

## 1: Ottawa sewer explosion - Wikipedia

*Report on the main sewerage of the city of Ottawa [microform] Report on the main sewerage of the city of Ottawa [microform] by Hering, Rudolph,*

The primary water course and sources of flooding are the Fox River and the Illinois River. A secondary and relatively inconsequential source of flooding is from the Goose Creek watershed which is only 6. The total fall for the Fox River from its source to Ottawa is feet. There is a total of square miles of watershed in this basin. The water level of the Fox River is influenced more by the rainfall and runoff of Northeastern Illinois and Southern Wisconsin than by local rain events. A critical component of our flood hazard in Ottawa is that the watershed of the Fox and Illinois Rivers upstream of Ottawa is more than 11, square miles. As a result, the City could receive a minimal amount of rain, yet experience a severe flood event caused by runoff from the watershed. Flood discharges during a year flood event for the Goose Creek is 1, cubic feet per second cfs , for the Fox River is 42, cfs and for the Illinois is , cfs. Army Corps of Engineers. This levee lost its accreditation in March of The levee provides protection for Ottawa High School, considered a critical facility, and a small section of the Fox River levee does not have the Flood Protection Elevation required for critical facilities. Record floods have occurred in , , , , , and and The flood of crested 1. The , , , , and floods all resulted in Federal Disaster declarations. In Central School was flooded and subsequently declared substantially damaged. This was perhaps the largest single flood loss recorded in the City of Ottawa with FEMA providing over 12 million dollars in relief. During a flood event Green Street, a secondary means of egress for the East side of Ottawa, becomes impassible. The only other access to the East side is the Main Street bridge. During record flood events this bridge could become unusable, effectively isolating the East side. This happened during the flood event. Fire and police personal were staged, with apparatus, on the south side of the bridge with a helicopter on stand-by in the event a medivac was needed. During these events OSF St. Elizabeth hospital can be threatened, however, they have recently constructed a flood protection wall which protects above the year event. Ottawa High School is also threatened. The high school has a very good flood fighting plan which has been extremely effective, even preventing damage from the record floods of and A flood protection wall is being constructed at this time. The YMCA is the only other commercial facility affected during major flood events. Their flood fighting plan prevented major losses during the event. Law Enforcement Agency Data System: This system is used to make emergency weather notification calls. This system is manned at all time and provides, storm, flooding and other weather-related data and alerts. This is a satellite based system. This is an audio alarm program. When an alert is broadcast the alarm notifies on duty dispatchers. The system is monitored at all times. Dispatchers can check local forecasts, radar, storm watches and warnings, weather graphs and real-time weather reports. National Weather Service web page: This site is also monitored at the Emergency Communications Center as well as Community Development Department, Waste Water Treatment plant and by city personal responsible for floodplain management. This site gives advanced warning of flood threats on the Illinois River, with approximately 48 hours lead time. These maps depict flood levels 4 feet in excess of any flood on record. Additionally, these maps have depth grids for all flooded areas. Geological Survey web page: This site provides valuable information related to water discharge rates immediately upstream of the City limits. When a flood watch or warning is issued this site is used primarily for real time data. The Emergency Communications Center, also known as a Public Safety Answering Point PSAP is a facility equipped and staffed to receive emergency and non-emergency calls requesting police, fire, EMS and other public safety services via telephone and other communications devices. The Center is staffed and operating 24 hours a day, 7 days a week. The PSAP is also the point from which all calls are dispatched. The Ottawa Police Communications Center employees also known as Telecommunicators are first level public safety communications professionals who essentially serve as first responders to every class of emergency for which public safety services are provided. The Community Emergency Notification System Nixtle is a web-based emergency notification system that will assist public safety officials in making emergency notifications in a timely manner. The system allows the originator to

initiate a voice message broadcast to residents or businesses by their predetermined group or geographic location. This system is used to notify residents in the floodplain and critical facilities in the community of impending flood events. A system in place at the Ottawa Police Department for notification of life threatening emergencies, catastrophic flooding or other community disasters. The Ottawa police dispatch can interrupt local radio and cable TV broadcasts with emergency information and directions. When a flood emergency exists, the City Engineer or Building Official notifies the news center with the appropriate warning. This can be done via telephone, the web or text from a cell phone. The news center then publishes the warning on their front page of the web-based media and broadcasts this warning via their Social Media Network to Facebook, Twitter and all email subscribers. City of Ottawa Inundation mapping for the Fox and Illinois River will be used to gauge the extent of inland flooding with depth grids. The Building Official will contact the High School for live gauge reports. After monitoring the Advanced Hydrological Prediction and determining when the Action Plan will be implemented, the City Engineer will notify the appropriate department heads to take action. The gage elevation was surveyed and certified by the U. Ottawa High School also has a secondary gage located in the same gatewell. This gage is hardwired to the school. Ottawa High School also has three staff gages located around the property with elevation marks established by survey. The City of Ottawa has a staff gage located on the downstream face of the north pier of Highway 23 Bridge. This gage has been established by survey and has been compared and verified to the gage at Ottawa High School by previous high-water events. The National Weather Service has multiple official forecast points both upstream and downstream of this gage on both the Illinois and Fox Rivers. Upstream indicators on the Illinois allows a 24 to hour warning of peak flows. Since the Corps of Engineers gauge is an official forecast point for the National Weather Service, it is continuously monitored. Maintenance is performed as required, and the Corps has dedicated staff to maintain these gages and can be dispatched in short notice to make repairs. The City of Ottawa performs witnessed monthly checks of all data collection and communications and keeps record of these on file at the dispatch center. On the Fox River approximately feet upstream of Ottawa city limits is another gauge. This gauge is maintained by the U. Geological Survey, Urbana, Illinois. The upstream gauges are easily monitored from the National Weather Service website and are an excellent warning source. Additional information is available on a real-time basis from the USGS web site. Predictions from the Chain of Lakes pool levels allow at least a hour warning.

## 2: Ottawa Emergency Flood Information – City of Ottawa

*Report on the main sewerage of the city of Ottawa [Rudolph Hering] on [www.enganchecubano.com](http://www.enganchecubano.com) \*FREE\* shipping on qualifying offers. This book was originally published prior to , and represents a reproduction of an important historical work.*

The first happened on 29 May , and the second on 28 January Both hit the same areas of town—Sandy Hill, Vanier then called Eastview and New Edinburgh—and caused extensive damage. There was also one fatality in the first set of blasts; many were injured. Despite three inquiries, the exact cause of the explosions was never conclusively determined though leaking illuminating gas used for lighting was believed to have been the culprit. However, a lengthy law suit launched by the City against the Ottawa Gas Company to cover the costs of the second explosions failed. At least twenty-eight manhole covers were blown in the air, some thirty to forty feet, before crashing to the ground. Clouds of smoke and vivid tongues of flame were reported emanating from the manholes. Mrs Hannah Henderson, age 73, of 37 Templeton Avenue was killed when flames shot out of her kitchen sinkhole and ignited her clothes. Although she managed to flee her home, she later succumbed to her injuries in hospital. Around the corner at Henderson Avenue, Miss Lilian Pettapiece, age 20, escaped a similar house fire with serious burns. She had been in her cellar choosing potatoes for lunch when she was enveloped by flames that shot out of a sewer connection. Despite choking fumes, she managed to stumble up the stairs to the outside where she was rescued. Many others were injured by flying glass blown from windows. The home of Captain Sam Blackler of the Ottawa Fire Department at Henderson Avenue was rocked from its foundations by the force of a blast and was gutted by fire. Fortunately, nobody was hurt. Mrs Blackler suffered a narrow escape, however. She had just walked out of the kitchen a minute before it was wrecked. An apartment building at the corner of Somerset Street East and Chapel Street, which housed a grocery on the ground floor, also suffered serious structural damage. Municipal leaders commissioned John Campbell from the Edison Illuminating Company of Boston to conduct an inquiry into the disaster. Campbell concluded that the exact nature of the gases that exploded might never be known as no tests were performed on gas in the sewers prior to the explosion. However, he pointed to two possibilities: He noted that the Ottawa Gas Company had been digging for leaks prior to and during the day of the explosion. He added that the sewer explosion need not have been the result of a single big leak but could have been due to a number of small ones. While not specifically pointing the finger at illuminating gas, he added that the lack of soot deposits and the nature of the fire suggested a gas lighter than air was responsible; gasoline vapours are three times heavier than air whereas illuminating gas is half as heavy as air. Campbell was of the view that the exact point of ignition was in the Frank-Cartier Streets area. However, what caused the ignition would never be known. He postulated it could have been a lighted match, the backfire of an automobile, or a spark from a trolley wheel. Rather than lay blame, which he argued was outside of the remit of his report, Campbell made a number of recommendations. These included the prompt investigation of complaints about gas smells complaints prior to the explosion were apparently not investigate with any degree of diligence , the regulation of the sale of gasoline to homeowners, a prohibition on disposing of volatile fluids in the sewers, and the inspection of gasoline service stations. He also recommended the construction of ventilation stacks with fans to help dissipate volatile vapours in the sewers, and the hiring of additional staff by the City to keep up to date in the matter of inspecting, testing and the keeping of records. The second series of sewer explosions began at roughly 4. Apparently, a spark from a trowel he was using ignited gas emanating from the sewer. As in , twenty-eight manholes covers were sent flying, sixteen of which featured in the earlier disaster. The damage sustained to the sewer system was severe. There were at least four breaks. The inch main sewer on the Eastview Vanier side of the Cummings Bridge, which carried much of the sewage from the eastern portions of the city to the outfall at John Street into the Ottawa River, was fractured. Another inch sewer running from Ottawa South along the west bank of the Rideau River was also ruptured near the Strathcona Hospital. With these breaks, sewage backed up into Sandy Hill. To prevent the flooding of homes, the City excavated at two points, one on Somerset Street and the other near the Isolation Hospital, and pumped the sewer water into the

Rideau River. Fortunately, this time no lives were lost. There were, however, a number of close calls. Twelve-year old Munroe Dingwall of Goulburn Avenue was skiing on Somerset Street East with friends when a manhole cover blew up beside him. The lad was lifted into the air, skis and all, and deposited stunned but unhurt into a snowbank. Poor Miss Pettapiece, who suffered grievous injuries in the explosions, was on a bus near home when a manhole exploded. She collapsed and had to be treated for shock. A number of children were skating on the Sandy Hill rink on Nelson Street between Somerset East and Templeton Street when gaping holes appeared in the streets around the rink. The children were unharmed and taken to safety. The City launched two inquiries. Of the two possibilities, the engineers favoured illuminating gas on the grounds that there was little evidence of flames or black smoke emanating from the explosions that would have been characteristic of a gasoline fire. Also, they viewed it as improbable for a perfect mix of gasoline vapour and air to have occurred. But, in the absence of all data and an analysis of sewer air before the explosions, they refrained from given an opinion regarding the source of the responsible gas. They did, however, make a number of recommendations. First, they recommended that there be a judicial inquiry under oath so that all relevant records and other information pertinent to an inquiry could be obtained. They recommended the construction of more ventilating shafts, the opening of manhole covers, and the checking of home drains attached to the sewers. Apparently, many were not properly trapped. Other recommendations included the regulation and supervision of establishments using flammable gases or liquids, a regular inspection of sewers every six months, and the construction of sewage treatment plants. A second committee chaired by Dr Alfred E. MacIntyre, a retired former chief of the Explosives Branch of the Dominion Government, focused on the causes of the blasts. MacIntyre had also consulted on the Campbell Report into the earlier explosion. He was of the opinion that illuminating gas had been the cause of both explosions. Earlier in the year, Mr A. Macallum, the Commissioner of Works, had also resigned, having been held responsible for not taking sufficient precautionary measures to avoid a repetition of the blasts. At City Hall, the two investigations into the explosions set the proverbial cat among the municipal pigeons. Amidst a rancorous debate, City Council defeated on a split decision a motion supported by Mayor Allen for a judicial inquiry into the explosion as recommended by the consulting engineers from Toronto. A motion for an independent inquiry into the conduct of Mr Bryce, the sewer engineer, was also defeated on a close decision. Despite the testimony of roughly witnesses, the evidence provided by the two inquiries into the sewer explosions, and an admission of the Ottawa Gas Company that its pipes and gas mains had not been inspected since they were installed, the Court ruled in favour of the gas company owing to lack of evidence. After losing an appeal, the City paid the court cost of both parties. Following the inquiries, the City took steps to improve ventilation in the sewers, including the establishment of another ventilation shaft in Strathcona Park. Measures were also taken to improve the investigation of complaints of sewer smells by residents through the establishment of a complaints bureau. In the end, only Mr Macallum, the former Commissioner of Works, took the fall for the sewer disaster. Roughly eighteen months after the explosion, the Board of Control unanimously re-appointed Mr W. Ottawa Evening Journal The ,

**3: Catalog Record: Report on the main sewerage of the city of | Hathi Trust Digital Library**

*Skip to main content. Search the history of over billion web pages on the Internet. search Search the Wayback Machine. Featured texts All Texts latest This Just.*

Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below. La bibliothdque des Archives publiques du Canada The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications. Les images suivantes ont 6t6 reproduites avec le plus grand soin, compte tenu de la condition et de la nettetd de Texsmplaire film6, et en conformit6 avec les conditions du contrat de fiimage. Original copies in printed paper covers are filmed beginning with the front cover and ending on the last page with a printed or illustrated impres- sion, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impres- sion, and ending on the last page with a printed or illustrated impression. Un des symboles suivants apparaitra sur la dernidre image de cheque microfiche, selon le cas: Maps, plates, charts, etc. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method: Les cartes, planches, tableaux, etc. Les diagrammes suivants illustrent la mdthode. Two plans had already been presented for the same purpose ; one prepared by your City Engineer, Mr. Robert Surtees, supplemented by Mr. Keating, City Engineer of Toronto, and the other by Messrs. Both plans had in turn been submitted to the voters and were de- feated. The reasons for voting down these plans, as I was given to understand, were that the first one appeared to be too expensive, and that the seconu discharged a large proportion of the sewage into the tail- race of the waterworks, from which discharge subsequent trouble was anticipated. The instructions I received from your Chairman were to the effect that the city desired to know which of these plans, or which other plan, was the best one and the cheapest one, in my opinion, to properly drain the undrained portions of Ottawa. The undrained part of the city con- sists of acres, entirely unprovided for, and acres imperfectly provided for, or, a total of acres. During my visit to your city I examined the territory as fully as I deemed necessary, in order to acquaint myself with its topographical teatures, and with such other conditions as it was necessary to consider. Since then I have been furnished with copies of the reports and plans previously made, and also with such other data as were necessary for my purpose. The question before me could not be answered quickly. The problem in brief relates to a system of main sewers which will collect and remove both the sewage, or foul water, and the surface water from those portions of the city of Ottawa mentioned above for which in these respects public works are not yet provided. It further relates to a proper disposal of this sewage so that it can neither cause a nuisance to the citizens nor be objectionable to them in any other way. To ascertain the best method of collection it was necessary first to determine where and how the sewage could be safely and economi- cally disposed of. I have therefore divided the report into three main divisions, treating, first, of the final disposal of the sewage ; secondly, of the collection of the sewage, and thirdly, stating the estimates of cost and conclusions. There are several methods of finally disposing of the foul waters collected in a large community. It is necessary, however, to have a sufficient area of suitable soil, suitably prepared by leveling, subdraining, and a subdivision into beds, upon which the sewage is dis- tributed intermittently by especially constructed carriers. In other words this process requires a certain amount of land and entails an annual expense. Where such land is not obtainable and it is nevertheless required to remove the decomposable organic matter from the sewage, another method has been developed, likewise mainly in England, by which the suspended organic matter is precipitated from the sewage in tanks specially built for the purpose. The precipuution is produced by a mixture with certain chemicals, such as lime, sulphate of alumina of salts of iron. These chemicals, cause a coagulation of the organic mat- ter, and, as the resulting fiocculent substance produced thereby settles to the bottom of the tanks, it carri s with it the other suspended matters not coagulated and also most of the bacteria of the sewage. The super- natant liquid is allowed to flow off into a water course, freed as ex perience demonstrates, of about one-half of its organic

matter, but clear in appearance. The deposited matter, called sludge, is then taken from the tanks and its water removed by the pressure. The pressed sludge is sometimes sold as manure of an inferior quality, but generally it is wasted, and dumped upon suitable ground, or burned. A third method of disposing of the sewage of large cities is to discharge it into a body of water, of sufficient volume or size to thoroughly dilute it. The oxygen contained in the river or lake water gradually oxidizes and thus obliterates the objectionable organic matter in the sewage. This oxidation, under the conditions furnished by a discharge into a lake or river is a slower process than the oxidation in porous soil and the practical result is that only in very long or large rivers or lakes will such an obliteration of the sewage take place. It has been correctly stated in England that no river in that country is large enough to completely oxidize sewage matter discharged into it. Parri passu there is a gradual reduction in the number of sewage bacteria, and probably also of pathogenic bacteria. Little is known regarding the length of time the latter will continue to exist in running water of a given composition. But it is known that those bacteria which are supposed to be the cause of typhoid fever and diarrhoeal and similar diseases will not all perish for several weeks. Of the above three methods of sewage disposal the latter is, in the present case, by far the least expensive. It necessitates merely the construction of sewers with outfalls leading out into the current of the river. But it is evident that the cost of conducting the sewage to a point below the city, preparing a large area of land for its treatment, and then paying the annual expenses for such treatment, would be quite considerable. A system of chemical treatment at a point below the city would also be expensive. Besides the cost of building the large tanks and the necessary pumps and sludge-pressing machinery, the cost of operation, which in England is found to be about 25 cents per annum per head of population, would in your city reach a still higher figure. A disposal of the sewage of your city into the Ottawa river is an entirely harmless method. It can not be positively demonstrated at the present time that such a disposal will contribute serious injury to any city below, where a water supply is taken from the same. It is a fact that disease bacteria get into drinking water from other causes than by the introduction of sewage. The question to be examined in this case is therefore one of creating a nuisance, or of the river becoming objectionable to the residents along the shores. There is sufficient experience now available so that we can state with a high degree of certainty what effects will be produced by the discharge of a given amount of sewage into a given stream. An extensive investigation on this subject was made over ten years ago in the City of Chicago, where it was found necessary to construct an expensive canal, costing about 25,, for the purpose of receiving the sewage of that city, and of diluting it with lake water, so that it would not become offensive along its course, or subsequently in the Illinois River into which the canal water is discharged. It was found that under comparatively favorable conditions it required a flow of four cubic feet per second of lake water to properly dilute the sewage of 1, persons. Upon this assumption the canal has recently been constructed. Since then other investigations have been made, and it has been found by examinations, gaugings and analyses, that for smaller streams a greater dilution is advisable. A less dilution than two and a half cubic feet is sure to cause a nuisance ; a greater dilution than seven cubic feet is not known ever to have been objectionable. If we apply these facts, which cover experience both in the United States and Europe to the case before us, we find as follows: Another gauging was made about 70 miles above the city, at Portage Dufort, and the low water flow was there found to be 32, cubic feet per second. If we assume, endeavoring to be on the safe side, the extreme low water flow in front of the city of Ottawa at 30, cubic feet per second, and adopting the highest figure for the dilution of the sewage, that has anywhere been found advisable ; in other words, if we assume that it requires a flow of seven cubic feet per second to dilute the sewage of each 1, persons, then the minimum flow of the Ottawa river during the fall and winter months would be sufficient to receive the sewage of 5,, persons before it would cause a nuisance. Stating this fact in another way, we find that, assuming the population of Ottawa to be ,, it is at present about 50, , the dilution would be cubic feet per second for each 1, persons, or 25, cubic feet per day , imperial gallons for each person. This indicates that the dilution would be over forty times as great as has elsewhere been found necessary in the most unfavorable case. It is known that more sewage can be properly discharged into a river having a low temperature than where its temperature, for instance in summer, is high. This fact still further favors a discharge into the Ottawa river, the temperature of which, even in summer, is quite low. It will be evident that where there is no constant

downward current, but slack water and eddies instead, suspended matter w. We can therefore draw the conclusion that if the Ottawa river is to receive the sewage, the outlets must be in the current and not near the shore, nor at points where the sewage can get into slack water or eddies. This condition necessarily allows deposits to take place and must therefore occasionally cause offense. The effects of discharging sewage out into the current must not be judged by the effect when it is discharged near the shore. In order to deliver sewage into a stream so that it will remain in the current, it is necessary to carry the pipes sufficiently far out on the bed of the river and to let the sewage escape so that there is a large body of water flowing between the outlet and the shore. Then the sewage will at once not only obtain a fair degree of dilution, but it will also be prevented from approaching the shore. These results presuppose a previous screening out of large particles of suspended matter which would otherwise rise to the surface of the river, and, while floating upon it, be driven to the shore by the wind. Before the sewage is dropped into the submerged outlet channel it must be screened and the screenings especially removed. Their quantity will be found to be quite small. In the city of Boston it amounts to only a cart-load a day at the southern sewage pumping station. In the city of Ottawa it might not be more than a couple of wheelbarrow loads a day and therefore would be insignificant, and the cost hardly worth mentioning. From the foregoing considerations, I am of the opinion that a discharge into the Ottawa river, if it is properly arranged, cannot possibly be objectionable in front of the city, and I have no hesitation in recommending this method of disposal. The next question to be decided is at what points along the river such a discharge will be most economical and most suitable. A large amount of water minimum 17 19 cubic feet sec. The water from the latter will then pass down the river between, the shore and the sewage, and will prevent it, even in its highly diluted condition, from approaching the southern shore. The further out into the channel the outfall pipe is carried, the more rapidly the dilution will be accomplished and the quicker will the sewage disappear. If discharged at the bottom of the river it would in fact never be seen. The sewage at this point would enter a current minimum cubic feet per second flowing along the southern shore of the river in front of the city. I understand, further, that there is a possibility of a dam being erected at the foot of the tail race, for the purposes of navigation, in the interest of the owners of the channel. In such a case there would be an objection to a sewage discharge into it,. Along the southern shore, below the outlet of the tail-race, there are already several areas of slack water and eddies where the same results can be expected. The sawdust deposits give evidence to substantiate this conclusion. The section of the tail-race constantly increases in depth and width, causing a corresponding reduction of the velocity, which fact also conduces to deposits. Therefore, I have not further considered a discharge of sewage into the tail-race. It is situated at the western side of the mouth of the Rideau river, and is a very good location, although the sewage should not be discharged at the shore, but by means of a submerged pipe reaching out towards the channel. The reason why this point is a good one lies in the fact that the sewage will be carried away between the body of water discharged by the Rideau river and the body of the Ottawa river, which must therefore prevent it from ever reaching the shores below the city. Another outfall which has received consideration is located on the eastern side of the mouth of the Rideau river. It has been suggested in all the previous reports, and while, for reasons stated above, it is not as good a point as the one on the western side of the Rideau river, it can nevertheless be made quite satisfactory, if the outlet pipe is carried a little further towards the current of the river than in the other case. I can see no objection to this outfall if the above precaution is taken, and the sewage is discharged near the channel and at the bottom of the river, thus preventing it from reaching the shore of the proposed park below. An outfall has been suggested at a point of rocks located in the proposed Park, where the water is deep and where there is said to be a constant and strong current. No objection can be raised against this point, other than the expense of conducting the sewage to it, if it is discharged away from the shore. If the sewage is carried into the stream by means of a submerged pipe, this outfall would also be perfectly satisfactory. Its selection would depend partly on its cost and partly on its usefulness. It must be admitted that the sewage leading to this outfall necessarily passes through much territory that at present has no need of sewerage. It is therefore seen that five of the practicable outfalls that have been examined. Their preference should be decided upon a basis of cost. Sentimental reasons, it is true, do in some cases also influence.

## 4: The Ottawa Sewer Explosions | Today in Ottawa's History

*Report on the main sewerage of the city of Ottawa [Rudolph Hering] on [www.enganchecubano.com](http://www.enganchecubano.com) \*FREE\* shipping on qualifying offers. This is a reproduction of a book published before This book may have occasional imperfections such as missing or blurred pages.*

The Ottawa sewer explosions Taking a look back at explosions which sent manhole covers flying through parts of the city. May 28, James Powell Manhole cover. The first happened on May 29, , and the second on January 28, Both hit the same areas of town " Sandy Hill, Vanier then called Eastview and New Edinburgh " and caused extensive damage. There was also one fatality in the first set of blasts; many were injured. Despite three inquiries, the exact cause of the explosions was never conclusively determined though leaking illuminating gas used for lighting was believed to have been the culprit. However, a lengthy law suit launched by the City against the Ottawa Gas Company to cover the costs of the second explosions failed. The explosions began shortly before noon on May 29 in the block bounded by Cartier, Frank, Waverely and Elgin Streets in the Golden Triangle neighbourhood of Centre Town, blowing out manhole covers in the area. Clouds of smoke and vivid tongues of flame were reported emanating from the manholes. Hannah Henderson, 73, of 37 Templeton Avenue was killed when flames shot out of her kitchen sinkhole and ignited her clothes. Although she managed to flee her home, she later succumbed to her injuries in hospital. She had been in her cellar choosing potatoes for lunch when she was enveloped by flames that shot out of a sewer connection. Despite choking fumes, she managed to stumble up the stairs to the outside where she was rescued. Many others were injured by flying glass blown from windows. The home of Captain Sam Blackler of the Ottawa Fire Department at Henderson Avenue was rocked from its foundations by the force of a blast and was gutted by fire. Fortunately, nobody was hurt. Blackler suffered a narrow escape, however. She had just walked out of the kitchen a minute before it was wrecked. An apartment building at the corner of Somerset Street East and Chapel Street, which housed a grocery on the ground floor, also suffered serious structural damage. In New Edinburgh, St. Municipal leaders commissioned John Campbell from the Edison Illuminating Company of Boston to conduct an inquiry into the disaster. Campbell concluded that the exact nature of the gases that exploded might never be known as no tests were performed on gas in the sewers prior to the explosion. However, he pointed to two possibilities: He noted that the Ottawa Gas Company had been digging for leaks prior to and during the day of the explosion. He added that the sewer explosion need not have been the result of a single big leak but could have been due to a number of small ones. While not specifically pointing the finger at illuminating gas, he added that the lack of soot deposits and the nature of the fire suggested a gas lighter than air was responsible; gasoline vapours are three times heavier than air whereas illuminating gas is half as heavy as air. Campbell was of the view that the exact point of ignition was in the Frank-Cartier Streets area. However, what caused the ignition would never be known. He postulated it could have been a lighted match, the backfire of an automobile, or a spark from a trolley wheel. Rather than lay blame, which he argued was outside of the remit of his report, Campbell made a number of recommendations. These included the prompt investigation of complaints about gas smells complaints prior to the explosion were apparently not investigate with any degree of diligence , the regulation of the sale of gasoline to homeowners, a prohibition on disposing of volatile fluids in the sewers, and the inspection of gasoline service stations. He also recommended the construction of ventilation stacks with fans to help dissipate volatile vapours in the sewers, and the hiring of additional staff by the City to keep up to date in the matter of inspecting, testing and the keeping of records. The second series of sewer explosions began at roughly 4: Apparently, a spark from a trowel he was using ignited gas emanating from the sewer. Replicating in many ways the disaster, the blast rumbled down the main sewer line blowing up manhole covers in Sandy Hill along Templeton Street, Nelson Street and Somerset Street East, through Strathcona Park, before travelling along the east bank of the Rideau River to John Street in New Edinburgh. The damage sustained to the sewer system was severe. There were at least four breaks. The inch main sewer on the Eastview Vanier side of the Cummings Bridge, which carried much of the sewage from the eastern portions of the city to the outfall at John Street into the Ottawa River,

was fractured. Another inch sewer running from Ottawa South along the west bank of the Rideau River was also ruptured near the Strathcona Hospital. With these breaks, sewage backed up into Sandy Hill. To prevent the flooding of homes, the City excavated at two points, one on Somerset Street and the other near the Isolation Hospital, and pumped the sewer water into the Rideau River. Fortunately, this time no lives were lost. There were, however, a number of close calls. Munroe Dingwall, 12, of Goulburn Avenue was skiing on Somerset Street East with friends when a manhole cover blew up beside him. The lad was lifted into the air, skis and all, and deposited stunned but unhurt into a snowbank. Poor Miss Pettapiece, who suffered grievous injuries in the explosions, was on a bus near home when a manhole exploded. She collapsed and had to be treated for shock. A number of children were skating on the Sandy Hill rink on Nelson Street between Somerset East and Templeton Street when gaping holes appeared in the streets around the rink. The children were unharmed and taken to safety. The City launched two inquiries. Of the two possibilities, the engineers favoured illuminating gas on the grounds that there was little evidence of flames or black smoke emanating from the explosions that would have been characteristic of a gasoline fire. Also, they viewed it as improbable for a perfect mix of gasoline vapour and air to have occurred. But, in the absence of all data and an analysis of sewer air before the explosions, they refrained from given an opinion regarding the source of the responsible gas. They did, however, make a number of recommendations. First, they recommended that there be a judicial inquiry under oath so that all relevant records and other information pertinent to an inquiry could be obtained. They recommended the construction of more ventilating shafts, the opening of manhole covers, and the checking of home drains attached to the sewers. Apparently, many were not properly trapped. Other recommendations included the regulation and supervision of establishments using flammable gases or liquids, a regular inspection of sewers every six months, and the construction of sewage treatment plants. A second committee chaired by Dr Alfred E. MacIntyre, a retired former chief of the Explosives Branch of the Dominion Government, focused on the causes of the blasts. MacIntyre had also consulted on the Campbell Report into the earlier explosion. He was of the opinion that illuminating gas had been the cause of both explosions. Earlier in the year, Mr A. Macallum, the Commissioner of Works, had also resigned, having been held responsible for not taking sufficient precautionary measures to avoid a repetition of the blasts. At City Hall, the two investigations into the explosions set the proverbial cat among the municipal pigeons. Amidst a rancorous debate, City Council defeated on a split decision a motion supported by Mayor Allen for a judicial inquiry into the explosion as recommended by the consulting engineers from Toronto. A motion for an independent inquiry into the conduct of Mr Bryce, the sewer engineer, was also defeated on a close decision. Despite the testimony of roughly witnesses, the evidence provided by the two inquiries into the sewer explosions, and an admission of the Ottawa Gas Company that its pipes and gas mains had not been inspected since they were installed, the Court ruled in favour of the gas company owing to lack of evidence. After losing an appeal, the City paid the court cost of both parties. Following the inquiries, the City took steps to improve ventilation in the sewers, including the establishment of another ventilation shaft in Strathcona Park. Measures were also taken to improve the investigation of complaints of sewer smells by residents through the establishment of a complaints bureau. In the end, only Mr. Macallum, the former Commissioner of Works, took the fall for the sewer disaster. Roughly eighteen months after the explosion, the Board of Control unanimously re-appointed Mr W.

### 5: Report on the main sewerage of the city of Ottawa [electronic resource] / - CORE

*Free Shipping. Buy Report on the Main Sewerage of the City of Ottawa at [www.enganchecubano.com](http://www.enganchecubano.com)*

### 6: Remember This? The Ottawa sewer explosions - [www.enganchecubano.com](http://www.enganchecubano.com)

*Report on the main sewerage of the city of Ottawa [electronic resource] / By Rudolph Hering. Abstract. Electronic [www.enganchecubano.com](http://www.enganchecubano.com) of access: Internet*

## REPORT ON THE MAIN SEWERAGE OF THE CITY OF OTTAWA pdf

### 7: Ottawa Septic System Office | Bureau des systÃ¨mes septiques d'Ottawa

*Buy the Hardcover Book Report on the Main Sewerage of the City of Ottawa by Rudolph Hering at [www.enganchecubano.com](http://www.enganchecubano.com), Canada's largest bookstore. + Get Free Shipping on books over \$25!*

### 8: Full text of "Report on the main sewerage of the city of Ottawa [microform]"

*Report of Mr. Rudolph Hering to the Council of the city of Oakland, on a proper system of sewerage, for Oakland, California, filed with the city clerk December 31, By: Hering, Rudolph,*

*Victoria, Saanich and Nanaimo Partners in prayer john maxwell Frn level 1 study material Reel 413. Cook (part). Beads for All Seasons The Spirit of Canada At lunchtime (Language works) SECOND COUNCIL OF CARTHAGE UNDER CYPRIAN (A.D. 252 206 The significance of Parmenides : preliminary observations Lecture tutorials for introductory astronomy answers Kings of the Night Africa, a bibliography of geography and related disciplines Alpha test medicina Hsc finance book My First Bible Sticker Questions Answers 7 most powerful prayers California mineral production for 1928 Week 3. Buckle down Housing and social services for the elderly Medium (Australian Centre for Egyptology Reports) The Roaring 2000s Investor World Statistics Pocketbook 2005 (World Statistics Pocketbook (World Statistics Pocketbook) Outcomes for Injured Workers in California, Massachusetts, Pennsylvania, and Texas The Many-Sided Franklin Specific library services that help the poor Modern Challenges in Quantum Optics V. 3 The decree of Canopus. To think like a teacher Another war with Germany A letter to Great Britain from Switzerland (April 1941) Of the New Biology 676 Hades Daughter (The Troy Game, Book 1) Nobel prize in physics 2013 The Halloween Joker (Wishbone Super Mysteries) Support for victims of crime in Asia American business tokens Charlie MacCready The preppy murder trial There is no tomorrow Dictionary of British childrens fiction*