

### The Hurricane

The Hurricane labelled "Hazel", according to evidence of the Meteorological Office, travelled north from Haiti, hitting the north shore of Lake Ontario at 11.10 p.m. on Friday night, October 15th. The eye of the storm, carrying with it heavy, warm, tropical air, met a cold front travelling eastward across Canada which resulted in most abnormal rainfall.

The hurricane passed directly over Toronto, proceeded north, passing over North Bay at 1.30 the next morning; and from there it headed into the south end of James Bay dissipating itself in these unrecorded areas.

This resultant abnormal rain together with abnormally high winds was experienced roughly over an area starting at Chatham on the west, northward to Blind River, then eastward through North Bay to Mattawa, then southward to Port Hope. The evidence of some of the public utilities show that the wind storm also branched off in a northeasterly direction up the Ottawa Valley almost into the City of Ottawa.

The greatest concentration of rainfall was around Brampton where eight inches was recorded in forty-eight hours and the greatest damage occurred at the mouths of the streams emptying into Lake Ontario in the vicinity of Toronto, notably the Humber River and the Etobicoke Creek.

### Geographical scope of survey

Whilst the Order-in-Council number 1610 dated at Ottawa October 20, 1954, instructing your Commission, specifically used the term "in and adjoining the Humber River Valley", it was felt that, in equity, a liberal interpretation of these instructions was justified since reports of serious damage were reaching the Commission hourly as the inquiry proceeded from areas much further afield than the Humber Valley itself. The greatest concentration of damage did actually occur in this Valley, but the Humber river extends quite a long way north, through the County of York and into the north end of the County of Peel.

In consultation with the Provincial Department of Municipal Affairs, a list of eight Counties in and around the affected areas were selected and from these Counties the Commission took evidence from 19 delegations representing Townships, and 25 delegations representing Cities, Towns and Villages. To save time, in a few cases evidence was submitted by telegraphic or written reports from municipal officials.

Order-in-Council number 1610 is attached as Appendix A.

A list of all parties who gave evidence is attached as Appendix B.

### General Observations

An inspection of the physical damage shows clearly that the disaster from a monetary point of view is perhaps not of the same magnitude as the recent disaster in Winnipeg, but the sudden and complete destruction in these river valleys and the great loss of lives - one might almost say needless loss of lives - brings into the distressing problem of uncontrolled improvident settlement a new and most compelling factor.

In Manitoba and British Columbia, where large slowly rising rivers were involved, a goodly portion of the cost of restoration can be charged to improvident settlement and to the flaunting of the inherent danger of building on the flood-plane of a river - but no lives were lost.

Here we have improvident settlement at its very worst; houses, streets, watermains and other municipal services installed only a few feet above the normal level of rivers with definite flash-flood records. Again, at Holland Landing, we have hundreds of houses built right on original river beds and protected only by a low precarious dyke.

Your Commission's recommendations on this phase of the disaster will follow.

#### General approach to the appraisal

Within the time limit at the Commission's disposal, it was quite impossible to engage professional engineers and appraisers to cover the territory. Instead, it followed the general pattern which had been found reasonably successful in Winnipeg of calling for surveys from the municipal authorities in the affected areas. These officials, working under heavy pressure, gathered for the Commission a mass of detailed information which was later tabulated and closely cross-checked by other authorities. In the matter of casualties and relief operations, the Red Cross was most co-operative. In the matter of damage to houses and small businesses, Central Mortgage and Housing presented a fairly accurate account which was compared with the figures presented by the municipal officials. In the matter of personal property, separate appraisals were made on a spot-checking basis. In the matter of roads and bridges, we had the fullest co-operation from the provincial Highways Department. The Commission also had the benefit of advice from the Provincial Public Works Department, the Department of Agriculture and the Department of Municipal Affairs. Finally, the Commission used its best judgment in reconciling differences of opinions and it was also guided by the final factual records from the Winnipeg and Fraser Valley Flood disasters.

The Commission did not include in its survey any damage that may have occurred to Federal Government property within the area, to the property of the two major railways, to golf courses and to the property of large established business companies. Neither did the Commission attempt to assess the intangible losses due to business disturbance.

Your Commission is very conscious of the fact that in a fast appraisal inevitable omissions and overlapping may have occurred but which fortunately tend to cancel each other. The Commission is also fully aware of the fact that, under tension and strain, officials are apt to exaggerate the damage in their own vicinities and due allowance was made for this aspect of the inquiry.

#### The Nature of the Damage

Most of the damage was caused by the heavy rainfall rather than by the high winds and in contra-distinction to the Winnipeg situation, most of the damage was caused by the impact of fast moving water. The main exception to this was in the Holland Marsh where the area slowly filled with quiet water. The concentration of damage to dwellings and private assets occurred on the banks of the Humber River and the Stobicoke Creek and most of the lives were lost where the Humber flows through the metropolitan area and further north at Woodbridge. Heavy losses to dwellings and other structures occurred at the Holland Marsh and along the courses of the Holland and Schomberg Rivers.

The destruction and damage to bridges and roads, culverts, power lines and communication lines occurred also at the mouths of the rivers in the metropolitan area but this type of damage spread surprisingly far north running over 60 miles into the country. Heavy losses of marketable farm produce, cattle and poultry also occurred in these same areas.

#### The extent of the damage

In measuring the extent of the damage your Commission was faced with two alternatives, whether to express the damage in the dollar value of the assets destroyed and damaged, or to use the cost of replacement. Practically all houses destroyed and washed away were small, old and obsolete and both the assessed and real value of these houses was very small. Practically all bridges destroyed were obsolete and their restricted orifices made them dangerous in flood times.

From a practical point of view some person or some authority will have to pay the higher price. In and around the congested metropolitan area it would be impossible to build or to acquire a dwelling for the real residual value of the typical house destroyed and in the case of bridges, it would be folly to replace an obsolete bridge by anything but a modern bridge.

The figures quoted below are based largely on replacement cost. The table following gives a breakdown of these figures into provincial, municipal and private categories:-

A.	The physical damage amounts to	17,699,280.00
B.	The cost of fighting the flood and clearing debris	607,800.00
C.	The cost of emergency relief including continuing provision for widows and children amounts to	836,500.00
D.	The cost of emergency precautions to guard against a recurrence is estimated approximately at	5,500,000.00
Total		24,643,580.00

SUBDIVISION OF TOTAL FLOOD DAMAGE

	<u>Provincial</u>	<u>Municipal</u>	<u>Private</u>	<u>Total</u>
	(Dollars)			
<u>Physical damage</u>				
Dwellings including trailers			2,796,570.	2,796,570.
Personal property			5,673,000.	5,673,000.
Other buildings			246,500.	246,500.
Power and communication lines		265,515.	766,100.	1,031,615.
Bridges, culverts and roads	1,155,000.	5,524,000.	60,000.	6,739,000.
Other municipal assets		1,212,595.		1,212,595.
<u>Flood fighting and clearing</u>	10,000.	597,800.		607,800.
<u>Emergency relief</u>				
Food, clothing, shelter and provision for the continuing care of widows and children	100,000.		736,500.	836,500.
	<u>1,265,000.</u>	<u>7,599,910.</u>	<u>10,278,670.</u>	<u>19,143,580.</u>
Emergency precautions to guard against recurrence				5,500,000.
				<u>24,643,580.</u>

Dwellings

When the survey establishing the number of dwellings affected by the flood was completed, the list was subdivided into:-

- (a) Those destroyed
- (b) Those seriously damaged
- (c) Those slightly damaged

Central Mortgage and Housing then sent out into the district qualified appraisers who brought to the Commission the results of their examination of some 42 houses of varying types with an estimate of the average physical damage to each type. The survey was compared again with the records of Winnipeg and the Fraser Valley to establish the total damage figure, taking into account differences in costs.

### Personal property

Various estimates of average losses of personal effects were submitted to the Commission by Township officials. Spot-checks were again made by competent appraisers and compared once again with the factual records from Winnipeg and the Fraser. Reports were received from wide areas on small business losses which appear to be quite serious. In many cases the entire stock-in-trade of shopkeepers and small businesses in rural areas has been lost. The Commission, in the absence of a complete survey, has used its best judgment.

### Other buildings

A large number of garages, barns and other farm buildings, farm fences, shops, and small business premises, have suffered structural damage and again the same procedure as in personal property was followed.

### Public Utilities

A canvass was made of the more important public Utilities in and around the metropolitan district disclosing no serious damage with the following exceptions:- The Hydro Electric Power Commission reported some damage to their main system and some greater damage to the municipally owned systems, which damage again followed the path of the hurricane. The Bell Telephone Company also presented a complete report to the Commission on the damage to their communication lines.

### Bridges, culverts and roads

The Commission obtained from all Townships a list of all bridges, culverts and roads destroyed and damaged. This list was carefully checked and reviewed by the Chief Engineer of the Municipal Division of the Highways Department, Mr. J. V. Ludgate. The Highways Department submitted a further survey on damage to the Queen's Highways through Mr. W. A. Clarke. The Commission has accepted their figures with the qualification already mentioned that replacement cost has been used rather than residual values.

### Other provincially or municipally owned assets

This type of damage occurred principally in and around the metropolitan area and the Commission received evidence from competent engineers which were in several cases checked by physical inspection.

### Flood fighting and clean-up

As the report is being written this work is still going on. Actual costs are being submitted together with estimates to complete by the various municipal engineers. Again the Commission has used its best judgment in arriving at an overall figure.

### Emergency Relief

The Commission has been aided by the very excellent work of the Red Cross and the Salvation Army, both in the field and in consultation with the Commission. Reports were received from all areas on the numbers of people on relief or in need of immediate help. This type of cost, is largely the work of the Red Cross which the Commission accepts without question.

Regarding the future cost of provision for widows and children, the Hurricane Relief Fund has just set up a Committee to appraise this situation and it will be some time before the answer is available. In consultation with that body we have used an arbitrary figure of \$500,000.00 as representing the best guess at the moment.

Emergency Precautions to guard against recurrence

This subject falls naturally into two separate and quite different problems, the danger of recurrence first in the river valleys and second in the dyked lands at Holland Landing.

There are six rivers or small streams running into Lake Ontario in and around the metropolitan area.

In the order of their potential danger they may be listed as:

- (1) The Humber River
- (2) Etobicoke Creek
- (3) The Don River
- (4) The Rouge River
- (5) The Credit River
- (6) Mimico Creek

Your Commission has been advised by the Department of Planning and Development of conservation studies now proceeding on several of these water courses and of proposed dams to regulate the flow of the Humber River, to cost some twelve million dollars.

As far as such schemes would benefit agriculture in the Humber water-shed by impounding the low flow of the river, the Commission has no opinion, but to attempt to impound the flood flow would appear to be quite unsound, since it carries the implication that people are still going to live on the flood-plane of the river.

The evidence indicates that the peak of this flood was almost four times the peak of any other recorded "normal flood" - and, of course, it can happen again.

The Department of Planning and Development is now proceeding to contour the high-water mark in the Humber Valley. When this is done we would recommend that all land below this contour line be expropriated by public authority, and used either for public parks or for agriculture, provided no habitable buildings be erected thereon. Many of the dwellings remaining in this area can be moved bodily to higher ground. Those which cannot should be demolished.

To provide a factor of safety the river bed should be cleared and straightened in several obvious places. Several small and obsolete bridges still exist which now obstruct the flood-flow. Attention to their early replacement would further increase the safety-factor.

In brief, don't try to hold back the flood-water. Give it a clear run to the Lake and get out of its path.

The same approach is recommended for the valley of the Etobicoke. The areas surrounding the mouth of the Creek should obviously be expropriated at once. On the other four streams as well as on the Humber and the Etobicoke, an authority should be set up with powers at least to prevent future house-building on dangerous grounds.

At Holland Landing a different problem exists. Here we have some 600 houses and a large number of sheds and storage buildings sitting on the floor of the old marsh and protected from the surrounding rivers by a low mud dyke.

There is no great necessity to do anything about the sheds and storage buildings, but to suggest that public and private funds should be spent on rehabilitating these houses on their present locations would, in our opinion, be improvident. One would only be perpetuating a contingent liability on government funds and public charity.

The low dyke surrounding the area, some seventeen miles long, is just wide enough for a double line of traffic. Your Commission recommends that work be started at once raising this dyke, possibly by eighteen inches, and widening it to an extent that will permit the moving of these houses on to the crest of the dyke and out of the danger zone.

With the exception of a few large and well-built houses the great majority can be moved bodily to the new sites.

With modern equipment and some engineering energy, this dyke work could be carried out in about sixty days at an approximate cost of \$500,000.00. Any money on top of this which may be proffered in assistance to rehabilitate the houses which can be moved, should be spent only when they are moved.

The Dutch population historically have always lived right on their land behind their dykes. This prejudice may be difficult to overcome, but in the public interest it should be.

-----

To place a dollar estimate on the proposed expropriation of lands in the river valleys and other necessary works without an engineering study is almost an impossible task. The final cost might well run to \$10,000,000.00 which would be spread over several years. Your Commission recommends that the sum of \$5,000,000.00 be set aside at once to get this work started. Clearing of debris and obstructions is proceeding now. This work should continue without interruption, since even an unusually heavy rain might cause further damage to the Humber Valley in its present condition.

The source of these funds is a matter outside your Commission's reference.

#### ACKNOWLEDGEMENTS

The Commission is indebted to Mr. L. G. V. Evans, M.L.A., from Winnipeg who volunteered his services and which proved most valuable; also to Mr. Peebles Kelly, C.A., of Millar Macdonald and Co., for his arduous work on the statistical end; also to all departments of the Provincial Government for their whole-hearted co-operation.

#### CONCLUSION

The passage of Hurricane Hazel over this area, while causing serious damage, has been more of a tragedy than a physical disaster. All over Canada as the population increases, more and more people are crowding into dangerous riverbank areas attracted there, some by the pleasant amenities, but more by the cheapness of the land.

In the past few years the drain on public funds and private generosity has been increasing. It may reach a point where the taxpayer may get tired of bailing out the improvident settler, which in itself would be a tragedy. To the loss in dollars we now have a serious loss of life and - we repeat - it can happen again.

Surely vigorous action at some level of Government is called for.

COMMISSION ON HURRICANE DAMAGE  
IN ONTARIO

(sgd) "J. B. Carswell"  
J. B. Carswell.  
Commissioner

(sgd) "D. Bruce Shaw"  
D. Bruce Shaw  
Commissioner