A

TORNADO PROJECT SUMMARY SHEET

F=0 ONT

1. DATE AND TIME 31·7·1976 : 1530 EDT (1930 GMT)

2. LOCATION OR PATH (attach map) NNW TO SSE ACROSS MAIN STREET OF GEORGETOWN

069606

3. PATH LENGTH ☐ NOT KNOWN ☐ <1mi; ☒ 4 1-4mi; ☐ 5-10mi; ☐ 11-50mi; ☐ LENGTH IF>50mi

4. PATH WIDTH 20 FEET 5. TORNADO PART OF SQUALL LINE? ☑ YES; ☐ NO; ☐ UNKNOWN:

6. ANY UNUSUAL COLORATION? ☑ YES; ☐ NO; ☐ UNKNOWN

7. ANY UNUSUAL SOUND? ☑ YES; ☐ NO; ☐ UNKNOWN

8. IF ANSWER TO 6 OR 7 YES, ELABORATE; BLACK FUNNEL; SOUND LIKE A FREIGHT TRAIN OR JUMBO JET

9. LIST ANY ASSOCIATED PHENOMENA
(Such as hail, vivid lightning heavy rain, no rain, etc.)

10. TOTAL DAMAGE ESTIMATE $100,000 11. TOTAL DEATHS NONE

12. TOTAL INJURED 2 13. TOTAL HOMELESS NONE

14. LIST ALL REFERENCES STAR, TORONTO, MONDAY AUG 2 1976
THE INDEPENDENT, GEORGETOWN, WED AUG 4 1976
THE HERALD, HALTON HILLS, WED AUG 4 1976

15. SUMMARIZE REMARKS PERTAINING TO (a) FUNNEL; (b) INTERESTING OR CAPRICIOUS EVENTS.

(a) FUNNEL SEEN BY SEVERAL EYEWITNESSES

(b) CAR WITH TWO PASSENGERS LIFTED 5 FEET INTO THE AIR, SPUN AROUND AND FLUNG ACROSS STREET (NEITHER WERE HURT). PEDESTRIAN LIFTED OFF HER FEET AND FLUNG INTO STREET. MANY TREES UPROOTED, WINDOWS EXPLODED WITH FLYING GLASS, ROOFING DAMAGED. WATER PARTLY SUCKED OUT OF SWIMMING POOL NORTH OF GEORGETOWN

WORKSHEET

IDTO 0697606

(1) ORIGIN x 1758475.0

y 4837700.

(2) LIFT-OFF x_1 1758660.0

y_1 4831500.

(3) $(x_1 - x)$ = 1850

(4) $(y - y_1)$ = 6200

(5) Standard Error S_x 102 C

(6) Standard Error S_y 102 C

(7) DAMAGE LENGTH

$$L = [(x_1 - x)^2 + (y - y_1)^2]^{1/2}$$

(3)+(4) [→r,θ] = 6245.

(8) $\alpha = \tan^{-1} \dfrac{|y - y_1|}{|x - x_1|}$

[x↔y] = 71°

(9) Standard Error $S_L = (S_x^2 + S_y^2)^{1/2}$

(5)+(6) [→r,θ] = 144 C

(10) $\beta = \dfrac{\tan^{-1} S_L}{L}$

(7)+(9) [→r,θ]

[x↔y] = 1°

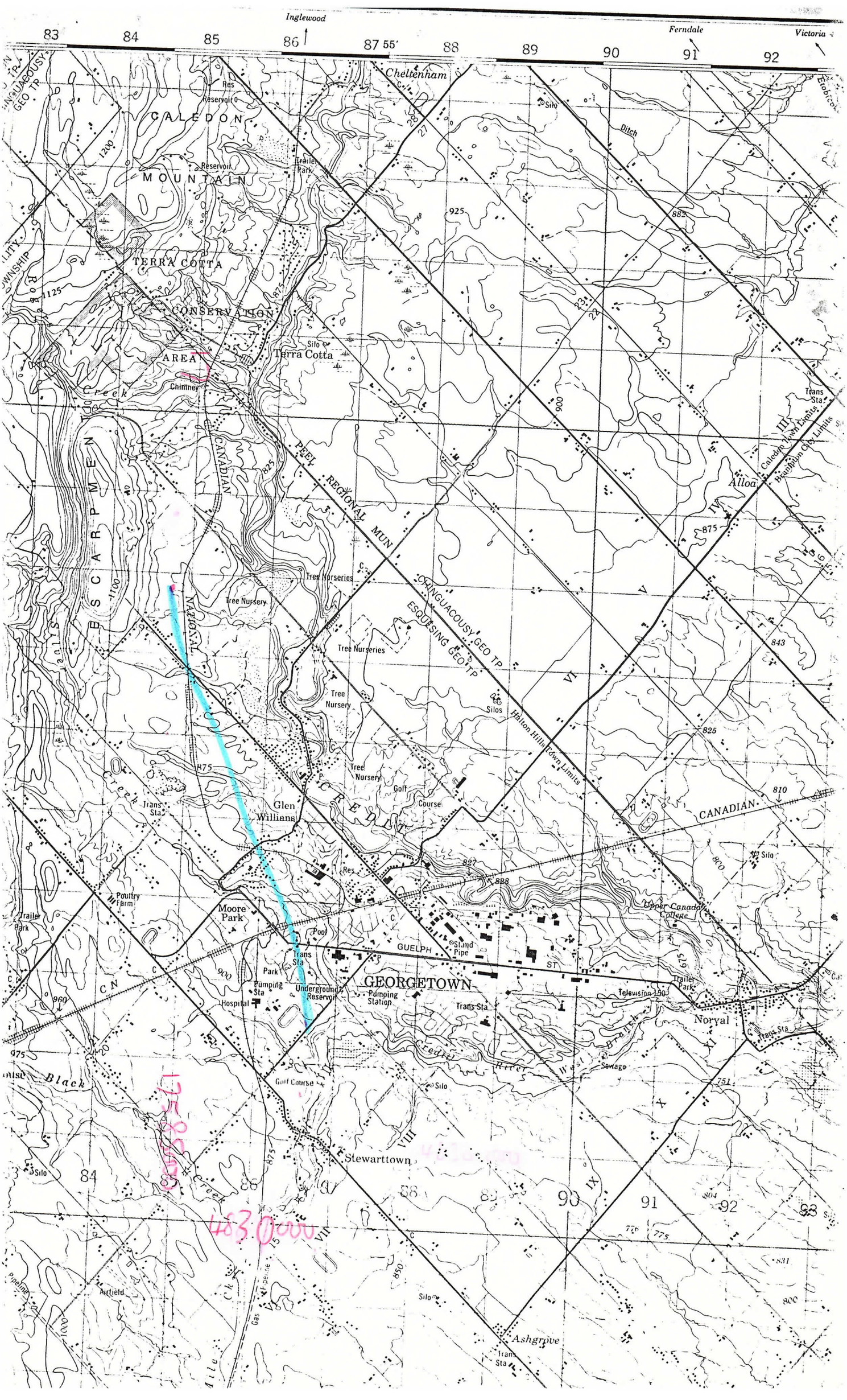
NE Quad $\phi = 90 - \alpha$

NW Quad $\phi = 270 + \alpha$

SW quad $\phi = 270 - \alpha$

SE quad $\phi = 90 + \alpha$

(11) ϕ =


Inglewood
Ferndale
Victoria
83
84
85
86
87 55'
88
89
90
91
92
Cheltenham
CALEDON
MOUNTAIN
TERRA COTTA
CONSERVATION
AREA
Terra Cotta
Chimney
Creek
CANADIAN
PEEL
REGIONAL
MUN
ESCARPMENT
NATIONAL
CRINGUACOUSY GEO TP
ESQUESING GEO TP
Tree Nurseries
Tree Nursery
Silos
Halton Hills Town Limits
Alloa
Caledon Town Limits
Brampton City Limits
Trans Sta
Ditch
Reservoir
Trailer Park
Glen Williams
Golf Course
Moore Park
Poultry Farm
Pool
Stand Pipe
GUELPH
ST
GEORGETOWN
Pumping Station
Underground Reservoir
Hospital
Park
Pumping Sta
Upper Canada College
Television Tower
Norval
Credit River
West Branch
Sewage
Black
Stewarttown
Ashgrove
Airfield
Gas Pipeline
Oil Pipeline
CN
Res
Silo
925
900
875
850
825
810
800
775
750
725
700
675
650
625
600
575
550
525
500
475
450
425
400
375
350
325
300
275
250
225
200
175
150
125
100
75
50
25
0

THE GEORGETOWN TORNADO JULY 31st 1976

By M.J. Newark

1. GENERAL NOTES

"Up the street I saw full grown trees rising straight up into the air. The next to go was a hydro pole which was snapped in half. A woman who was hanging on to the guy wire of the pole was swept off her feet and thrown to the ground. She just got up and walked away. After a sudden calm I felt my car rocking, the roof was torn off and everything became white." These are the words of Colin Gibson who was caught in a tornado that rampaged across the main street of Georgetown, Ontario on Saturday July 31st., 1976. Eyewitnesses further down the street saw Colin and his fiance Susan Frawley sheltering from the rain in a small MGB sports car. Before their startled eyes the car was lifted five or six feet into the air, twirled around twice and thrown across the street against another parked vehicle. Moments before and a few blocks further north on Dufferin street, Al Fraser was watching television when he heard a roaring noise "like a freight train, or jumbo jet". Going to the door to investigate he was amazed to see a canoe and a double garage door both flying through an ominous sky. He glanced at his watch. The time was 3.21 p.m. EDT.

Mr. Fraser, a trained weather observer who works for the Ontario Hydro Commission, described the tornado funnel which passed his house on its way south as "a thick solid black tube about 40 or 50 feet in diameter." He estimated its height as about 600 feet at which point it joined the overcast thunderclouds, and its speed of travel was about 80 km/h. Nearby, John Boyd also saw the funnel approaching. At first it was not touching the ground, but when it entered town he began to see debris lifted into the air. Unconcerned golfers at North Halton Golf Course (just southeast of Georgetown) continued with their game as the funnel snaked through the air above them.

Although rare, this event is not unprecedented in the Georgetown area. On June 24th., 1923 a tornado crossed Halton and Peel counties leaving a trail of 4 people dead and $2 millions damage. Again on June 20th., 1951 a less severe tornado paralleled the track of its predecessor, just missing the CBL radio station transmission tower at Hornby. Yet another hit the village of Caledon late in August 1970.

As far as can be determined, the Georgetown tornado followed a path about 6.2km long, the last 2km of which was through the town (Fig. 1). It displayed many of the usual capricious characteristics; roofs ripped off barns, large and mature trees completely uprooted, windows exploded outwards and even some water sucked out of a swimming pool. No one was injured although four people were lucky to escape with their lives. Property damage was estimated at $100,000.

2. METEOROLOGICAL NOTES

There are a few unusual aspects to this storm. One was the direction of travel which was nearly north to south. The map of U.S. tornados 1930-1974 (Fujita and Pearson, 1976) shows the vast majority with trajectories in the quadrant bounded by 230^{o} and 320^{o}, although there are several which in fact travelled from north to south. Another unusual factor was the low radar top of 8 km observed by the Ontario Weather Centre.

The storm was part of a compact line of echoes about 16 km wide along a sharp arctic cold front. The components of the line intensified over the high terrain to the west of the Niagara Escarpment and the line itself stretched from the Haliburton Highlands across Lake Simcoe to just southwest of Toronto. At low levels of the atmosphere there was strong convergence at the front while aloft there was divergence accompanying a jet stream.

The windfield was characterized by a horizontal windshift across the front of 90^{o} to 120^{o} at all levels of the troposphere.

REFERENCE

FUJITA, T.T., and ALLEN D. PEARSON, 1976: U.S. Tornados 1930-74. Tornado map, University of Chicago.

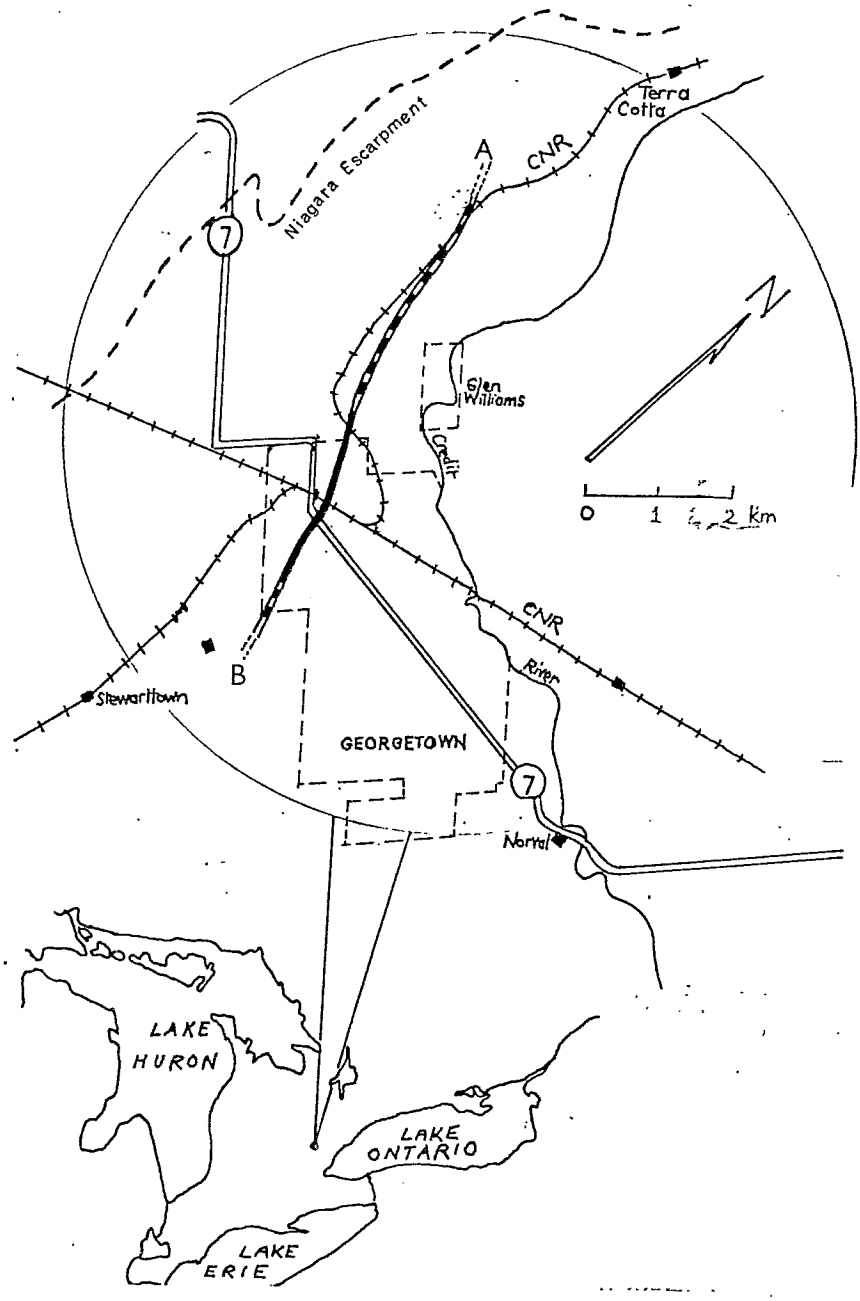


Fig. 1 The tornado track (line labelled AB).
▬▬ indicates funnel reaching the ground.
▬ ▬ indicates funnel mostly aloft.
Most damage was within the town limits of Georgetown. North of point A lies the sparsely inhabited Niagara Escarpment . Point B is the North Halton Golf Course where the funnel was last seen aloft.

TORNADO SUMMARY

GEOGRAPHICAL LOCATION

(1) IDENTITY NUMBER 0697606

(5-7) DATE July 31 1976

		QUANTITY VALUE	ESTIMATED STANDARD ERROR	ERROR DISTRIBUTION CODE[a]
(9)	TIME at start point	1416EST	1 Min.	S
(12-13)	UTM CO-ORDINATES of start point (Zone and easting, northing)	17584750 4837700	101.8m	C Q
(15)	DIRECTION OF TRACK (from start point to end point)	340.8°	(1.3°)	C Q
(17)	F-SCALE NUMBER	0	NOT APPLICABLE	
(18)	LENGTH OF TRACK (Straight line from start point to end point)	6.245 km	143.9 m	C Q
(18A)	DAMAGE LENGTH	ASSUMED TO	BE THE SAME	AS (18)
(18B)	DAMAGE AREA	UNKNOWN		
(20)	MAXIMUM DAMAGE WIDTH	UNKNOWN		
(21)	AVERAGE DAMAGE WIDTH	6m.	3 m	C
(26)	NUMBER OF FATALITIES	0		
(27)	NUMBER OF INJURIES	2		
(29)	VALUE OF PROPERTY DAMAGE	$100,000 b		
(36.1)	MAXIMUM SIZE OF HAIL	NONE		
(36.2)	AVERAGE TRANSLATIONAL SPEED	80 km/h c		
(36.3)	RADAR STORM TOP	8 km		

TABLE 1. Summary of tornado physical dimensions.

(a) S = Square uniform; R = Rectangular uniform; O = circular uniform; E = elliptical normal; C= circular normal; B = biomodal; Q = unknown; T = other; Blank = no error.

(b) Unconfirmed newspaper report.

(c) Estimated by Mr. Fraser, eyewitness.