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The Weather in Rochester's History

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Many have repeated Charles Dudley Warner's adage (generally attributed to Mark Twain), "Everybody talks about the weather but nobody does anything about it," yet the fact is that we have done a great deal about the weather. We have striven, from the beginning, to adjust our life habits and our domestic arrangements in order to safeguard against its extremes; we have devised methods for predicting its variations; and we have developed new industries to ease the hardships its rigors cause. Our opinions of the weather, as well as our reactions to it, have changed from time to time and from place to place. The history of Rochester, like that of most other communities, has been influenced by its weather experience and potential. Moreover, we have been as a community keenly interested in this subject from our very first days. And since 1952 has broken many records and seemed, as it progressed, to be breaking more, perhaps it will be fitting at its close to review the history of Rochester's weather and to assess its continuing influence on our city.

We do a great deal of griping about the weather these days, more about its inconveniences than its extremes for the latter seldom hit us as severely as in former times. A protracted dry spell with recurrent heat waves, such as we experienced this past summer, may burn up the lawn, temporarily, but, unlike our fathers, few of us know more than we read in the papers about the more important effects on local crops.

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Our water pressure may run low, reminding us of the constant responsibility we share as a community to plan ahead for contingencies in this field, but it is still not the same as in former years when a drought could stop the mills, stall boats on the canal, dry up the wells and impoverish farmers throughout the Genesee Valley, as it actually did in the summer and fall of 1854. Snowstorms can prove costly to the city and hazardous to drivers, pedestrians and aged shovelers, but they no longer paralyze street and rail traffic—at least not so frequently or for such extended periods as fifty years ago, for we have learned to breast such storms cooperatively and with improved equipment. Moreover, a mild winter no longer means an ice famine the following summer, nor a windstorm a chaos of wires in the streets, as was frequently the case around the turn of the century. But if the weather's extremes now seem less devastating than exciting, the percentage of deaths caused by weather conditions remains a matter of grave concern.

Optimists vs. Pessimists

There is still much to be done about our weather, but before we accept too dim a view of it let us recall that there was a time, several times in fact, when Rochesterians were fairly proud and boastful of their weather. Herman LeRoy Fairchild, when a young instructor at the University of Rochester, described the city's weather as "nearly perfect."¹ That was back in 1901, and three decades later, after intensive study of the geology and other physical characteristics of the area, he was willing to qualify his statement only in time. "Rochester has, in the present geologic phase," he carefully specified, "a very superior climate." Yet he admitted that "To say, and with truth, that the climate of Rochester is unsurpassed in America . . . will provoke some scornful smiles."² We will study these scornful smiles in a moment, but first it should be noted that Jesse L. Vanderpool, meteorologist in charge of the United States Weather Bureau station at Rochester for sixteen years and assistant there for many more, supported Fairchild's view in a brief article written at the same time, 1931.³ Yet one of Vanderpool's early predecessors, Arthur L. White, was quoted as saying in 1894, during an address before the Rochester Historical Society, that Rochester's climate was "the worst in the world."⁴ Perhaps it will be as well to avoid extreme statements as weather extremes in our effort to appraise Rochester's climate.

Indeed, if we want to understand Rochester's weather we must study its averages, its mean, its range, rather than its extremes. And the more we study these things and explore their causes, the more we discover that Rochester really has a fortunate if not always an agreeable climate. Thus, only a few years ago, Arch Merrill, who is always in search of the silver lining that lies half hidden behind the Rochester scene, wrote a piece defending our weather. He had been provoked by numerous complaints about the weather to examine a recent publication entitled *A Climatic Summary on The United States*. Here he discovered that only three of thirteen cities on the Great Lakes have more sunshine than Rochester and that in New York State only New York and Albany enjoy more sunshine. After exploring many statistical tables he concluded his "Cold Facts on Our Weather" with this reassuring summary: "Rochester has more hours of sunshine, fewer thunderstorms, less precipitation and less wind velocity than either [Buffalo or Syracuse]; more snow than Buffalo but less than Syracuse; less fog than Buffalo, a little more than Syracuse; a longer growing season than Buffalo but shorter than Syracuse . . ."5 He didn't add, but implied, why all the griping?

It may seem strange in 1952, after listening for months to the pounding waves of Lake Ontario and viewing the destruction they have wrought, to learn that this same lake has long been characterized as the chief guardian of Rochester's climate. Yet from the very beginning weather-wise observers have noted the lake's benign influence on the city's weather and credited it with warding off the extremes of temperature which frequently hit regions to the south and east.

Pioneer Weather Observers

One of the first to comment on this fortunate circumstance was President Timothy Dwight of Yale College who made an observant tour across the Genesee Country in 1804, a decade before Rochester was founded. After conversing in his intensely curious fashion with hundreds of pioneers, many of whom kept their own weather books, President Dwight concluded that "The climate of this tract is milder than that of the eastern parts of New-York and New-England which lie in the same latitude. The cause of this peculiar mildness I suppose to be the Great Lakes . . . As the winters are mild in the part under consideration [the lower Genesee Valley], so are the summers. It is

not often the fact that people are willing to sleep without a blanket.”⁶

The weather was of course a vital concern to the pioneers. Many of them, arriving from northern New England and northeastern New York, were delighted to discover that most winters on the lower Genesee could be described as open winters. Snow seldom blocked the roads for more than a few days at a time but often provided a convenient covering over which logs and heavy loads could be dragged or sledged. When the snow evaporated or blew away, it generally left the ground hard enough to sustain heavy wagons, enabling the settlers to transport their produce to eastern markets. Drivers, however, could make good headway in the colder east and the uplands to the south long after thaws on the lower Genesee had rendered its roads impassable, and the rapid settlement of the Rochester area did not occur until water transport on Lake Ontario and the Genesee River had developed sufficiently to sustain it.

This picture of the Genesee as a traffic artery is hard to envisage today. In pioneer times, however, when most of the valley was covered with forest, the runoff was much slower, and the river maintained a sufficient flow throughout most of the spring and summer months to bring hundreds of rafts and flat-bottom boats down to the upper falls at Rochester every season. But, if the forest-covered hills shed their moisture slowly, they likewise harbored many a marshy glen, and the first settlers who endeavored to clear fields in this area frequently fell victim to fever and ague. Indeed, most early visitors, President Dwight among them, warned against the unhealthy climate of this region.

One hesitates to say that the weather changed markedly during the next three or four decades, and yet, as the valley was cleared and settled and many of its lowlands were opened and drained, the ravages of fever and ague disappeared to be recalled only at the reunions of old settlers. By 1837, when Henry O'Reilly was compiling the first extended history of Rochester (some five hundred pages on a community just twenty-five years old), Dr. W. W. Reid, an able physician with a keen interest in science, could write reassuringly of its healthy climate. "Rochester, grown into a city," he declared, "is now less subject to intermittent and remittent fevers than the surrounding country, although the latter has also become remarkably healthy."⁷

Unfortunately the deforested hills no longer held their moisture as in former times, and spring floods became an annual hazard at Roch-

ester and along the river flats for fifty miles south of the city. The floods of 1817 and 1835, both occurring in the fall of the year, were especially destructive at Rochester, but the wooden structures they washed away were quickly replaced by more substantial stone buildings. By the mid-thirties, however, the river's utility as a trade artery was seriously impaired, and the construction of the Genesee Valley canal was already under way. When its first section was opened in 1837 a considerable draft of Genesee water was required to fill it, and while this canal, even as it was slowly extended south-westward to Olean, proved disappointing as a trade artery, it served indirectly as a check on late spring and summer floods for the next three decades.

First Weather Records

Henry O'Reilly, who scarcely mentioned these floods, devoted several pages to other aspects of the Rochester climate. Indeed he included eight meteorological tables prepared by Dr. E. S. Marsh who with others had made daily weather recordings during the previous seven years. Many of the early settlers had developed the practice of noting weather conditions—often for no other reason than to check the accuracy of their almanacs—but the observations made in Rochester from 1830 on were more scientific in character. Equipped with a thermometer and a barometer supplied by the State Regents, who were promoting such observations throughout the state, Dr. Marsh and his associates at the Rochester Collegiate Institute recorded, in addition to the high and low temperatures, the barometric pressure, the amount of rainfall, the wind direction and any remarkable features that occurred. When in 1836 young Dr. Chester Dewey arrived to take charge of the Institute, a considerable collection of observations was ready for his analysis.⁸

It is interesting to note that the Rochester weather as described by O'Reilly, with Dewey's assistance, differed in but few respects from the weather as we know it today. The average snowfall was about eight inches less than our average over the past half-century—contrary to the nostalgic belief in the heavy winters of yesteryears—and the rainfall lacked four inches of our average. Perhaps the instruments then available failed to record all the precipitation we take note of today, or the seven years may have comprised a mildly dry cycle. The mean

annual temperatures averaged a degree higher than our twentieth century average, and no remarkable extremes were recorded, which justified O'Reilly's favorable appraisal and prompted him to predict that the region along the lake shore would ultimately become "a great fruit country."⁹

Of course the records of seven years were not sufficient for long-range generalization. Indeed, scarcely a year after O'Reilly's book appeared, Rochester experienced its heaviest snowstorm of the century, when in January, 1839, a fall variously reported at between two and three feet blanketed the lower Genesee area. Yet the storm was apparently more thrilling than destructive, and everybody turned out to help dig narrow passageways through the drifts. One such dugway on Lake Avenue was later recalled as bordered by snow walls so high that a man on horseback could not see over them, yet within a few days good sleighing prevailed throughout the area.¹⁰ Snowstorms in winter months were scarcely a major problem in those early years, when even city folk delighted in the opportunity to switch from wheels to sleighs, but a late frost or snowfall in springtime could prove disastrous, then as now. Fortunately, Lake Ontario generally provided ample protection. Even in 1816, the famous year without a summer, when farmers throughout most of the northern states saw their crops bitten by frosts in June and August or stunted by insufficient sunshine, the Rochester area enjoyed a mild season and rejoiced that fall when abnormally high prices greeted the good crops.¹¹

It was in the 1840's that a number of enterprising nurserymen began to discover the peculiar advantages of Rochester's climate. By the mid-century Ellwanger and Barry and their competitors had made Rochester the leading nursery center in America. What interests us, in this connection, is the success with which these men turned Rochester's fluctuating weather to advantage. As their agents, traveling through the country, often told prospective buyers, plantings grown in Rochester nurseries not only escaped the severe winter freezes and the late frosts of more exposed nurseries, but also, because of the constant variations in temperature, acquired a hardihood that enabled them to withstand the shock of transplanting better than plantings grown in the milder coastal regions.¹² Possibly the claims were overstated, but Rochester nurserymen prospered for many decades, and their salesmen not only sang the praise of Rochester's climate throughout the

country but encouraged local farmers to plant the orchards which ultimately made the lake shore region the great fruit country O'Reilly had predicted.

Meanwhile the weather observers at the Collegiate Institute continued their recordings and began, under Dr. Dewey's direction, to extend their analysis. The Rochester station soon gained recognition as one of the most reliable in the state. When in 1850 Franklin B. Hough made his comprehensive report (published in 1855) on the meteorological observations assembled from all sections of the state he was able to include suitable Rochester data for a period of nineteen years. The mean temperature for that period was found to be 46.79—almost a degree under our twentieth century average. The mean annual rainfall was given as 30.77 inches, two less than we calculate it today, but well above the figure O'Reilly gave for the earlier period. The coldest days had occurred in December 1847 and January 1849 when the temperature dropped to ten and nine below zero respectively; the hottest had reached 102 degrees in July 1845. A more important weather gauge of this period was the date of the opening and closing of the canal, and the mean dates over the previous nineteen years had been April 17 and December 5 respectively.¹³

Early Weather Extremes

Perhaps it is time to recognize that despite the moderating influence of Lake Ontario, Rochester has suffered many sudden and some extreme shifts in weather, some of which were more agreeable to boast of in retrospect than to experience in person. The weather, in other words, has been more than a subject of conversation; it has been at times a source of pain and sorrow. Past generations have held its furies in respectful awe, but it is interesting to note that the extremes most feared have changed from generation to generation.

If the snowstorms and the temperature variations appeared mild to the early residents, many of whom could still recall the rigors of winters in northern New England and northeastern New York, they were less accustomed to the windstorms which occasionally blew in across the lake. Local papers frequently reported the loss of a roof or the collapse of a house during a severe gale; many of the old forest trees, left standing by settlers who admired their grandeur and coveted their shade, were toppled over by a strong wind; but residents of

Rochester were chiefly concerned, when a storm blew up in these years, for the fate of the community's mariners on the lake. Thus in December 1854 when a strong gale drove seven vessels ashore near the mouth of the Genesee, local volunteers hastened out in boats to save their crews.¹⁴

One of the most thrilling bad-weather stories of these times involved the last minute rescue of "The Lady of the Lake" by its sister ship, the "Ontario," both of Rochester registry. When the former, caught in a sudden squall, snapped its shaft and began to drift helplessly towards shore, the captain sent out a plea for help inscribed on the inside of a wooden bucket. Fortunately the bucket was picked up and taken to Captain Troup of the "Ontario," tied safely in the Rochester port. Hastily rounding up his crew, Captain Troup managed to reach the stricken ship just as the storm threatened to drive it onto the rocks. Despite the raging waves, a tow line was finally secured and "the Lady of the Lake" was brought safely to port.¹⁵

The early contentment with—sometimes praise for—the Rochester weather began to change after the mid-fifties. Cold days seemed colder than before, and two, at least, did establish new low records: February 6, 1855, with an official reading of twenty degrees below zero (Dr. Dewey said it actually touched twenty-five below at four o'clock that morning), and January 18, 1857, with sixteen degrees below. The year 1856 had on an average proved the coldest, touching eight degrees below, six degrees below and five degrees below in January, February, and March respectively and going down again on August 9 to fourteen degrees above. The open fireplaces of the pioneers had long since given way to Franklin stoves and other wood burning room heaters, but now a few householders began to install furnaces in their cellars. Only the well-to-do could afford such an extravagance at first, and to supply their friends several leading citizens began in the early fifties to import a few tons of coal on their canal boats each fall. Soon a thriving business developed; the amateur coal dealers became coal kings, and several blacksmiths joined to establish a prosperous stove foundry.

It was fortunate that some constructive gains could be made of the bad weather, for Rochester was suffering in these years from the disastrous drought experienced throughout the Genesee Country in 1854. That was indeed a memorable year. The pipes of the newly

established gas company had frozen shut in February, the great solar eclipse had occurred in May, and late in September many fruit trees in the Rochester area blossomed a second time. But these unusual events only added to the wonderment with which many citizens discussed the widespread drought. Wells were dried up—a serious blow to a city still dependent on them for drinking water; the Genesee, shrunk to a trickling stream, lacked sufficient power to turn the city's mill wheels for a stretch of three whole months; even the level of Lake Ontario fell to its lowest point in several years.¹⁶ But worst of all was the loss of crops throughout the valley. Never again would the Genesee be known, as in the 1840's, as the Bread Basket of America, for many of its more enterprising farmers were moving west, and with them to the west went Rochester's title as Flour City.

The Comparative View

Of course, Rochester recovered from these blows in time and, catching the optimism of its nurserymen who now supplanted the wheat and flour kings, developed a more comparative evaluation of its weather. Semi-monthly meteorological articles had been appearing for some time in the local papers. To these summaries of the recordings of the previous two weeks were now added backward glances at the records for the same dates in previous years and, occasionally, side glances at temperatures in other parts of the country.¹⁷ The spreading network of telegraph lines facilitated this new approach, and in this more comparative light the city's weather did not seem so bad.

The community's attitude toward its weather was changing in other respects too. Windstorms acquired a new terror after the completion of the first telegraph lines in the late forties, but it was not until 1851 that an electric storm accompanied by strong winds first created havoc among local lines.¹⁸ This problem increased in importance during the next decade, which likewise saw the appearance of a new problem—the battle raged against snow drifts by the horse car company, organized in 1863. The first snow plow made its appearance the next year,¹⁹ but the company soon learned the easier method of substituting sleighs for its cars during snowy weather. The municipal authorities were content to see others tackle this problem, and everybody still

preferred to let the weather do the job in its own leisurely fashion.

The weather began to speed things up a bit on March 17, 1865. A drenching rain throughout the valley a few days before had loosened the winter's unusually heavy blanket of snow, choking the streams and the upper river with an unprecedented runoff. None of the previous floods, not even that of 1857, which also preceded the spring opening of the canal, had risen so rapidly or to such a volume as that which now surged down the river into Rochester. The flood hit the city on a Friday morning, and the water, rising at the rate of ten inches an hour, soon filled the arches of the aqueduct and spilled over its top like a dam. Part of it was carried by the canal to a soft spot in the banks west of the business district, from which point it poured down through the streets to join another part of the flood which had risen over the southern edge of Main Street bridge to overflow the mills and stores on Aqueduct, Front and Mill Streets and parts of Main and State Streets as well. Business men were trapped in their stores and offices, and the only downtown traffic during the next two days was by rowboat. Gas lines and sewers as well as cellars and stores were flooded, and the city calculated its loss from this blow of nature at nearly a million dollars.²⁰

No lives were lost in the great flood, but if the weather demons felt cheated on this account they made up for it in July 1868. A cool spring, following a number of cool years, prompted a local editor to ask whether the Gulf Stream was not changing its course, turning more rapidly toward Europe and thus accounting for the abnormally cool cycle in the eastern part of the United States. Scarcely had this possibility been proposed when the sun began to come out in earnest; by the middle of July it was not only scorching the crops but also toppling over many unwary citizens. Six deaths from heat prostration and twenty-one additional cases requiring medical care shattered all previous records of this sort in the Rochester area.²¹ Needless to say there were no further speculations about an ice age.

Weather observers were, nevertheless, beginning to show an interest in prognostication, a subject they had previously left to the almanac publishers, to the bird or sky watchers and other devotees of ancient weather lore. The first predictions to be published locally did not turn out too happily, however. When, in the early part of December

1865, a succession of sunny and mild days prompted a forecast of a light winter, the canal, which had remained open until the twelfth, was suddenly frozen solid that night. Many residents enjoyed the unusually smooth skating it afforded for the next week or so, but when still colder weather hit again and again as the winter progressed, the *Union's* weather reporter forswore further forecasts.²²

The Regents had abandoned their efforts to assemble weather data in the late fifties, but several of their former correspondents continued to submit reports which were duly published until 1863.²³ None was more faithful or detailed than the Rochester reports of Dr. Chester Dewey, who had transferred his instruments to the University of Rochester in 1850 and continued his observations there until his death in December 1867. His detailed weather books may still be examined at the University of Rochester today, a voluminous memorial to the university's first scientist as well as a record of the city's early weather conditions unrivalled by most other communities.²⁴ If others continued these observations, the records have been lost, yet numerous articles on the weather appeared in the local papers during the next two years, and in 1869 a special effort was made to analyze the reports of several eastern states. It was therefore fitting that Rochester should be designated a year later as one of the five cities in the state—one of the twenty-odd in the country—to receive the newly authorized weather stations of the Federal Government.²⁵

The U. S. Weather Bureau

The Rochester weather station, established by the Army Signal Corps in 1870, opened in the old Reynolds Arcade on October 12 but was soon removed to the top floor of the more imposing Powers Block. There the technical sergeant in charge enjoyed a clear view of the horizon in all directions. He was equipped with a barometer, three thermometers and an anemometer. Two of the thermometers were suspended horizontally and equipped to record the maximum and minimum temperatures; the anemometer was mounted on a standard high above the roof of the Powers Block, Rochester's tallest structure, where it registered the slightest as well as the greatest wind currents.²⁶

The original plan was to publish daily observations, collected from many parts of the country, in the local papers, here and elsewhere.

This service actually commenced at Rochester on November 1, 1870, and proved very popular that winter.²⁷ Unfortunately the Signal Corps failed to make a satisfactory arrangement with Western Union (no longer centered in Rochester), and the schedule of reports was interrupted the next March. Finally a suitable agreement was reached in September 1872 with the Atlantic and Pacific Telegraph Company, and the comprehensive bulletins on the weather were resumed by Washington.²⁸ In order to make the bulletins immediately available to all citizens, a copy was posted each day at the door of the telegraph office adjoining the post office on the first floor of the Arcade—still the business center of Rochester. Even this was not enough, and the weather observer was soon provided with a flagstaff on which signal flags could be flown to warn Rochester of threatening storms.²⁹

Weather Predictions

The public was both skeptical and curious. A reporter interviewed the Rochester observer, Sergeant LeRoy E. Sebree, in January 1876 seeking an explanation of his prediction methods. He did not make predictions himself, he maintained, but announced the predictions worked out at Washington by experts who had before them all the reports of weather conditions, wind directions and velocities, sent in from many parts of the country. Moreover the predictions were chiefly designed to warn of the approach of severe, possibly destructive, storms, and by actual count, he declared, sixty-nine per cent of the storm predictions of the previous year had proved accurate.³⁰

Apparently the forecasts were not always correct, however, for complaints were occasionally heard. The army considered removing the station to Sandusky in 1883. The station was closed that June, but protests against its removal saved the day, for it was reopened four months later and located this time in the Powers Block tower, right below the top observation floor to which visitors flocked for an unrivalled view over the city.³¹ No flags would be flown, Sergeant Edward W. McGann announced, unless businessmen were sufficiently interested to put up a suitable flagstaff and buy the appropriate signal flags. The flags must have been provided, however, for the daily minutes kept by the chief observer in these years (and still preserved

at the local weather bureau) show frequent entries in red ink in the margin: "Signals up," and nearly as frequently a second notation, also in red, "signals justified." Indeed the press was ready to congratulate the station the next January when a timely warning of a snowstorm enabled citizens to take precautions.³²

Reorganization at Washington transferred the weather stations from the Army to the Agricultural Department in 1890; soon the first civilian observer, Arthur L. White, assumed charge in Rochester. The station was moved into the Federal Building on its completion the next year. A second threat of removal, this time to Oswego, a busier lake port, was overcome in 1894 with the aid of numerous petitions.³³ Flag signals, however, were not as widely visible on the roof of the Federal Building as they had been on the Powers Block, and Orin Parker, who succeeded White as chief observer at this time, experimented with a set of warning whistles. When the storm for which he whistled one morning did not materialize, he whistled for it again in the evening, and when protests arose he declared that it was his duty and his intention to continue whistling his warnings until the storm commenced or the official prediction was changed. Whistles apparently made errors too noticeable, however, and the station soon decided to rely on flag signals.³⁴

New Weather Hazards

The Rochester weather proved fairly moderate during the weather bureau's first two decades. No excessive extremes of heat or cold were registered, though the winter of 1874-1875 did achieve the coldest average of the period.³⁵ However, several old weather conditions were becoming more troublesome. The increased traffic of the growing city could no longer switch with ease to sleighs during a snow storm, and certainly when the transit company began to electrify its lines in 1890 that old makeshift was out. The company's decision to plow the snow off its tracks into the streets left the general public floundering from drift to drift and brought a court suit.³⁶ Eventually the city and the company did reach an agreement as to their respective responsibilities for snow removal, but no solution was found as yet for the problem of electric wires in the streets. Severe wind storms were fortunately infrequent, but one in January 1890 blew down so many electric light poles that the city was plunged into darkness. Many citizens were

injured and two were electrocuted during the storm, which likewise wrecked several houses.³⁷ Even the courts were baffled; should they blame the electric company for a death caused by a live wire blown down in a storm, or dismiss it as an "act of God?"

Other weather conditions were likewise becoming troublesome. The fluctuations of Lake Ontario had been a subject of keen debate but of little concern in earlier decades. A heated argument had developed over the reports of sudden tides in the lake. Dr. Dewey had dismissed such fluctuations as impossible, and it was not until the early seventies that careful measurements established the fact that when a wave of cold or hot air moved quickly across the lake the heavier cold air could act as a huge roller depressing the lake's surface as it advanced and thus producing tides identified with the "seiches" observed in some European lakes.³⁸ Ordinary lake storms could be bad enough, and the life boat station established at the Genesee Port in the late sixties, and permanently manned from 1898 on, had frequent opportunity to demonstrate the skill and courage of its men.^{38b} Even the less dramatic seasonal and cyclical fluctuations, which sometimes amounted to as much as three and five feet, respectively, were becoming a serious problem as lake cottages appeared in increasing numbers along the shore. Fortunately the level usually receded in the late fall before the severe winter storms set in, but cottage owners never knew where their shore line would be when the spring rise returned.³⁹

Still another weather condition which was acquiring a new disfavor was the general overcast which darkened Rochester's skies especially in winter months. Few protests against the clouds were published in earlier decades, possibly because a population closely dependent on the soil appreciated their vital contributions. The importance of this factor tended to fade from view as the city grew in size, but the high favor which sunshine enjoys today was slow to develop. Sunbathing had few if any votaries in the days of voluminous bathing dresses, and suits displaying the arms and lower limbs did not become popular until the present century. Appreciation of the sun's health-giving energies did not assume the nature of a vogue in America until the late twenties or thirties, and it was in the same period that complaints of our cloudy skies began to appear in print. However, this problem did arise in a dramatic fashion in Rochester at an earlier date, in the 1890's in fact. It was then that our local astronomer, "Professor" Lewis Swift, after

a journey to California to take part in the dedication of the Lick Observatory, returned to his observatory in Rochester disconsolate. He had previously accepted the clouds, like the stars, as natural phenomena; now the former were, he felt, unnecessary obstructions. Soon he would pack his telescope and migrate to southern California where he planted the seed from which the great observatory at Mt. Wilson grew.⁴⁰ Rochester saw him go with regret, but the cloud most citizens were concerned with at the time was the depression of 1893.

Little as yet could be done about some of these newer problems, but the city could, some leaders urged, tackle one of its old weather hazards. The issue was revived when another great flood brought the need for flood control vividly to mind. Fortunately the flood of March 1893 was checked at the last moment by a cold snap, which slowed the runoff before the level of 1865 was reached, but the surging river rose high enough to start a drive for a flood control dam on the upper river.⁴¹ Surveys were made and strong city support rallied behind several projected state and corporation dams, but nothing tangible was accomplished for many decades. It required still another flood in 1913 to induce the city to deepen the channel and build river walls to guide future floods through the city.⁴²

It was in these same years that the ice problem gained importance locally. The expanding city could no longer rely on the ice harvested from the river and the canal; even nearby lakes and bays proved insufficient by the end of the period. A mild winter, such as 1905-06, brought an ice famine in its wake and encouraged the two largest companies—one drawing its chief supply from Silver Lake and the other from Chautauqua Lake—to bid for as much of the new artificial ice as they could get. The smaller companies, dependent on the latter supply, were threatened with extinction, but again a shift in weather, in the form of a clear, cold winter in 1906-07, saved the day for the small dealers.⁴³ Cold storage plants began to appear around the turn of the century, and by 1913 Rochester had several of these and an estimated 15,000 electric fans.⁴⁴

Weather Records Broken

Despite its predominantly mild character, the Rochester climate occasionally took off on a spree of record-breaking performances. The

year 1893 not only saw two disastrous floods narrowly averted by cold spells in February and March, but also brought the city its greatest cloudburst on August 29 when more than four inches fell within a period of eight hours. This storm was accompanied by driving winds which brought down the area's fruit crop prematurely.⁴⁵ The next year was long remembered for its snow storms, one of which slipped in after the fruit buds had commenced to unfold and wrought severe injury as a result; finally a paralyzing blizzard hit Rochester on December 26 and 27, clogging the streets and stalling all trains for two days.⁴⁶ The heavy rains and snows of these years were remembered longingly in 1898 when only 1.15 inches fell in sixty days—one of the area's longest droughts.⁴⁷

The year 1900 was another record breaker. A great snow storm, starting on the last day of February and continuing until March 2 deposited an official total of 43½ inches on Rochester, effectively halting all traffic. Armies of snow-shovelers and bob-sleds soon tackled the drifts and, despite the hardships and loss of business, Rochester found itself in a jolly mood on March 3 as "Grave businessmen felt and yielded to a temptation to throw snowballs at other grave businessmen."⁴⁸ Five months later the city sweltered through its longest heat wave in thirty years, with the temperature climbing above 92 degrees for six days in a row,⁴⁹ and on September 12 the tail end of the Galveston cyclone brushed Rochester. But reports of damages suffered in other parts of the country, from the heat spell as well as the cyclone, tempered Rochester's reaction to its own climate and prompted it to send \$4,000 through the Red Cross to Galveston and other stricken areas.⁵⁰

It was at this point that young Professor Fairchild, after listening to an address by Orin Parker on "The Climatology of Rochester," applauded its optimistic analysis and pronounced Rochester's weather "almost perfect."⁵¹ The daily papers frequently captioned an article on the resorts that summer with the words, "Perfect weather draws crowds to the beach."⁵² However, when the month of July seemed unnecessarily warm, a writer for the *Post Express* was prompted to speculate on the city's future prospects in this field. Rochester's heat was again less excessive than that of most of the country where a story was circulating about a group of astronomers who had predicted that the torrid weather of that and the previous summer would continue for another four

years or more.⁵³ It was a year of free speculation concerning the possibilities of aerial flights by use of motor driven balloons—a year when non-existent cigar-shaped “aeroships” were reported in the heavens at various points. Perry’s explorations in Greenland and the polar region had been attracting interest for ten years, and it was with these thoughts in mind that the author of “Tales of the Town” let his imagination go in an article on “The Great Heat Wave of July and August, 1925:”⁵⁴

The tremendous heat continues unabated. The thirtieth night of terrific torridity began at sunset yesterday. In spite of the temperature standing at $129 \frac{3}{4}$, the stores opened about seven o’clock in the evening and business was in full swing under the calm rays of the great arc-light clusters which shine in a cloudless sky.

The through air-line passenger express flyers are making streaks of light, like meteors as they whiz through the heavens. The New York Central aero-motormen have received instructions to seek an elevation of five miles during the heated term.

Yesterday was frightful. Few could sleep in the city. Those who were fortunate enough to obtain the new asbestos ice-packed pajamas were enabled to pass the dreadful ordeal in comparative ease, although it was found necessary to replenish the ice every two hours.

The usual aero-excursions to Ontario Beach, Niagara Falls, Chicago, Labrador, and Alaska will be run tomorrow. The Labrador excursion is particularly satisfactory. The aero-motors start at ten P. M., arrive over the ice fields at eleven-thirty, allow the passengers to remain on the bergs for four hours, returning about sunrise. The fare for the round trip is only seventy-nine cents. . . . At the Department for the Preservation of Frigidity, Commissioner Goler made the statement that, if the ice supply should not become depleted, no fears need be felt for the immediate future. . . .

This fictitious but amusing article of a half-century ago proves at least that our weather is less changeable than our technical civilization. The “great arc-light clusters” had their day on Main Street but soon passed on; the “aero-motormen” are still enjoying theirs but the fares

they charge considerably exceed seventy-nine cents a round trip! The "asbestos ice-packed pajamas" have not yet reached the retail market, although the numerous forms of air conditioning that have appeared in the last three decades have partially met the need.⁵⁵ The Rochester weather, on the other hand, has continued its former fluctuations. Some new heat records have been set, as when the thermometer rose to 102 degrees on two successive days in July 1936,⁵⁶ yet the torrid years predicted in 1901 for the 1920's did not materialize. Even the heat wave of this past summer, when, as many will recall, the number of days over 90 degrees broke all records, did not average as hot as it seemed and did not come up to the summer averages of 1921, 1933, 1938 and 1949.⁵⁷ Cold waves likewise established new records, notably the 22 degrees below zero reached on February 9, 1934.⁵⁸ Cold winters were, however, insufficiently cold to sustain the hopes of some citizens to make Rochester a resort for winter sports, although one Ice Carnival proved moderately successful in February 1910.⁵⁹ The most significant aspect of these extremes, recently as in earlier days, was their moderation in comparison with those suffered in less protected regions at the same time.

Lake Ontario's Stabilizing Influence

Lake Ontario continues to exert its stabilizing influence. Orin Parker, our second civilian meteorologist, calculated that the lake annually stored up sufficient heat from the summer sun to equal that of 2,500,000,000 tons of coal, releasing it gradually throughout the winter and spring to the great benefit of the surrounding area.⁶⁰ It would be hard to calculate Rochester's share, statistically, but John M. Williams, our chief meteorologist today, has described the lake's influence more precisely in his 1951 report as follows:

The nearness of the open lake in the winter serves to greatly modify temperatures, and to increase somewhat the amounts of wintertime precipitation. Cold air in moving over the lake gains warmth and moisture, resulting in a cloud deck extending from the lake inland well into Western New York. . . . The cloud blanket acts to prevent large nighttime reductions in temperature. At the same time the daytime rise is also restricted. . . . A third or two-thirds of the days in winter have measurable precipitation, mostly

as snow flurries from the clouds formed by the warming of the lake. . . . Only three to six days per month normally have snowfall of as much as an inch.⁶¹

He goes on to show that extreme cold weather (like extreme heat) must approach Rochester from the southwest by way of Pittsburgh or be blown south from Canada and east of the lake to reach Rochester by way of Syracuse in a large clock-wise movement.

If the lake and even our cloud blanket are thus blessings, the benefits of the former have seemed somewhat disguised these past few years. The long cycle of relatively low lake levels which set in after 1908 was interrupted by a high level in 1943, but it was not until June 1947, that the previous high level of June 1870 was exceeded. Everybody "in the know" predicted an uneven decline from this point, but, while the annual fluctuations did commence a downward cycle, it was cut short in 1951, and June 1952 saw an all-time high (in our present geological cycle!) established, four inches above even the 1947 record. Blame for the widespread damage to properties along the shore has been heaped on a Gut Dam at the lake's outlet, and Canada has at last agreed to remove the obstruction; however, as all the Great Lakes have been brimming full this past summer, the more cautious experts admit ignorance of the cause. Many seem convinced that it is time for the Federal Government and Canada to undertake operations to stabilize the lake level and thus eliminate this particular weather hazard.

The last four decades have in fact seen several of the worst weather threats in the Rochester area eliminated or at least moderated. Snow and wind storms can still be severe but the \$100,000 damages one of them inflicted on the Rochester Telephone Company in January 1913,⁶² and earlier on the electric companies, are nightmares of the past as far as the city is concerned. The compulsory removal of the electric wires which overhung Rochester's business streets a half century ago, and the progressive extension of the underground conduit system since then, have freed our blizzards of a major terror. Rochester did suffer greatly from a record-breaking series of snowstorms early in December 1944, which blocked traffic for days and slowed it for over a month, but the city responded by greatly increasing its snow removal equipment and has since had little difficulty on this count. Indeed its recent practice of tackling the many light snow falls with a salt mixture, rather than

by plows, has freed the streets of their customary icy glaze and greatly assisted the drive to reduce traffic accidents.

Other weather hazards have likewise been tackled with good effect. The Federal Government has stepped in and built the oft-proposed storage dam at Mt. Morris, and while it is too early to say with certainty how completely it will protect us from floods, its location, permitting it to impound the runoff from more than two fifths of the valley's area, promises security from the most disastrous floods. Even the city's supply of sunshine has been increased—as far as the average resident is concerned—by the introduction of daylight saving, at first as a war measure in 1917 and 1918. The city itself adopted the measure tentatively in 1926 and 1930 and has advanced its clocks annually each summer since 1939.

Modern Weather Reporting

Meanwhile the Rochester weather bureau station has assumed an increasingly prominent place in our city affairs. Luther M. Dey, who succeeded Parker as meteorologist in 1901, was succeeded by Jesse L. Vanderpool in 1924. A substation was provided at the Rochester airport from 1929 until 1937, and in 1940, when Emil A. P. Raub arrived to replace Vanderpool, who retired after nearly fifty years of service, the main Rochester station was moved from the Federal Building to the airport. There its services to air traffic have steadily increased, and many new uses have been discovered by the city at large. Reliance on flag signals (except for the storm warning signals which are still raised by the Coast Guard over the lifeboat station at the mouth of the Genesee) has given way to daily and recently hourly weather reports over the radio and television networks. It is no longer necessary to await a storm warning from Washington, for the local meteorologists now make their own forecasts with the aid of a teletype service that brings reports in constantly from all parts of the country. Weather maps covering the entire nation, as well as local forecasts, are made available to the papers and to other interested applicants. Private queries are answered, enabling citizens to plan their trips and other affairs guided by the best weather knowledge available. And two years ago, when the appearance of some atomic dust particles caused a stir locally, the weather station installed a detector which it now operates

constantly in conjunction with the Atomic Energy Commission, thus making a permanent record of any such particles that may appear in the Rochester area—the only record, incidentally, which is not open to the public among all the many factors recorded by the weather bureau station.

When asked his opinion of the Rochester weather, John M. Williams, the chief meteorologist in charge today, replied: "It depends on the kind of weather you like." He refused to describe it as either the best or the worst in the world. Clearly he finds its vagaries and its unpredictable impulses challenging to a student who would like to know enough of their secrets to keep at least a jump ahead in his forecasts. We have seen that he knows enough about the moods of our weather to see the clouds in our winter sky not as the frowns of an unfriendly fate but as the protective blanket a kindly nature has spread over our city to safeguard its fuel supply. He loosens his collar on hot days in summer and rejoices in the knowledge that the law of averages assures us enough moisture and enough sun to maintain not only the important fruit and vegetable crops of the area but also the verdant foliage of our parks and private gardens on which our title as Flower City depends. It may be interesting some day to try one's hand at rain making, he speculates, but it is really not necessary here, either to break droughts or to head off excessive rain, for only twice in the last fifty years has the annual precipitation fallen below twenty-five inches, and only twice has it exceeded forty. The wind velocity has reached 73 miles per hour only once (on Jan. 14, 1950 in fact) in the 82 years on record, and only on three other occasions did local storms attain mild hurricane velocities of 60 miles an hour; the mean hourly speed has been a lazy 9.1 miles an hour, just enough to assure a fresh circulation in town and to encourage the numerous sailors who have appropriated our lakes for recreational purposes in summer time.

Finally, to bring this discursive article to a close, where will one find a better topic of conversation—now that the election and the baseball and football seasons are over—than in Rochester's variable weather! It not only affords ample scope for argument between pessimists and optimists, but can also titillate the imagination of both amateur and professional naturalists. It has long been the favorite subject for the idle but comradely greetings we exchange with strangers and friends alike—an important asset in an urban community where

the multiplicity of our contacts greatly exceeds our range of personal friendships and threatens to undermine our camaraderie. Moreover, our increasing knowledge of the weather and the weather reports we hear or read daily provide a continuing reminder of the fact that we are but a small locality on a vast globe and must share with others the effects of the various natural forces that combine to make the weather.

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2. Rochester Historical Society *Publication X* (1931), pages 99-100.
3. *Ibid.*, pages 105-110.
4. *Herald*, January 13 (7-2) 1894.
5. *Democrat and Chronicle*, January 11, 1942.
6. Timothy Dwight, *Travels in New England and New York* (London, 1823) IV:109-111.
7. Henry O'Reilly, *Sketches of Rochester* (Rochester 1838), page 102.
8. O'Reilly, *op. cit.*, pages 51-56, and *351.
9. O'Reilly, *op. cit.*, pages 42-45.
10. "Old Citizen Letters," Numbers 169, 170.
11. O'Reilly, *op. cit.*, pp. *362; *Ontario Repository*, June 11 (3-3), Aug. 20 (3-2) 1816; *Niles Weekly Register XI* (Oct 5, 1816) p. 94; Raymond "Scrapbook" p. 99.
12. Blake McKelvey "Rochester, The Flower City" *Rochester Historical Society Publication XVIII* pages 121-169.
13. *Transactions of the New York State Agricultural Society XV* (1855) pages 189-236; Franklin B. Hough, *Results of a Series of Meteorological Observations*, (Albany, 1855), pages 396-405.
14. *R. D. U.* December 7 (3-2) 1854. See also *R. Republican*, April 26 (1-5), June 7 (3-1) 1836. *R. D. A.*, November 11 (2-5) 1845. *R. D. D.* October 21 (2-2) 1844.
15. R. H. S. *Scrapbook II*. No 1, pages 12-13.
16. "Summary of Meteorological Observations made at Rochester during 1854" by Chester Dewey, *Senate Documents* (1855) No. 78 Appendix, pages 294 and 300.
17. *R. D. U.*, December 19 (2-6) 1853; February 9 (3-1) 1855; *U. & A.* May 6 (3-4) 1858.
18. *R. D. D.* July 1 (2-5) 1851; December 29 (3-4) 1852.
19. *U. & A.* February 17 (2-2) 1864
20. R. H. S. *Publication IX*: 57-64, "Report of the New York State Water Storage Commission" *Senate Document* (1903) IX No 37.
21. *U. & A.* May 11 (2-1), July 15 (2-2), July 16 (2-4) 1868.
22. *U. & A.* December 5 (2-2) 1865; January 8 (2-3), February 2 (2-3) March 12 (2-4) 1866.
23. *Regents Reports* (1855-1863) Appendix.
24. Dewey MSS. U. of R.
25. *U. & A.* December 3 (2-2) 1869.
26. Powers Commercial Fire Proof Bldg. (R. 1872) pages 17-18; *U. & A.* January 14 (2-3) 1876.
27. *U. & A.* November 1 (2-4) 1870.
28. *U. & A.* March 9 (2-3) 1871; September 3 (2-1), Oct. 14 (2-4) 1872.
29. *U. & A.* Sept. 3 (2-1) 1872. Jan. 14 (2-3) 1876.
30. *U. & A.* January 14 (2-3) 1876.
31. A. A. Hopkins, *The Powers Fire-Proof Commercial and Fine Arts Bldg.* (R. 1883), pages 71-72; *U. & A.*, June 28 (2-4) 1883.
32. *U. & A.* Oct. 1 (2-3) 1885; Jan. 11 (2-3) 1886.
33. *Herald* May 12 (8-2), May 19 (7-3) May 25 (8-4) 1894.

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35. *U. & A.* Feb. 13 (2-2) 1875; *U. & A. Yearbook* (1897-8) page 50,
36. *D. & C. Jan.* 3, 9, 12, 1887; Jan. 1, 1891; *C. C. Proceedings* (1903), page 19.
37. *D. & C. Jan.* 14 (7-1) 1890.
38. *U. & A.* Sept. 23 (2-2) 1872; Jan. 18 (2-3) 1873; July 10 (2-2) 1877, Dewey MSS, U. of R.
39. *U. & A.* Ag. 25 (2-1) 1876; See the chart of lake fluctuations prepared by the Rochester City Engineer from the U. S Lake Survey Records.
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41. *Herald* March 10, 11, 13, 16, 1893.
42. Edwin A. Fisher "Engineering in Rochester" *R. H. S. Publication XII* pages 228-229.
43. *Herald* March 3 (6-3) July 18 (4-4), August 15 (8-1), August 29 (7-1) 1906.
45. *Herald* Feb. 7 (6-1) March 10 (6-2), 11 (6-2), 13 (6-2), 16 (6-4)
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49. *Herald* August 10 (9-2), August 11 (6-3) 1900.
50. *Herald* Sept. 13 (7-1) Sept. 20 (8-4) 1900.
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52. *D. & C.* June 17 (11-1) 1901.
53. *P. E* July 24 (1-1) 1901.
53. *P. E.* July 24 (1-1) 1901.
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58. *Ibid.* page 4, *U. & A.* February 9, 1834.
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60. Orin Parker, "The Climatology of Rochester" *R. Academy of Science* III: 222.
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