning the sale of fireworks in 1904 produced excellent results that year but required a renewed enforcement drive a decade later. Enforcement was always easier after a serious tragedy underlined the hazards of neglect, a fact the city learned again and

again in connection with fire escapes, traffic regulations and industrial accidents.

Rochester escaped many of the hazards of heavy industry but faced special problems in each of its highly technical enterprises. A state law of 1887 had required factories to install protective devices "whenever practicable" to safeguard workers from belts, saws, planers, cogs, shaftings and other dangerous machinery and, as later amended, gave its factory inspectors authority to prescribe precautions in specific instances. Compliance with the several thousand specific recommendations of the early inspectors was sufficiently prompt locally to reduce the number of complaints after the turn of the century to a minimum, presenting a sharp contrast to the situation in Buffalo, Syracuse and New York City where numerous violations of the factory laws persisted. Rochester's precautions were perhaps most dramatically signalized by the 366-foot chimney erected at Kodak Park in 1906 to carry off the nitric acid fumes which might otherwise have presented a dangerous hazard. The stack was proudly described as the tallest man-made structure in America, and although it lost that distinction before its twin appeared in 1911, the two stacks still provide a familiar skyline symbol though few perhaps are aware of what they mean.

So much had been done voluntarily in Rochester to reduce accidents in this field that the city's industrial leaders were not convinced in 1909 of the need for a statutory workmen's compensation system. When such a law was nevertheless adopted the next year, several local firms prepared to test it, but a Buffalo case gained precedence and secured a court decision setting the law aside until a constitutional amendment and a new law brought workmen's compensation again into effect in 1914. By that date Rochester was ready for even more vigorous preventive measures.

The Age of Prevention

The mounting toll of fatal accidents and the increased number and cost of all accidents engendered a new interest in prevention. Other factors played their part, notably the heightened spirit of civic consciousness which animated Rochester in the years before and after World War I. The forthright reformers of this period could not overlook the hazards to life and limb which the growing city presented, and in many instances their suggestions enlisted the support of practical men concerned over the losses in time and skill and money resulting

from the incessant toll of accidents. Public safety committees and accident prevention campaigns became the order of the day, winning support from the press and the Chamber of Commerce, as well as from civic officials and citizens generally. And while the sometimes encouraging first results were often wiped out by new waves of fatalities, renewed efforts and improved methods have, as we shall see, achieved remarkable results during the last four decades.

An increased sense of social responsibility sprang in part from the fact that many of the new accidents seemed more clearly the result of some human failure. Reckless motorists could not as readily be excused as frightened horses. Building ordinances, factory laws and the new emphasis on compensation for injuries, all revealed a growing conviction that human negligence was responsible for many accidents; all displayed an increased determination to hold such individuals accountable. The press, which had outgrown the crude sensationalism of its disaster reports in the nineties, began in the crusading spirit of the early 1900's to accept accident prevention as one of several civic reforms worthy of attention.

Apparently the real turning point came in 1912, for it was in that year that the Eastman Kodak Company launched a systematic campaign to reduce accidents, while the Chamber of Commerce named its first Accident Prevention Committee that April. Within a month the Chamber committee had collected a mass of data about the increased number of accidents in Rochester's streets, which it blamed on the increased number of automobiles. Of course nobody wished to see the number of cars reduced, and in its search for a better solution the committee sent delegates to the first National Safety Congress that fall. The Automobile Club became interested the next year when a continued rise in traffic accidents brought renewed demands for more stringent controls. Main Street, where the congestion of trolley and automobile traffic was most acute, gained the nickname, "Aisle of Death." When a young girl, alighting from a trolley with a child in her arms, was run down by an impatient motorist, the earlier proposal, that all automobiles be compelled to stop six feet from a stopped trolley, was again presented to the council.

Many conflicting views were expressed in the public hearings that followed. The fact that Rochester's traffic accidents were proportionally more numerous than those of any other New York State city, except Yonkers, was cited by the *Post Express* as a sufficient reason for forth-

right action. Simply arresting speeders and permitting them to go free on bail, which they promptly forfeited, was no solution, the editor maintained. Several motorists protested the stop order and blamed pedestrian accidents on "jay walkers" and on people running to catch their trolleys in transit. A pedestrian urged that fines of \$500 should be exacted of all motorists involved in fatal accidents. The Automobile Club, which had now increased its membership to 3,000, the largest in the country, persuaded the council to modify its ordinance to permit automobiles to drive past stopped trolleys at a speed of 5 miles an hour provided they could pass six feet from the side of the car. Passing on the left of a trolley and parking in the neighborhood of trolley stops were prohibited, but the 8-mile speed limit in the parks was raised to 15 miles, and the 15-mile limit in the outlying district was raised to 18 miles. The club promised cooperation to enforce the amended ordinance, but the difficulties involved became evident that October when, in ten days, six hit-and-run drivers left victims in the streets, two of them dead.

More than laws and good intentions were needed. The city introduced "wooden policemen" at downtown corners in 1915 and painted white lines at the crosswalks on asphalt covered streets a few years later. The Chamber's accident prevention committee, transformed into a Safety Council in 1914, sponsored classes on public safety in the schools and staged a People's Safety Show at Convention Hall that September. The results were not immediately evident, since fatal accidents climbed to new highs in 1916 and 1917. The Safety Council redoubled its efforts, organized a class in safety for foremen, sponsored a number of grammar school safety shows, and joined with the Automobile Club in holding two mass meetings on safety techniques at Convention Hall. These and other activities attracted the attention of the National Safety Council and prompted it to select Rochester for its first demonstration campaign which continued through the summer of 1918 and enlisted wide local support. The safety classes, warning signs, and other publicity devices seemed to have paid off, early the next year, when the number of accidental deaths declined nearly 20 per cent in the first six months. Yet the remainder of the year was less reassuring, and the safety campaign was hastily resumed.

The Rochester Safety Council derived some comfort in 1921 from the discovery that Rochester's casualties per 100,000 residents had stood well below those of comparable cities during the previous two years.

However, the number of fatalities was mounting again, and new efforts to check them were sought. The school-boy crosswalk guards, first introduced at some corners in 1918, were extended to all city schools in 1922 after several children were run down on their way to school, yet June's record of 22 accidental deaths exceeded that of any preceding month in the city's history. A "No accident" campaign that fall, backed by the local press and several organizations, proved helpful and prompted the city to install "stop-go" signs at five downtown intersections. Protests against the resulting delays initiated a wide study of traffic control schemes in other cities. Finally in June 1924 the first of several traffic-control towers was erected at Main and State Streets and a system of electrically controlled lights was installed at 20 intersections that summer. Unfortunately the new system introduced a new problem of timing and touched off a heated debate over the relative importance of trolleys and automobiles.

Rochester's difficulties were compounded by the limited number of bridges in the downtown district. Only Main Street Bridge had adequate approaches which served to collect most of the east-west traffic and to create what traffic experts of that day described as a bottleneck. The trolleys followed each other bumper to bumper across the bridge, often blocking the side streets on each side for some distance. Many accidents occurred as pedestrians, wagons and automobiles tried to break through these slowly moving barriers. While the increased number of automobiles gave a new flexibility to the city's traffic, enabling drivers to choose other routes and thus relieving the pressure on Main Street for a time, as the number continued to mount, from approximately 1,000 in the county in 1905 to 12,761 by 1915 and to 82,872 by 1925, the congestion on Main Street was renewed and made four rather than two deep. Accidents and fatalities in the streets likewise mounted until the number injured passed the 2,000 mark in 1925 and 52 deaths were recorded the next year.

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While the automobile thus jumped in less than 20 years from a minor to the major cause of fatal accidents, fortunately several of the city's former hazards were beginning to lose their effect. The "learn-to-swim" campaigns, sponsored by the Y.M.C.A., the Board of Education and other institutions, began to show results in the twenties and proved so beneficial that the number of drownings was cut to seven annually during the thirties and to less than five a year in the forties.

Railroad and trolley accidents were similarly reduced, from an average of 28 a year in the first decade of the century to half that figure during the first ten postwar years, with further declines occurring in each subsequent decade. The progressive substitution of busses for trolleys during the thirties speeded this decline, but part of the credit goes to the removal of the interurban cars from the streets into the subway in December 1927, the construction of railway underpasses at five busy intersections, and the introduction of guards and warning devices at most of the remaining grade crossings. Of course the declining volume of traffic was a major factor here, as it was in the case of bicycle accidents too, though in each case a number of fatalities resulted from collisions with automobiles.

Rochester finally outgrew one major accident hazard—that presented by Genesee floods. The struggle was long and discouraging, for the danger never seemed sufficiently imminent to prompt the city to make the necessary outlays. It was not until after a new flood in 1913, when the waters rose to a height only exceeded in 1865, that City Engineer Fisher's plan to build a river wall on the west bank was adopted and work commenced. A new river dam was completed at Central Avenue two years later and much stone was blasted from the river bed there and under the arches of both the Aqueduct and Main Street Bridge. These improvements assured adequate control for normal floods, but the city's trepidations concerning a repetition of the 1865 flood were not removed until the state built the Barge Canal harbor in the twenties and the Federal Government finally completed the long awaited storage dam on the upper Genesee two years ago.

Rochester has continued to escape most of nature's severest blows. Heavy snowstorms have presented increasingly costly jobs of snow removal, but the damage has been reduced since the wires were placed underground. The last severe storm before that task was completed inflicted losses in excess of \$100,000 in January 1913. Rochester's good fortune in escaping tornadoes continues in spite of the near miss in 1932 and again this last year when several neighboring communities were not so lucky. Perhaps the city's most fatal siege of weather was the hot and humid spell in July 1936 when 25 residents died of sun-stroke or heat prostration, setting a record of 27 for the season which was never even approached in other years.

Industrial accidents have fluctuated over the years in response to many changing circumstances. The active drive for their prevention,

which started shortly before World War I, was intensified during that struggle when the employment of many women and other inexperienced workers upped the accident totals. Approximately 50 Rochester factories participated for many years in National Safety Council contests which commenced in the twenties. The combined accident frequency ratio of the Rochester factories, based on the number of accidents per 1,000,000 man hours during a 13-week period each year, declined from 22.5 to 10.87 in the two decades preceding 1945. This achievement reflected the work of many factory managers and other agencies, including the safety courses given by the U. S. Department of Labor.

The need for new courses and for constant precaution was frequently demonstrated. Thus in 1942, when the employment demands of World War II again brought untrained workers into the factories, industrial accidents increased 20% over previous standards. Fortunately the number of fatalities from such accidents was small. Although a calculation revealed in 1944 that homefront accidental fatalities outnumbered deaths among Rochester boys in the army, seldom did occupational accidents equal a tenth of the total. The great majority by this date were of two categories—traffic accidents in the streets, and falls mostly in the homes.

Of course the major effort of the safety officials during the last quarter century has been directed against traffic accidents. And while the toll of accidents continues, a close examination of the facts reveals that our safety officials and their cohorts have achieved an encouraging degree of success. Not only was the upward trend of fatalities halted in 1927 but the upward trend of personal injuries, too, was checked four years later, despite a continued increase in the number of automobiles. The number of car registrations dipped slightly during the depths of the depression (1931-34), but even during the resurgence that followed neither the personal injuries nor the fatalities (except for one year, 1937) regained their former level.

The fairly steady decline during the last three decades in the number of automobile fatalities, and in the ratio of deaths per 10,000 vehicles, has been more remarkable in view of the increased speeds allowed by new traffic ordinances during these years. The 10-, 15-, and 18-mile limits prescribed under the 1910 ordinance as modified in 1914, were increased to 15 and 20 in the new ordinance of 1922. They were pushed up again in 1930 in response to the growing desire to

speed the traffic along, to 15 and 25 miles an hour. Added power and the urgency of the war effort prompted still another increase in speeds in 1940 when the limits were set at 25, 30, and 35 miles an hour in various parts of the city. The sudden new increases in the number of cars after 1946 prompted a return to 25- and 30-mile limits in 1947, which may have helped to reduce automobile fatalities for the first time below 2 per 10,000 cars.

Many factors contributed to this last accomplishment. The school safety program, which continued on a volunteer basis during the twenties, was given more effective direction in 1931 when three police officers were assigned full time to the program. Under their supervision the youthful crossing guards were more efficiently trained, and additional safety lessons were introduced into the school curriculum. Learn-to-drive courses were first offered at two high schools in 1939, and while these were suspended during the war, their resumption in seven high schools in 1948 gave helpful training to many students and to adults as well, many of whom registered in extension classes. This program was developed under the Accident Prevention Division set up in the Police Department in 1939. The development of an active educational program over the air waves, the appointment of mothers of school children as supplementary school crossing guards on part-time pay in 1953, and the purchase of a safety education car that year has prompted the organization of a separate Safety Education Division in the Police Department this past year. The specialized educational work of its 7 members and the investigations which the 58 members of the Accident Prevention Division conduct help to focus public attention on critical traffic hazards.

The 48 members of the Traffic Control Bureau, first established in 1938, make still another contribution to the war on accidents. Indeed the gradual growth of this activity, since the formation of the first traffic squad in 1905, has not only helped greatly to keep the flow of traffic moving but also, by its enforcement of the traffic regulations, has checked the irregularities which so often cause accidents. An increased dependence on traffic lights developed in response to the mounting tide of cars, and the 20 manually controlled lights of 1924 numbered 134 electrically controlled lights fifteen years later. The further extension of the system in recent years provides light controls at 247 intersections, some again equipped with manual devices. Stop signs appeared to guard the right of way of traffic on major streets in

the thirties, and with the removal of the trolley tracks late in that decade, white lines marking the traffic lanes provided an additional safeguard against accidents.

Several national awards have fallen to Rochester, helping to give spirit and purpose to these preventive efforts. The city's record of 62 consecutive days without a traffic accident in 1929 won the title of "safest city" from the National Safety Council that year. Again three years later Rochester rated first in its class in the National Traffic Safety contest. The Rochester Safety Council received a \$5,000 award from the Sinclair Oil Company in 1934 for its safety program, described as the most outstanding in the country. While the number of accidents and fatalities began to climb again, reaching a new high in 1937, the accident prevention work of the police noted above, the street salting program of the public works department in winter months, the billboards, posters, and other safety programs and campaigns of the Rochester Safety Council, the Junior Chamber and other organizations, and finally the increased sobriety and courtesy of most drivers combined to enable Rochester to regain first place among cities of its class in 1952, after tieing Providence for that honor the previous year and achieving other recent records of note.

In spite of the encouraging results of the traffic safety campaigns, the city total of accidental deaths has not dropped in proportion. The explanation is to be found in the continued rise of fatalities from falls in the home where over half the fatalities have had their cause in recent years. There is, of course, an anomaly in this situation, for as other causes of deaths from disease and accident are brought under control, we enjoy longer life and an increasing number of us reach the age where a slight fall will finally, as in the case of the one horse shay, produce a complete collapse and death. Yet the figures reveal that caution here can at least postpone the application of this inexorable logic, for one fifth of the fatal falls in Rochester homes during the 1950's were suffered by persons under 65 years of age. The Rochester Safety Council, in its study of this situation and of other causes of fatalities in the home, has stressed the need for numerous safeguards. The fact that accidents comprise the chief cause of fatalities among children, now that most children's diseases have been brought under control, supplies an additional reason to extend our safety programs in other fields.

Meanwhile the flareup in traffic accidents and fatalities this past year has reemphasized another old truth—that the most tested and proved precautions will sometimes fail because the public has become too familiar with them and is therefore lax and indifferent in its responses. New means of alerting ourselves to the hazards that surround us must be found if we wish to recapture a high rank among safety-conscious cities. Fortunately our officials, both local, state and national, are alert to this need, as the nation-wide no-accident day this past month, the State's Thruway program and numerous local campaigns all demonstrate.

Note on Sources

Most of the specific accidents alluded to in this paper were described in detail in the local press, to which I am indebted also for statistical summaries in the early years. The community's efforts to remove some of the hazards may be followed in the Common Council *Proceedings* as well as in the press. The *Reports* of the Health Officers which appear intermittently under various titles are also revealing and provide data from which trends can be computed especially for the years 1883-1916. The statistical reports for the years 1917 to date have been consulted at the Health Office through the courtesy of Mr. Henry Lieberwurst. The Reports of the Bureau of Buildings and Combustibles, 1904-1914, and of the State Commissioner of Labor, later the State Industrial Commissioner, supply additional information on industrial and building accidents. Several publications of the Rochester Safety Council, the Rochester Bureau of Municipal Research, and articles in the *National Safety News* provide additional information. I am indebted to Officers Irish and Kusse of the Safety Education Division and Mr. William Michaels of the Traffic Bureau for assistance in bringing certain aspects of this study up to date.