

THESE TERMS GOVERN YOUR USE OF THIS DOCUMENT

Your use of this Ontario Geological Survey document (the “Content”) is governed by the terms set out on this page (“Terms of Use”). By downloading this Content, you (the “User”) have accepted, and have agreed to be bound by, the Terms of Use.

Content: This Content is offered by the Province of Ontario’s *Ministry of Northern Development and Mines* (MNDM) as a public service, on an “as-is” basis. Recommendations and statements of opinion expressed in the Content are those of the author or authors and are not to be construed as statement of government policy. You are solely responsible for your use of the Content. You should not rely on the Content for legal advice nor as authoritative in your particular circumstances. Users should verify the accuracy and applicability of any Content before acting on it. MNDM does not guarantee, or make any warranty express or implied, that the Content is current, accurate, complete or reliable. MNDM is not responsible for any damage however caused, which results, directly or indirectly, from your use of the Content. MNDM assumes no legal liability or responsibility for the Content whatsoever.

Links to Other Web Sites: This Content may contain links, to Web sites that are not operated by MNDM. Linked Web sites may not be available in French. MNDM neither endorses nor assumes any responsibility for the safety, accuracy or availability of linked Web sites or the information contained on them. The linked Web sites, their operation and content are the responsibility of the person or entity for which they were created or maintained (the “Owner”). Both your use of a linked Web site, and your right to use or reproduce information or materials from a linked Web site, are subject to the terms of use governing that particular Web site. Any comments or inquiries regarding a linked Web site must be directed to its Owner.

Copyright: Canadian and international intellectual property laws protect the Content. Unless otherwise indicated, copyright is held by the Queen’s Printer for Ontario.

It is recommended that reference to the Content be made in the following form: <Author’s last name>, <Initials> <year of publication>. <Content title>; Ontario Geological Survey, <Content publication series and number>, <total number of pages>p.

Use and Reproduction of Content: The Content may be used and reproduced only in accordance with applicable intellectual property laws. *Non-commercial* use of unsubstantial excerpts of the Content is permitted provided that appropriate credit is given and Crown copyright is acknowledged. Any substantial reproduction of the Content or any *commercial* use of all or part of the Content is prohibited without the prior written permission of MNDM. Substantial reproduction includes the reproduction of any illustration or figure, such as, but not limited to graphs, charts and maps. Commercial use includes commercial distribution of the Content, the reproduction of multiple copies of the Content for any purpose whether or not commercial, use of the Content in commercial publications, and the creation of value-added products using the Content.

Contact:

FOR FURTHER INFORMATION ON	PLEASE CONTACT:	BY TELEPHONE:	BY E-MAIL:
The Reproduction of Content	MNDM Publication Services	Local: (705) 670-5691 Toll Free: 1-888-415-9845, ext. 5691 (inside Canada, United States)	Pubsales@ndm.gov.on.ca
The Purchase of MNDM Publications	MNDM Publication Sales	Local: (705) 670-5691 Toll Free: 1-888-415-9845, ext. 5691 (inside Canada, United States)	Pubsales@ndm.gov.on.ca
Crown Copyright	Queen’s Printer	Local: (416) 326-2678 Toll Free: 1-800-668-9938 (inside Canada, United States)	Copyright@gov.on.ca

LES CONDITIONS CI-DESSOUS RÉGISSENT L'UTILISATION DU PRÉSENT DOCUMENT.

Votre utilisation de ce document de la Commission géologique de l'Ontario (le « contenu ») est régie par les conditions décrites sur cette page (« conditions d'utilisation »). En téléchargeant ce contenu, vous (l'« utilisateur ») signifiez que vous avez accepté d'être lié par les présentes conditions d'utilisation.

Contenu : Ce contenu est offert en l'état comme service public par le *ministère du Développement du Nord et des Mines* (MDNM) de la province de l'Ontario. Les recommandations et les opinions exprimées dans le contenu sont celles de l'auteur ou des auteurs et ne doivent pas être interprétées comme des énoncés officiels de politique gouvernementale. Vous êtes entièrement responsable de l'utilisation que vous en faites. Le contenu ne constitue pas une source fiable de conseils juridiques et ne peut en aucun cas faire autorité dans votre situation particulière. Les utilisateurs sont tenus de vérifier l'exactitude et l'applicabilité de tout contenu avant de l'utiliser. Le MDNM n'offre aucune garantie expresse ou implicite relativement à la mise à jour, à l'exactitude, à l'intégralité ou à la fiabilité du contenu. Le MDNM ne peut être tenu responsable de tout dommage, quelle qu'en soit la cause, résultant directement ou indirectement de l'utilisation du contenu. Le MDNM n'assume aucune responsabilité légale de quelque nature que ce soit en ce qui a trait au contenu.

Liens vers d'autres sites Web : Ce contenu peut comporter des liens vers des sites Web qui ne sont pas exploités par le MDNM. Certains de ces sites pourraient ne pas être offerts en français. Le MDNM se dégage de toute responsabilité quant à la sûreté, à l'exactitude ou à la disponibilité des sites Web ainsi reliés ou à l'information qu'ils contiennent. La responsabilité des sites Web ainsi reliés, de leur exploitation et de leur contenu incombe à la personne ou à l'entité pour lesquelles ils ont été créés ou sont entretenus (le « propriétaire »). Votre utilisation de ces sites Web ainsi que votre droit d'utiliser ou de reproduire leur contenu sont assujettis aux conditions d'utilisation propres à chacun de ces sites. Tout commentaire ou toute question concernant l'un de ces sites doivent être adressés au propriétaire du site.

Droits d'auteur : Le contenu est protégé par les lois canadiennes et internationales sur la propriété intellectuelle. Sauf indication contraire, les droits d'auteurs appartiennent à l'Imprimeur de la Reine pour l'Ontario.

Nous recommandons de faire paraître ainsi toute référence au contenu : nom de famille de l'auteur, initiales, année de publication, titre du document, Commission géologique de l'Ontario, série et numéro de publication, nombre de pages.

Utilisation et reproduction du contenu : Le contenu ne peut être utilisé et reproduit qu'en conformité avec les lois sur la propriété intellectuelle applicables. L'utilisation de courts extraits du contenu à des fins *non commerciales* est autorisée, à condition de faire une mention de source appropriée reconnaissant les droits d'auteurs de la Couronne. Toute reproduction importante du contenu ou toute utilisation, en tout ou en partie, du contenu à des fins *commerciales* est interdite sans l'autorisation écrite préalable du MDNM. Une reproduction jugée importante comprend la reproduction de toute illustration ou figure comme les graphiques, les diagrammes, les cartes, etc. L'utilisation commerciale comprend la distribution du contenu à des fins commerciales, la reproduction de copies multiples du contenu à des fins commerciales ou non, l'utilisation du contenu dans des publications commerciales et la création de produits à valeur ajoutée à l'aide du contenu.

Renseignements :

POUR PLUS DE RENSEIGNEMENTS SUR	VEUILLEZ VOUS ADRESSER À :	PAR TÉLÉPHONE :	PAR COURRIEL :
la reproduction du contenu	Services de publication du MDNM	Local : (705) 670-5691 Numéro sans frais : 1 888 415-9845, poste 5691 (au Canada et aux États-Unis)	Pubsales@ndm.gov.on.ca
l'achat des publications du MDNM	Vente de publications du MDNM	Local : (705) 670-5691 Numéro sans frais : 1 888 415-9845, poste 5691 (au Canada et aux États-Unis)	Pubsales@ndm.gov.on.ca
les droits d'auteurs de la Couronne	Imprimeur de la Reine	Local : 416 326-2678 Numéro sans frais : 1 800 668-9938 (au Canada et aux États-Unis)	Copyright@gov.on.ca



CHIEF CARTOGRAPHER
ROOM 201
67 COLLEGE ST.
TORONTO 2

PROVINCE OF ONTARIO
DEPARTMENT OF MINES

HON. J. W. SPOONER *Minister of Mines*

H. C. RICKABY, *Deputy Minister*

Bulletin 153

OF THE

ONTARIO DEPARTMENT OF MINES

Report for 1956

ON

ACCIDENTS - - - - -	1-65
Fires at Mines - - - - -	66-74
Prosecutions at Mines - - - - -	74-77
Mine Rescue Stations - - - - -	77-78
Government Cable-Testing Laboratories - - - - -	79

By the Staff of
THE MINES INSPECTION BRANCH

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO

Printed and Published by Baptist Johnston, Printer to the Queen's Most Excellent Majesty
1957

TO THE HONOURABLE J. W. SPOONER,
Minister of Mines.

SIR: I beg to hand you herewith the report by the Inspectors of this Department on employment and accidents in the mines, metallurgical works, and quarries of Ontario during the year 1956.

I have the honour to be, Sir,
Your obedient servant,

H. C. RICKABY,
Deputy Minister of Mines.

DEPARTMENT OF MINES.
Toronto, 1957.

The Mines Inspection Branch, Ontario Department of Mines

MINE INSPECTORS

W. E. BAWDEN, Chief Inspector of Mines, Department of Mines, Parliament Buildings, Toronto.
R. L. SMITH, Assistant Chief Inspector of Mines, Department of Mines, Parliament Buildings, Toronto.
C. M. BARRETT, Mechanical Inspector of Mines, Department of Mines, Parliament Buildings, Toronto.
WILLIAM HENDRY, Electrical Inspector of Mines, Department of Mines, Parliament Buildings, Toronto.
G. S. RIDDELL, District Inspector of Mines, Department of Mines, Parliament Buildings, Toronto.
R. E. MURRAY, District Inspector of Mines, Kenora.
T. J. BAKER, Electrical-Mechanical Inspector of Mines, Kirkland Lake.
R. H. GALWAY, District Inspector of Mines, Kirkland Lake.
O. H. BJARNASON, District Inspector of Mines, Peterborough.
K. R. FOX, Electrical Inspector of Mines, Peterborough.
A. T. KIRK, District Inspector of Mines, Port Arthur.
J. J. LAZURKO, Electrical-Mechanical Inspector of Mines, Port Arthur.
H. F. DAVIS, District Inspector of Mines, Sudbury.
W. K. REDSELL, District Inspector of Mines, Sudbury.
W. V. McKNIGHT, Electrical Inspector of Mines, Sudbury.
R. F. LOCKHART, District Inspector of Mines, Timmins.

INSPECTOR OF MINE RESCUE TRAINING

G. G. McPHAIL, Department of Mines, Parliament Buildings, Toronto.

RESCUE STATION SUPERINTENDENTS

C. S. CULBERT, Red Lake.
JOHN LANG, Geraldton (part of year).
J. ARMSTRONG, Geraldton (part of year).
H. G. MOORHOUSE and J. A. PEACOCK, Sudbury.
RONALD EVESON, Cobalt and Blind River.
G. E. WILSON, Kirkland Lake.
A. K. GRAHAM, Timmins.

SUPERINTENDENT OF THE GOVERNMENT CABLE-TESTING LABORATORY

ROBERT STEWART, Parliament Buildings, Toronto.

SECRETARY OF THE BRANCH

MRS. THELMA ZATREPALEK, Room 1425, Parliament Buildings, Toronto.

TABLE OF CONTENTS

Bulletin 153

STATISTICAL REVIEW	PAGE		PAGE
Introduction	1	<i>DETAILS OF FATAL ACCIDENTS—Cont.</i>	
Summary of Fatal and Non-Fatal Accidents	3	Quarries	46
Fatal Accidents	3	27. Chemical Lime, Ltd.	46
Non-Fatal Accidents	10	28. Nelson Crushed Stone, Ltd.	47
Mines	10	29. Nelson Crushed Stone, Ltd.	49
Metallurgical Works	11	Clay, Shale, Sand, and Gravel Pits	50
Quarries	11	30. Clarkson Sand and Gravel, Ltd.	50
Clay, Shale, Sand, and Gravel Pits	11	31. Fowler Construction Co.	51
Contract Diamond-Drilling	11	32. Sunderland Sand and Gravel, Ltd.	52
Infection	12	Contract Diamond-Drilling	53
Electrical Accidents	12	33. Cameron Drilling Co., Ltd.	53
Explosives	12	34. Canadian Longyear Diamond Drilling Co., Ltd.	54
		35. Fitzpatrick Diamond Drilling Co., Ltd.	55
<i>DETAILS OF FATAL ACCIDENTS</i>		36. Joy Mfg. Co. (Canada), Ltd.	56
Underground at Mines	12	37. N. Morissette Diamond Drilling, Ltd.	57
1. Algom Uranium Mines, Ltd.	12	Accidents for Which Employment Figures are unobtainable	58
2. Broulan Reef Mines, Ltd.	13	38. E. G. M. Cape and Company	58
3. Faraday Uranium Mines, Ltd.	15	39. Ernest A. Jones, Ltd.	59
4. Geco Mines, Ltd.	16	40. Ernest A. Jones, Ltd.	60
5. Patrick Harrison and Co., Ltd.	17	41. Mallard Ready-Mix, Ltd.	61
6. Patrick Harrison and Co., Ltd.	18	42. Norcanda Construction, Ltd.	61
7. Hollinger Consolidated Gold Mines, Ltd.	19	43. Obabika Mines, Ltd.	62
8. International Nickel Co. of Canada, Ltd.	20	44. B. Perini and Sons (Canada), Ltd.	63
9. International Nickel Co. of Canada, Ltd.	21	45. Standard Steel Company	64
10. International Nickel Co. of Canada, Ltd.	23	46. Toronto Iron Works	65
11. International Nickel Co. of Canada, Ltd.	24	<i>FIRES</i>	
12. Kerr-Addison Gold Mines, Ltd.	26	310. Rare Earth Mining Corporation of Canada, Ltd.	66
13. Kerr-Addison Gold Mines, Ltd.	27	311. Kirkland Lake Gold Mining Company, Ltd.	66
14. Kerr-Addison Gold Mines, Ltd.	28	312. Upper Canada Mines, Ltd.	66
15. Lake Shore Mines, Ltd.	29	313. Bicroft Uranium Mines, Ltd.	66
16. Madsen Red Lake Gold Mines, Ltd.	31	314. Coldstream Copper Mines, Ltd.	66
17. Madsen Red Lake Gold Mines, Ltd.	32	315. Algom Uranium Mines, Ltd.	67
18. MacIsaac Mining and Tunnelling Co., Ltd.	34	316. Nipissing-O'Brien Mines, Ltd.	67
19. MacIsaac Mining and Tunnelling Co., Ltd.	35	317. Hollinger Consolidated Gold Mines, Ltd.	67
20. McKenzie Red Lake Gold Mines, Ltd.	38	318. Cavendish Uranium and Mining Co., Ltd.	68
21. Temiskaming-Inspiration	39	319. New Dickenson Mines, Ltd.	68
On Surface at Mines	40	320. Renabie Mines, Ltd.	69
22. Fisher Construction Co., Ltd.	40	321. Siscoe Metals of Ontario, Ltd.	69
23. Nickel Rim Mines, Ltd.	41	322. McIntyre Porcupine Mines, Ltd.	71
24. Steep Rock Iron Mines, Ltd.	42	323. Jerome Gold Mines, Ltd.	71
Metallurgical Works	43	324. Cobalt Consolidated Mining Corporation, Ltd.	72
25. International Nickel Co. of Canada, Ltd.	43	325. Stanrock Uranium Mines, Ltd.	72
26. International Nickel Co. of Canada, Ltd.	45	326. Maybrun Mines, Ltd.	72
		327. Delnite Mines, Ltd.	72
		328. Falconbridge Nickel Mines, Ltd.	73
		329. Metro Asbestos Processors, Ltd.	73
		330. Norcanda Construction Services, Ltd.	73

Contents

	PAGE		PAGE
PROSECUTIONS		PROSECUTIONS— <i>Cont.</i>	
Regina vs. Wilbert Carter.....	74	Regina vs. Donald MacDonell.....	76
Regina vs. E. D'Addario.....	74	Regina vs. Donald MacDonell.....	76
Regina vs. Charles Dell.....	74	Regina vs. Joseph McIntyre.....	76
Regina vs. J. D. Foster.....	74	Regina vs. Marcel Parent.....	77
Regina vs. E. Gannon.....	75	Regina vs. J. Sparrow and A. Joseph....	77
Regina vs. Jim Gillis.....	75	Regina vs. Thomas Trivieri.....	77
Regina vs. John Hjartanson.....	75	MINE RESCUE STATIONS.....	77
Regina vs. Sverre Kleven.....	75	ONTARIO GOVERNMENT CABLE-TESTING	
Regina vs. C. Kilby and E. Huykman...	76	LABORATORIES.....	79

Accidents

By The Staff of the Mines Inspection Branch

STATISTICAL REVIEW

Introduction

During 1956, at the mines, metallurgical works, quarries, and clay, shale, sand, and gravel pits regulated by the Mining Act, there were 3,596 accidents reported to the Ontario Department of Mines up to January 21, 1957. Forty-one fatalities and 3,555 non-fatal accidents were reported.

The returns represent an increase in the frequency of fatal accidents over the previous year.

The report shows a fatality rate of 0.93 persons per 300,000 shifts, which is an increase of 0.13 over the preceding year and 0.35 lower than the average for the last 25 years. There were 81 non-fatal accidents per 300,000 man-shifts, an increase of 1 over 1955 and an increase of 6 over the average for the last 25 years.

The total employment figures show an increase of 10.5 percent from 44,366 in 1955 to 49,035 in 1956. The increase is due principally to further expansion of the industry in the Sudbury, Blind River, Bancroft, and Port Arthur areas.

TABLE I—CLASSIFICATION OF OPERATIONS

CLASSIFICATION	MEN EMPLOYED ¹
Group 1. Underground at mines.....	17,636
Group 2. On surface at mines.....	11,418
Group 3. Metallurgical works.....	13,648
Group 4. Quarries.....	1,946
Group 5. Clay, shale, sand, and gravel pits.....	2,889
Group 6. Contract diamond-drilling.....	1,498
Group 7. Operations in the mining industry for which employment figures are not available	
Total.....	49,035

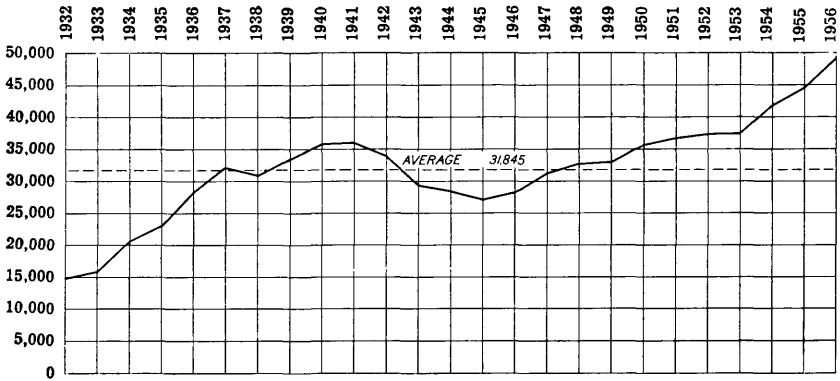
TABLE II—EMPLOYMENT¹ UNDERGROUND AND ON SURFACE AT MINES
(GROUPS 1 and 2), 1946-56

Year	Underground (Group 1)		Surface (Group 2)		Total
	Number	Percent	Number	Percent	
1946.....	11,503	61	7,442	39	18,945
1947.....	12,653	61	8,111	39	20,764
1948.....	13,663	63	7,851	37	21,514
1949.....	13,968	64	7,918	36	21,886
1950.....	14,591	64	8,372	36	22,963
1951.....	15,000	63	8,626	37	23,626
1952.....	15,201	65	8,283	35	23,484
1953.....	14,415	63	8,401	37	22,816
1954.....	16,246	65	8,910	35	25,156
1955.....	16,114	62	9,907	38	26,021
1956.....	17,636	61	11,418	39	29,054
Average.....	14,635	63	8,658	37	23,293

¹Employment figures given in the tables above are based on the number of shifts actually worked, i.e., 6-day week, 5-day week, etc.

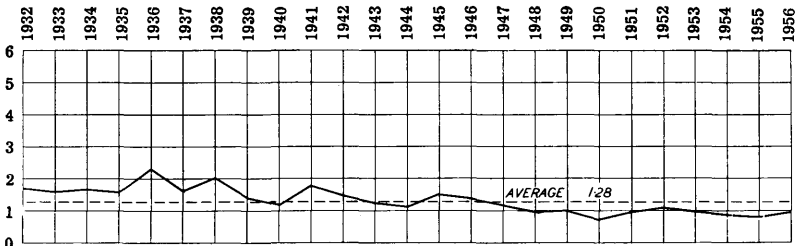
EMPLOYMENT AND ACCIDENT STATISTICS (GROUPS 1-6), 1932-56,
SHOWN GRAPHICALLY

1—NUMBER OF PERSONS EMPLOYED



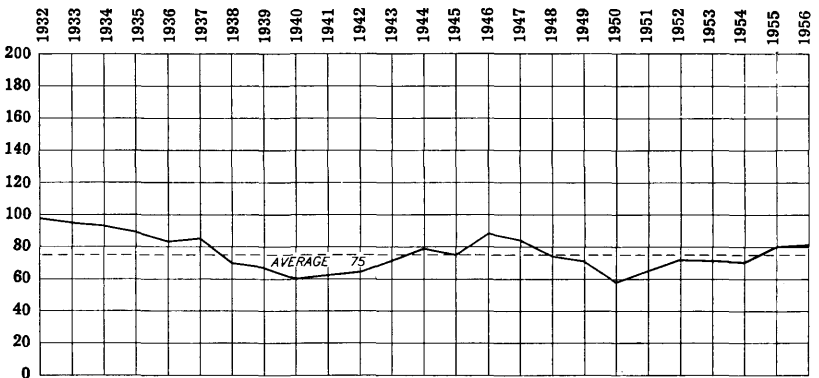
Total number of persons employed in mining operations (from Table 1).

2—FATALITIES PER 300,000 MAN-SHIFTS



Number of fatalities per 300,000 man-shifts in mining operations.

3—NON-FATAL ACCIDENTS PER 300,000 MAN-SHIFTS



Number of non-fatal accidents per 300,000 man-shifts in mining operations.

Summary of Fatal and Non-Fatal Accidents

The following table is a summary of the number injured per 300,000 man-shifts at mining operations for the past 25 years.

TABLE III—ACCIDENTS TO EMPLOYEES AT MINES, METALLURGICAL WORKS, QUARRIES, CLAY, SAND, AND GRAVEL PITS (GROUPS 1-6), 1932-56

Year	Persons Injured			Number of "300-man-shifts" ¹			Rate per 1,000 ¹	
	Fatally	Non-fatally	Total	Producing Operations	Non-producing Operations	Total	Fatally	Non-fatally
1932.....	25	1,452	1,477	14,378	431	14,809	1.69	98
1933.....	25	1,514	1,539	15,080	804	15,884	1.57	95
1934.....	34	1,913	1,947	19,302	1,254	20,556	1.65	93
1935.....	36	2,048	2,084	21,444	1,528	22,972	1.57	89
1936.....	65	2,359	2,424	25,725	2,547	28,272	2.30	83
1937.....	52	2,721	2,773	28,938	3,220	32,158	1.62	85
1938.....	62	2,147	2,209	29,434	1,421	30,855	2.01	70
1939.....	47	2,246	2,293	32,444	897	33,341	1.41	67
1940.....	42	2,128	2,170	35,137	438	35,575	1.18	60
1941.....	64	2,240	2,304	35,317	618	35,935	1.78	62
1942.....	50	2,167	2,217	33,336	431	33,767	1.48	64
1943.....	36	2,101	2,137	29,083	394	29,477	1.22	71
1944.....	32	2,238	2,270	28,032	444	28,476	1.12	79
1945.....	41	2,026	2,067	25,639	1,413	27,052	1.52	75
1946.....	39	2,483	2,522	25,458	2,691	28,149	1.38	88
1947.....	35	2,608	2,643	29,965	1,136	31,101	1.13	84
1948.....	31	2,429	2,460	31,571	1,136	32,707	0.95	74
1949.....	33	2,341	2,374	32,586	327	32,913	1.00	71
1950.....	25	2,070	2,095	35,073	481	35,554	0.70	58
1951.....	34	2,387	2,421	36,178	551	36,729	0.93	65
1952.....	41	2,697	2,738	36,759	502	37,261	1.10	72
1953.....	37	2,654	2,690	36,781	620	37,401	0.99	71
1954.....	33	2,668	2,701	36,854	951	37,805	0.87	71
1955.....	32	3,202	3,234	38,293	1,716	40,009	0.80	80
1956.....	41	3,555	3,596	41,181	2,754	43,935	0.93	81
Average..	40	2,336	2,376	30,160	1,148	31,308	1.28	75

Fatal Accidents

TABLE IV—FATALITY RATE PER 300,000 MAN-SHIFTS (GROUPS 1-6), 1956

Distribution	Group	"300-man-shifts"	Number Killed	Rate per 1,000 ¹
Mines, underground.....	1	15,860	23	1.45
Mines, surface.....	2	10,371	3	0.29
Metallurgical works.....	3	11,371	3	0.26
Quarries.....	4	1,946	3	1.54
Clay, shale, sand, and gravel pits.....	5	2,889	3	1.04
Contract diamond-drilling.....	6	1,498	6	4.01
Total.....		43,935	41	0.93

¹All accident frequency rates in these reports are, and have always been, calculated on the basis of 300,000 man-shifts. The rates are shown as the number of accidents per 1,000 based on the average number of "300-man-shifts" worked during the year so that exposure rates will be comparable with those of previous years. With the shortening of the work week in some areas the yearly exposure period per man is decreasing.

TABLE V—A COMPARISON OF FATAL ACCIDENTS AND FATALITIES (GROUPS 1-6) BY YEARS, 1952-56

Distribution	Group	1952		1953 ¹		1954		1955		1956	
		Number of Accidents	Number Killed	Number of Accidents	Number Killed	Number of Accidents	Number Killed	Number of Accidents	Number Killed	Number of Accidents	Number Killed
Mines, underground.....	1	29	33	18	20	22	22	22	22	21	23
Mines, surface.....	2	3	3	5	5	3	3	2	2	3	3
Metallurgical works.....	3	1	1	3	3	3	3	2	2	2	3
Quarries.....	4	1	1	4	4	1	1	2	2	3	3
Clay, shale, sand, and gravel pits.....	5	1	1	3	3	2	2	1	1	3	3
Contract diamond-drilling.....	6	1	2	2	2	1	2	1	3	5	6
Total.....		36	41	35	37	32	33	30	32	37	41

¹The 1953 figures are corrected to include an accident that occurred during 1953 resulting in the death of one man in 1954.

TABLE VI—FATALITIES BY AGE GROUPS (GROUPS 1-6)

17-20	21-25	26-30	31-35	36-40	41-45	46-50	Over 50	Total
7	6	6	9	4	4	2	3	41

TABLE VII—FATALITIES ACCORDING TO INDUSTRIES (GROUPS 1-6)

Copper, nickel, and zinc mines.....	10	Metallurgical works.....	3
Gold mines.....	9	Quarries.....	3
Contract diamond-drilling.....	6	Iron mines.....	1
Uranium mines.....	6		
Clay, shale, sand, and gravel pits.....	3	Total.....	41

TABLE VIII—CAUSES OF FATALITIES AT MINES (GROUPS 1-6), 1952-56¹
UNDERGROUND (GROUP 1)

Cause	Class of Accident	1952, percent	1953, percent	1954, percent	1955, percent	1956	
						Number	Percent
Fall of ground.....	A	37	15	28	18	9	40
Explosives.....	B	15	10	9	0	1	4
Run of ore, rock, etc.....	C	9	25	9	9	1	4
Shaft accidents.....	D	6	15	18	41	5	22
Fall down stope, raise, etc....	E	6	0	18	18	5	22
Haulage.....	F	6	20	9	9	1	4
Rock burst.....	G	12	10	0	0	0	0
Unclassified.....	H	9	5	9	5	1	4
Total.....		100	100	100	100	23	100

ON SURFACE (GROUPS 2-6)

Cause	Class of Accident	1952, percent	1953, ² percent	1954, percent	1955, percent	1956	
						Number	Percent
Falling objects.....	A	14	12	18	10	2	11
Explosives.....	B	0	0	0	10	1	6
Run of materials.....	C	0	0	37	0	0	0
Machinery.....	D	14	6	0	10	2	11
Fall of persons.....	E	0	30	9	0	2	11
Transportation and haulage.....	F	28	35	18	40	8	44
Chemicals and burns.....	G	14	0	9	10	2	11
Unclassified.....	H	29	17	9	20	1	6
Total.....		100	100	100	100	18	100

¹This table is similar to that of previous years except for surface accidents at mines, Groups 2 to 6 are classified separately. Prior to 1954, Group 1 accidents were classified and Groups 2 to 6 were included as "Unclassified." Open-pit mining operations such as Froid-Stobie, American Nepheline, Bethlehem Iron Mines, Steep Rock, etc. (as distinct from rock quarries) have been and are included in Group 1.

²The 1953 figures are corrected to include an accident that occurred during 1953 resulting in the death of one man in 1954.

TABLE IX—SUMMARY OF FAT

UNDERGROUND

No.	Date of Accident	Name of Operator	Name of Mine	Name of Deceased
1	May 16	Algom Uranium Mines, Ltd.....	Nordic Lake.....	Wiadislaw Lewandowski
2	Jan. 10	Broulan Reef Mines, Ltd.....	Broulan.....	George Turcan.....
3	Oct. 9	Faraday Uranium Mines, Ltd.....	Faraday.....	Richard J. Webber....
4	Dec. 6	Geco Mines, Ltd.....	Geco.....	Robert W. Cooke.....
5	Feb. 20	Patrick Harrison and Co., Ltd.....	Algom Nordic.....	Donald Charbonneau.
6	Feb. 18	Patrick Harrison and Co., Ltd.....	Consolidated Denison.	Cecil Major.....
7	Oct. 30	Hollinger Consolidated Gold Mines, Ltd.....	Hollinger.....	Eugene Maissonneuve.
8	Mar. 12	International Nickel Co. of Canada, Ltd.....	Garson.....	Michael Gawron.....
9	Apr. 24	International Nickel Co. of Canada, Ltd.....	Garson.....	Armand Dupuis.....
10	May 16	International Nickel Co. of Canada, Ltd.....	Garson.....	Anicet Lemire..... Earl Barker..... Franz Lukanz.....
11	Oct. 4	International Nickel Co. of Canada, Ltd.....	Levack.....	Alfred J. Hunt.....
12	Jan. 21	Kerr-Addison Gold Mines, Ltd.....	Kerr-Addison.....	Janis Gulbis.....
13	Feb. 9	Kerr-Addison Gold Mines, Ltd.....	Kerr-Addison.....	Kalman Szucs.....
14	Sept. 27	Kerr-Addison Gold Mines, Ltd.....	Kerr-Addison.....	Jan Kubalak.....
15	Oct. 15	Lake Shore Mines, Ltd.....	Lake Shore.....	William A. Fortey....
16	Feb. 14	Madsen Red Lake Gold Mines, Ltd....	Madsen.....	Ivan Jurisa.....
17	Mar. 6	Madsen Red Lake Gold Mines, Ltd....	Madsen.....	Joseph Dragovich....
18	July 29	MacIsaac Mining and Tunnelling Co., Ltd.....	Panel Uranium.....	Arthur Betti.....
19	Dec. 18	MacIsaac Mining and Tunnelling Co., Ltd.....	Lake Nordic.....	Paul Morin.....
20	Jan. 2	McKenzie Red Lake Gold Mines, Ltd..	McKenzie.....	Parliament Mamakeesi
21	Apr. 15	Temiskaming-Inspiration.....	Fecunis Lake.....	Marcel Sevigny.....

ON SURFACE

No.	Date of Accident	Name of Operator	Name of Mine	Name of Deceased
22	Jan. 19	Fisher Construction Co., Ltd.....	Murray.....	Frank Salminen.....
23	Oct. 6	Nickel Rim Mines, Ltd.....	Nickel Rim.....	Eugene Lanteigne....
24	Feb. 28	Steep Rock Iron Mines, Ltd.....	Steep Rock.....	Paul G. Landry.....

METALLURGI

No.	Date of Accident	Name of Operator	Name of Plant	Name of Deceased
25	Aug. 6	International Nickel Co. of Canada, Ltd.....	Copper Cliff Smelter.	Ludwig J. Ryski..... Grant Cranston.....
26	Dec. 20	International Nickel Co. of Canada, Ltd.....	Coniston Smelter.....	William Muraska.....

ACCIDENTS (GROUPS 1-7), 1956

MINES (GROUP 1)

Age	Occupation	Nationality	Married (M), Single (S), or Widower (W)	Class of Accident	Cause
28	Miner's helper	Polish	S	E	Fell through grizzly into loading pocket
45	Miner	Canadian	M	E	Fell through grizzly and was crushed.
50	Miner	Canadian	M	A	Fall of ground in stope.
35	Shift boss	British	M	A	Fall of ground in drift.
35	Cagetender	Canadian	S	D	Fell down shaft.
20	Shaftman	Canadian	S	D	Fell down shaft.
58	Stope helper	Canadian	M	A	Fall of ground in stope.
42	Stope leader	Ukrainian	M	E	Fell down chute when staging collapsed
28	Driller	Canadian	M	B	Premature explosion, placing chut charge.
39	Driller	Canadian	M	A	} Fall of ground in stope.
36	Mucker	Canadian	M	A	
41	Driller	Yugoslavian	M	A	
26	Raise driller	Canadian	M	H	Asphyxiated by blast fumes in raise.
32	Miner	Latvian	M	A	Fall of ground in stope.
33	Miner	Hungarian	M	E	Fell into mill-hole when muck collapsed
26	Stope leader	Czecho- slovakian	M	A	Fall of ground in stope.
61	Fill-pass tender	Canadian	M	C	Asphyxiated in run of sand fill.
33	Machine helper	Yugoslavian	M	A	Fall of ground in stope.
54	Miner	Yugoslavian	M	E	Fell down raise.
30	Shaftman	Canadian	M	D	Knocked down shaft, struck by cross- head.
27	Shaftman	Canadian	M	D	Free fall of sinking bucket in shaft.
22	Motorman	Canadian	M	F	Crushed between motor and chute.
25	Mucking-machine operator	Canadian	M	D	Fell with mucking machine in shaft.

MINES (GROUP 2)

Age	Occupation	Nationality	Married (M), Single (S), or Widower (W)	Class of Accident	Cause
50	Driller	Finnish	M	F	Run over by truck.
23	Crusher's helper	Canadian	M	D	Crushed between conveyer pulley and chute.
36	Bulldozer operator	Canadian	M	B	Struck by flying rock from blast.

WORKS (GROUP 3)

Age	Occupation	Nationality	Married (M), Single (S), or Widower (W)	Class of Accident	Cause
35	General foreman	Canadian	M	G	} Severe burns from explosion and fire.
41	Coal plant operator	Canadian	M	G	
31	Assistant electrical foreman	Canadian	M	E	Fell from crane.

TABLE IX—SUMMARY OF FATAL ACCIDENTS

No.	Date of Accident	Name of Operator	Location	Name of Deceased
27	Dec. 18	Chemical Lime, Ltd.....	Beachville.....	William Idsinga.....
28	July 18	Nelson Crushed Stone, Ltd.....	Mount Nemo.....	Cornelius Boekee.....
29	Dec. 12	Nelson Crushed Stone, Ltd.....	Mount Nemo.....	Leroy Smoke.....

CLAY, SHALE, SAND, AND GRAVEL

No.	Date of Accident	Name of Operator	Location	Name of Deceased
30	Nov. 3	Clarkson Sand and Gravel, Ltd.....	Clarkson.....	Claurice Gaudet.....
31	Apr. 18	Fowler Construction Co.	Wright's pit, North Bay.....	Kenneth D. McQuillan.
32	Sept. 21	Sunderland Sand and Gravel, Ltd.....	Sunderland.....	Adrian J. Hendriks....

CONTRACT DIAMOND DRILLING

No.	Date of Accident	Name of Operator	Location	Name of Deceased
33	Jan. 6	Cameron Drilling Co., Ltd.....	New Highridge Mining Co., Ltd....	Edmund Malinowski...
34	Jan. 28	Canadian Longyear Diamond Drill Co., Ltd.....	Milliken property....	Harold L. King.....
35	July 25	Fitzpatrick Diamond Drilling Co., Ltd..	Canadian Astoria Minerals, Ltd.....	Daniel Tomiuk.....
36	Sept. 9	Joy Manufacturing Co. (Canada), Ltd..	McCarthy tp. Sudbury	Delphis Vaillancourt...
37	May 29	N. Morissette Diamond Drilling, Ltd...	Blind River area....	Nelson Handley..... Marcel Gironne.....

ACCIDENTS FOR WHICH EMPLOYERS ARE RESPONSIBLE

No.	Date of Accident	Name of Operator	Location or Property	Name of Deceased
38	Oct. 4	E. G. M. Cape and Company.....	Noranda Mines, Ltd., Cutler plant.....	Camille D. Rioux.....
39	Nov. 8	Ernest A. Jones, Ltd.....	Algom Uranium Mines, Ltd., Nordic mill.....	John C. Boden.....
40	Nov. 24	Ernest A. Jones, Ltd.....	Algom Uranium Mines, Ltd., Nordic mill.....	Vincent Toner.....
41	Feb. 20	Mallard Ready-Mix, Ltd.....	Algom Uranium Mines, Ltd., Nordic prop.....	John Golder.....
42	July 7	Norcanda Construction, Ltd.....	Bicroft Uranium Mines, Ltd.....	Michael J. Lindy.....
43	Oct. 26	Obabika Mines, Ltd.....	Obabika Mines, Ltd..	Peter U. Dietz.....
44	Nov. 13	B. Perini & Sons (Can.), Ltd.....	Can-Met Explora- tions, Ltd., Quirke Lake.....	Kenneth D. Reynolds...
45	Nov. 30	Standard Steel Co.....	Algom Uranium Mines, Ltd., Nordic mine.....	John Trudeau.....
46	Nov. 12	Toronto Iron Works.....	Can-Met Explora- tions, Ltd. Quirke Lake.....	Robert Longwill.....

TABLE X—FATALITIES BY MONTHS (GROUPS 1-6)

	Number of Accidents	Number of Men Killed
January.....	6	6
February.....	5	5
March.....	2	2
April.....	3	3
May.....	3	6
June.....	0	0
July.....	3	3
August.....	1	2
September.....	3	3
October.....	5	5
November.....	1	1
December.....	5	5
Total.....	37	41

Non-Fatal Accidents

Mines (Groups 1 and 2)

There were 26,231 "300-man-shifts" at mines in Ontario in 1956. During the year there were 2,366 injuries, giving a non-fatal accident rate of 90 per 1,000.

TABLE XI—CAUSES OF NON-FATAL ACCIDENTS AT MINES

Causes	Underground (Group 1)	Surface (Group 2)	Total
Fall of persons.....	216	88	304
Strain while lifting.....	174	51	225
Fall of rock or ore, drilling, scaling, etc.....	177	0	177
Strain while moving.....	120	47	167
Falling objects.....	123	38	161
Handling or tramping mine cars.....	92	10	102
Drilling machines.....	101	1	102
Fall of loose rock or ore.....	98	2	100
Handling materials other than rock or ore.....	74	22	96
Hand tools.....	69	22	91
Crushed between two objects.....	67	23	90
Rock or ore at chute.....	80	2	82
Roll of broken rock or ore.....	77	1	78
Flying objects, drilling, sledging, etc.....	59	19	78
Running into or striking objects.....	47	17	64
Mechanical loaders.....	61	1	62
Mechanical transportation.....	54	7	61
Nails or splinters.....	49	10	59
Handling rock or ore.....	44	3	47
Cage, skip, or bucket in shaft.....	44	0	44
Machinery, general.....	5	36	41
Tugger hoists, scrapers, etc.....	34	2	36
Burns.....	5	20	25
Explosives.....	18	1	19
Rock bursts.....	15	0	15
Falls down winze, shaft or stope.....	13	1	14
Noxious gases.....	10	1	11
Dermatitis.....	5	2	7
Electricity.....	1	2	3
Unclassified.....	2	3	5
Total.....	1,934	432	2,366

Metallurgical Works (Group 3)

There were 11,371 "300-man-shifts" at metallurgical works in Ontario in 1956. During the year there were 468 injuries, giving a non-fatal accident rate of 41 per 1,000.

TABLE XII—CAUSES OF NON-FATAL ACCIDENTS AT METALLURGICAL WORKS

Strain while lifting or moving.....	98	Hand tools.....	20
Fall of persons.....	56	Machinery.....	14
Burns.....	41	Transportation.....	9
Falling objects.....	35	Flying objects, sledging, etc.....	7
Dermatitis, chemical burns, etc.....	34	Noxious gases.....	4
Burns by slag or metal.....	32	Nails or splinters.....	4
Handling materials.....	25	Electricity.....	1
Crushed between two objects.....	24		
Loading, unloading, or handling cars....	22	Total.....	468
Running into or striking objects.....	21		
Hoisting equipment, hooks, slings, blocks, etc.....	21		

Quarries (Group 4)

There were 1,946 "300-man-shifts" at quarries in Ontario in 1956. During the year there were 145 injuries, giving a non-fatal accident rate of 75 per 1,000.

TABLE XIII—CAUSES OF NON-FATAL ACCIDENTS AT QUARRIES

Strain while lifting or moving.....	34	Hand tools.....	6
Fall of persons.....	20	Running into or striking objects.....	4
Machinery.....	15	Fall of material from face.....	4
Fall of material during handling.....	13	Transportation.....	3
Falling objects.....	13	Dermatitis.....	2
Flying objects, sledging, etc.....	10	Electricity.....	1
Handling materials.....	7		
Burns.....	7	Total.....	145
Crushed between two objects.....	6		

Clay, Shale, Sand, and Gravel Pits (Group 5)

There were 2,889 "300-man-shifts" at clay, shale, sand, and gravel pits in Ontario in 1956. During the year there were 168 injuries, giving a non-fatal accident rate of 58 per 1,000.

TABLE XIV—CAUSES OF NON-FATAL ACCIDENTS AT CLAY, SHALE, SAND, AND GRAVEL PITS

Strain while lifting or moving.....	29	Hand tools.....	6
Machinery.....	27	Running into or striking objects.....	6
Fall of persons.....	25	Nails or splinters.....	5
Flying objects.....	16	Fall of material from bank.....	5
Fall of material during handling.....	12	Electricity.....	2
Handling materials.....	9	Falling objects.....	2
Burns.....	8		
Transportation.....	8	Total.....	168
Crushed between two objects.....	8		

Contract Diamond-Drilling (Group 6)

There were 1,498 "300-man-shifts" in contract diamond-drilling in Ontario in 1956. During the year there were 408 injuries giving a non-fatal accident rate of 273 per 1,000.

TABLE XV—CAUSES OF NON-FATAL ACCIDENTS IN DIAMOND-DRILLING

Handling drill rods.....	74	Crushed between two objects.....	13
Fall of persons.....	59	Handling materials.....	13
Wire, nails, or splinters.....	52	Running into or striking objects.....	10
Strain while lifting or moving.....	45	Flying objects, sledging, etc.....	9
Hand tools.....	36	Transportation.....	7
Falling objects.....	30	Falls of loose rock or ore.....	1
Burns.....	29	Explosives.....	1
Caught in moving parts.....	15		
Machinery.....	14	Total.....	408

Infection (Groups 1-6)

Records show that infection followed in 119 cases out of a total of 3,555 accidents.

TABLE XVI—ANALYSIS OF ACCIDENTS FOLLOWED BY INFECTION

Location	Group	Number of Accidents	Accidents Followed by Infection	Percent Infection
Mines, underground	1	1,934	41	2.1
Mines, surface	2	432	14	3.5
Metallurgical works	3	468	13	2.8
Quarries	4	145	4	2.8
Clay, shale, sand, and gravel pits	5	168	7	4.2
Contract diamond-drilling	6	408	40	9.8
Total		3,555	119	3.2

Electrical Accidents

TABLE XVII—ACCIDENTS DUE TO THE USE OF ELECTRICITY AT MINES, METALLURGICAL WORKS, QUARRIES, AND CLAY, SHALE, SAND, AND GRAVEL PITS (GROUPS 1-6), 1947-56

	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	Total
Fatal	1	1	1	1	1	1	1	1	0	0	6
Non-fatal	2	2	4	2	8	2	9	5	3	8	45
Total	2	3	5	2	9	3	10	6	3	8	51

Explosives

TABLE XVIII—CAUSES OF ACCIDENTS FROM EXPLOSIVES

Cause	Number of Accidents	Persons Injured		
		Non-fatally	Fatally	Total
Did not take sufficient cover	6	5	1	6
Drilled into missed hole	6	8	0	8
Explosion while placing charge	2	4	0	4
Returned too soon to scene of blast	2	3	0	3
Explosion due to run of muck	1	2	0	2
Explosion while tamping charge	1	2	0	2
Explosion of detonators	1	1	0	1
Total	19	25	1	26

DETAILS OF FATAL ACCIDENTS

Underground at Mines (Group 1)

Algom Uranium Mines, Limited

No. 1

Wiadislaw Lewandowski, Polish, aged 28, single, was fatally injured when he fell through the waste-pass grizzly on the 5th level of the Algom Nordic mine and down the waste pass 130 feet at 2.00 A.M., May 16. He died in St. Joseph's Hospital, Blind River, at 5.30 A.M. the same day.

Lewandowski was employed by Algom Uranium Mines, Limited, at their

Algom Nordic property on April 20. He had had five years of previous mining experience.

The Algom Nordic mine is developing the 5th level of the mine, and development muck is dumped into the waste-pass raise from which it is loaded into the skip. The top of the raise is covered with a grizzly made of 100-pound rails set at 16-inch centres.

On the afternoon shift of May 16, Lewandowski and his partner, Art Bourgois, mucked with a tractor mucking machine on to the grizzly from development muck close by in order to cover the rails for protection from a blast of a nearby slash. The two men together loaded the slash holes and, while Bourgois wired up, Lewandowski went down on the grizzly for an unknown reason. A short time later Bourgois heard a grizzly rail fall and on investigation found his partner missing. Bourgois notified K. B. Doyle, shift boss, who, with a second man, went down ropes to the injured man and put him in the basket stretcher. Lewandowski was brought up to the level at 3.40 A.M. and thence to surface. He was sent to the hospital at Blind River in a panel truck and met on the road by Dr. Ruse of Elliot Lake. Dr. Mizbak attended the man at St. Joseph's Hospital, Blind River, at 5.00 A.M. prior to his death half an hour later. The man had various bodily injuries consistent with the type of accident, but death was attributed directly to a fractured skull.

At the inquest no satisfactory reason could be found why Lewandowski went down on the grizzly. Earlier in the shift, the shift boss had noted a loose rail, the same one which later was found down the raise, and told Bourgois that the loose rail could not be put in its proper position without being welded. The grizzly had just been installed previous to this accident. It is thought that Lewandowski may have attempted to position the loose rail although he had neither orders to work on the grizzly rail nor was he expected to work on it.

An inquest was held before Coroner J. Pigeon, M.D., in Blind River at 1.00 P.M. The jury gave their verdict as follows:

That the said Wiadislaw Lewandowski, the deceased person came to his death at 5.30 o'clock in the forenoon on the 16th day of May, 1956, at Blind River and that the death was caused by accident in falling down a waste pass at 2 A.M. May 16 at Algom Nordic Mines on the 5th level through a grizzly. He did not wear the safety belt required by Mine Safety rules. We as a jury attach no responsibility to the mining company. Immediate cause of death was a compound fracture of the skull received as a result of the fall at the mine. He died in Blind River Hospital.

Broulan Reef Mines, Limited

No. 2

George Turcan, Canadian, aged 45, married with one dependent, was fatally injured at 10.00 A.M. on January 10, when caught in a run of muck in No. 4 mill hole, 51-7 cut-and-fill stope, 500-foot level, the Reef shaft of Broulan Reef Mines, Limited. He had been employed by the company since February 26, 1940.

No 51-7 stope is one of four connected sections of 51B cut-and-fill stope. Turcan and his partner, Mikal Tkaczuk, driller, were mining 51-7 section. The whole stope is 450 feet long east to west and averages 8 feet wide. Two breasts, 9 feet high, had been advanced over No. 4 mill-hole. Some muck from the first breast had been pulled down through it so that, after the second breast had been mined over, there was about 16 feet of broken muck on top of it. This muck had been pulled down so that the collar of the box-hole was visible when Turcan and Tkaczuk came on shift at 7.30 A.M. on January 10. They noticed a large slab of ore that was bridging the mill-hole on the footwall side and decided to blast it before more muck fell and covered it.

While they were doing this, Shift Boss Harold McQuestion, and Chief

Engineer R. MacPhail entered the stope and saw Tkaczuk down in the cone over the mill-hole cleaning off the slab to be blasted. McQuestion ordered Tkaczuk to come up out of the hole because the sides were in a steep, dangerous condition and told him to wear a safety belt and rope any time that he ventured down the muck pile. Tkaczuk was told to get a belt and wear it. Turcan was away from the stope getting powder and fuse to blast the slab but returned in time to hear McQuestion's instructions to Tkaczuk. On the previous day McQuestion had had occasion to warn Turcan about the danger of working in this location and the procedure to follow.

McQuestion and MacPhail left the stope, and the men proceeded to blast the slab. They did not climb down the cone to do it but tied the powder to a long blasting pole and placed it on the slab. The two partners went in opposite directions in the stope—Turcan went east, and Tkaczuk west—to guard. Tkaczuk claims that he waited "about 10 minutes" after the shot had gone off and then returned to the scene of the blast. He found that Turcan had preceded him and was down at the bottom of the cone on the hanging-wall side of the mill-hole barring a chunk that was hung up on the footwall where the blasted slab had been. Turcan was holding on to the slack slusher cable that extended from the slusher at the top of the muck pile on the west side of the mill-hole, over the mill-hole to a slusher block on the east side, and back to the scraper that was on the muck beside the slusher. He had a scaling bar in one hand and the cable in the other. The area was smoky, and Tkaczuk could not see too well, but in some manner Turcan fell or slipped into the mill-hole. The chunk that he had been barring fell, and then a section of the muck pile on the west side slid into the mill-hole on top of him. Turcan must have been standing on broken muck since there was no ledge or sufficient floor at the hanging-wall side of the mill-hole on which he could have stood. He either lost his hold on the slusher cable, or slack rope pulled off the slusher drum and allowed him to fall. The clutch on the slusher was not engaged so as to prevent the cable from reeling off the drum.

The mill-hole is of circular concrete construction from the stope sill to a point 7 feet from the top. It measures 42 inches diameter inside. The last time it was raised there was a shortage of cement to do the job so it was necessary to raise it with timber cribbing. Sufficient room was left inside the cribbing to allow concrete to be placed later. This timbered section measured 6 by 6 feet inside the timber. The rescue crew were able to cut a hole through the timber side of the mill-hole from the manway on the west side of it. Turcan's body was located in the mill-hole some 5 feet below the cover on the manway and the top of the mill-hole. The body was recovered some 4½ hours later through the manway. At no time did Turcan reply to calls given by men in the manway trying to locate him.

Tkaczuk stated that, prior to the blast, the muck in the mill-hole had been pulled down from 20 to 25 feet below the top of it. He did not see into the mill-hole after the blast before Turcan fell or was pulled into it. Some muck had rolled into it as a result of the blast, and Turcan might have barred some down before Tkaczuk returned from guarding. Tkaczuk could not say whether Turcan fell into the mill-hole, and the muck fell on top of him, or whether the muck pile collapsed and took him down with it.

An inquest was held before Coroner J. B. McClinton, M.D., in the Municipal Office at the township of Whitney, Porcupine, on February 15, at 4.00 P.M. The jury returned the following verdict:

We the jury find that George Turcan came to his death by accident at the Broulan Reef Mine in the Township of Whitney on January 10, 1956 about 10 o'clock in 51B Stope.

His death was caused by head being squashed by rolling rock down in chute. No blame attached to anyone.

Faraday Uranium Mines, Limited

No. 3

Richard James Webber, Canadian, aged 50, married, with two children, employed as a stope miner, was seriously injured by a fall of ground in No. 5 stope in the adit, or 00-foot level, at 10.40 A.M. on October 9, at Faraday Uranium Mines, Limited. He died in Peterborough Civic Hospital at 6.30 P.M. the same day.

No. 5 stope was being developed from 15 box-holes and is 300 feet long and averages 8 feet wide. The formation in this particular part of the mine strikes about 40 degrees east of north, and the average dip is vertical. The ore is in pegmatite dikes, and the wall rocks are altered sediments.

At this particular time, Webber and his partner, Clarence Harran, were mining the second lift above the cones, and the breast was being advanced north-east between Nos. 5 and 6 box-holes. In the first lift the ore had taken a roll to the north, and in the next lift it straightened up, which left an overhang. On the previous shift one rock-bolt had been installed in the overhang about 15 feet back from the breast. On the shift in question the crew detected a large piece of loose ground alongside this rock-bolt but closer to the breast.

When Shift Boss Aubrey Saunders arrived in the stope at about 8.30 A.M. he instructed the crew to rock-bolt this loose in four locations that he marked. Webber drilled the first one towards the top corner closest to the breast, but when attempting to install the bolt the expansion shell stuck in a slip, only part way in the hole. The crew were not able to release the shell but turned the bolt out and salvaged that much. At this time, about 10.15 A.M., Mine Captain Ray Sharpe arrived in the stope. He re-marked the location for this rock-bolt. Webber, after collaring the hole, stepped back and was holding the air hose connected to the stoper while the machine was drilling. He had drilled about 2 feet of the 2-foot 6-inch starter when the loose came down. He apparently grasped the hose instead of letting it go and was drawn towards the rock and partly under it as it fell. This piece of rock was about 5 feet long, 4 feet wide, $1\frac{1}{2}$ feet thick, and weighed about $2\frac{1}{2}$ tons. After the fall it broke up into four pieces, one piece about $1\frac{1}{2}$ tons, one $\frac{1}{2}$ ton, and two smaller pieces. On the footwall side the muck pile was almost level for about $4\frac{1}{2}$ feet, and then it sloped down at about 45 degrees towards the drawpoints along the hanging wall. After the fall Webber was part way down the sloping muck pile lying more on his right side with one end of the $\frac{1}{2}$ -ton piece of rock on his left foot. Sharpe and Harran were able to release his foot in a short time. Sharpe then went to the mine office to call for a doctor and ambulance from Bancroft.

Dr. V. H. Lehinant arrived with the ambulance. He went into the stope where he gave aid and sedatives before removing Webber to the ambulance and then to the hospital at Bancroft. Later Webber was taken to Peterborough by ambulance and admitted to the Civic Hospital at 2.00 P.M. Webber was attended by Dr. Joseph Howes in Peterborough and died at 6.30 P.M. the same day. Dr. H. G. Carleton and Dr. J. Whiteside of Peterborough performed an autopsy and concluded that death was caused by shock as the result of a fractured right femur, fractured left tibia and fibula, compound fracture of right radius and ulna, lacerated wound on the forehead, and bad bruises on the right side of the head.

An inquest was held in the Provincial Police Headquarters at Bancroft at 7.00 P.M., October 18, before Coroner O. W. Anderson, M.D. The jury returned the following verdict:

We, the jury, do find that Richard James Webber died in Peterborough Civic Hospital, October 9th, 1956 of injuries received accidentally, while working underground in Faraday Uranium Mines.

Geco Mines, Limited

No. 4

Robert W. Cooke, British, aged 35, married, with three dependent children, employed as a shift boss, was instantly killed at about 5.45 A.M. on December 6, when struck by a fall of ground in No. 8-1 west drift on the 850-foot level of the Geco mine.

Cooke had been employed as a shift boss at the Geco mine since July 24, 1956. He had worked at the Hollinger mine for 18 years as shift boss and on safety work prior to coming to Geco.

No. 8-1 west drift is a 9-foot by 9-foot opening being driven west from the intersection of No. 8-1 south crosscut, which leads to No. 1 shaft. A complete mucking, drilling, and blasting cycle is completed on each shift with three 8-hour shifts being worked each day.

Cooke was shift boss on the 12.00 P.M.—8.00 A.M. shift. The drift crew in No. 8-1 west drift consisted of Leader A. Kurulak, J. Dovigo, and A. Torlone. They were operating three jackleg machines from a drill carriage when Cooke came to inspect their working place shortly before the accident occurred. They all saw him but did not stop their machines. Cooke assisted Torlone to change drill steels but did not speak to him. At this time the three-man crew was standing close to the drift face, and Cooke was standing towards the back of the drill platform, which was about 7 feet by 7 feet.

At about 5.45 A.M., a piece of loose, 4 feet wide by 6 feet long by about 1 foot thick, fell from the back of the drift, hitting Kurulak and pinning him against the face. Dovigo and Torlone released Kurulak and called Cooke by name. As they did not see him and received no answer they decided that he must have left the heading. They then took Kurulak to the first-aid room and to the hospital, returning to the change-house at about 8.00 A.M.

About 7.30 A.M., M. Cherwonik, cagetender, realized that Cooke was still missing and went to the 850-foot level to search for him. As he approached the drill carriage, he noticed Cooke's light hanging down near the back of the carriage. He found Cooke lying on the drill carriage and almost completely covered by the piece of loose. Only part of Cooke's arm could be seen, protruding from the back corner of the rock. Cherwonik returned to surface and collected a rescue crew from the oncoming shift. These men lifted the piece of loose, which weighed about 1½ tons, and removed Cooke's body, taking it to the first-aid room. Dr. R. W. Wilkinson viewed the body and stated that death was instantaneous and due to cranial cerebral injuries.

Kurulak and Torlone said that, before drilling, they had scaled the drift from the face to a point about 50 feet back of the face. The piece of loose was a slab of biotite gneiss, and the formation through which the heading is being driven is described as interbedded granite gneiss and sericite schist. Vertical schistosity beds, horizontal joints in gneiss, and cross-fracturing with some chloritic material in the fractures contributed to the accident. However, Torlone stated that he had sounded the back of the drift at this point prior to drilling and was convinced that it was safe.

An inquest was held on the Geco property at 2.00 P.M. on December 7 before Coroner M. McCausland, M.D. The verdict of the jury was as follows:

Robert Wallace Cooke, the deceased person came to his death at 5.45 o'clock in the forenoon on the 6th day of December 1956, at Manitouwadge and that the death was caused by Intracranial damage, due to fractured skull as a result of being struck by a falling rock from the back of a mining drift, and that the death was accidental, with no negligence on the part of anyone concerned. We the jury, recommend that in future, the drilling cycle be stopped shortly after drilling has commenced, and that a further test for loose rock then be made.

Patrick Harrison and Company, Limited

No. 5

Donald Charbonneau, Canadian, aged 35, single, with no dependents, was fatally injured by a fall in No. 1 shaft of the Nordic mine of Algom Uranium Mines, Limited, at 1.15 A.M. on February 20. He had been employed by Patrick Harrison and Company, Limited, since February 11 but had had previous mine experience.

Patrick Harrison and Company, Limited, contractors, has a contract with Algom Uranium Mines, Limited, to sink the shaft, which is completed, and do lateral development on the five levels of the Nordic mine. The five-compartment shaft has a depth of 889 feet. At the south end of the shaft are the ventilation and manway compartments, in the centre a large man-cage compartment, and at the north, two skip compartments. The west skip compartment is presently being used as a cage compartment whereas the other skip compartment contains a 1½-ton skip for hoisting the development muck from the various levels. Each level station is equipped with a steel brow pocket opposite the skip compartment. The pocket has a steel plate door covering the opening at the level. The door is counterweighted and is operated by hand. In the open position, the door rests against the shaft posts. There are no grizzly rails covering the opening of the pocket nor a guillotine gate on the shaft side of the chute. The muck from the 1¼-ton side-dump cars is dumped into the brow pocket only when the skip is in the loading position below the chute. The signal cord for the skip compartment is located on the northeast corner post of the shaft and can be reached from a ledge about 18–20 inches wide between the east wall of the station and the pocket. Orders were given to all men concerned that the brow-pocket door must be closed before the skip could be rung away.

On the night shift, 8.00 P.M.–4.00 A.M. of February 19, Charbonneau, the cagetender, and E. Paquin, shift boss, arrived at the third level shortly after the lunch period. Three cars of muck and a mucking machine had been left at the station by the two miners on that level, who had returned to the drift face. While Charbonneau called the skip to the level in preparation for hoisting the three cars of muck, Paquin spotted the first car in the dumping position with the mucking machine. When the skip returned, the second car of muck was dumped in a similar manner.

During the wait of 1 or 2 minutes while the skip returned for the third car of muck, Paquin remained behind the full car, and Charbonneau stood on the ledge beside the pocket. Paquin claims that he could not see whether the door was closed or not but thought it was. Paquin, who was not looking directly at Charbonneau, heard something sliding down the steel bottom of the pocket. Charbonneau had disappeared. The pocket door was open.

Paquin immediately called the cage and went to surface to report the accident to the shaft captain, John McLean. He returned underground and gathered a crew from the various levels to help recover the body of Charbonneau, which had fallen a distance of 390 feet to the spill door below and been deflected into the spill pocket where he was found.

The body of Charbonneau was removed to Blind River where a post-mortem was performed by Dr. E. S. Pentland, district pathologist. His findings showed that the top of Charbonneau's head had been almost completely severed and death, which was instantaneous, was due to a fractured skull with part of the brain tissue missing. Although Paquin, who was with Charbonneau during most of the shift, considered him normal in his actions, an alcohol content of the blood of 2.1 parts per 1,000 was found.

An inquest was held at Blind River on March 12 before Dr. V. S. Grigg, coroner. The jury returned the following verdict:

We say that the deceased person Donald Charbonneau came to his death at 12.45 A.M. on February 20, 1956, at Nordic Mine and that death was caused by falling through opening into shaft. Door of said opening left open by himself, contrary to regulations.

Patrick Harrison and Company, Limited

No. 6

Cecil Major, Canadian, aged 20, single with no dependents, was fatally injured by a fall in No. 2 shaft at Consolidated Denison Mines, Limited, at 7.30 A.M. on February 18. He had been employed by Patrick Harrison and Company, Limited, as a surface labourer since January 13, 1956, and transferred to the shaft crew on January 24. He had had no previous mine experience.

No. 2 shaft is being sunk for Consolidated Denison Mines, Limited, by Patrick Harrison and Company, Limited, contractors, and had reached a depth of 134 feet on the day of the accident. The shaft is an eight-compartment shaft with outside dimensions of 28 by 14 feet. On the east side of the long axis are four skip compartments, the one at the north end being No. 1. On the west side are manway, ventilation, and large man-cage compartments. Between No. 1 skip compartment and the manway is the No. 5 or cage-counterbalance compartment. This is 1-foot 10½ inches wide between timbers. In the manway compartment, two platforms of expanded metal located at the second and fourth sets were installed with steel ladders extending to the fourth set. To date, fifteen sets of timber had been placed. No. 1 skip compartment was being used for hoisting the shaft muck, using 30-cubic-foot buckets and a closed crosshead. The chairs were placed at the twelfth set so that the flat hood on the crosshead was even with the timber.

At about 7.15 A.M. on February 18, the shift, consisting of five men and the leader, J. Major, went down the shaft. Since the previous shift had blasted a cut in the ventilation station and a bench in the bottom of the shaft, they intended to scale and wet down the muck.

Cecil Major, brother of the leader, was left off at the third set and instructed to turn the water on and off when signalled. W. Perylo, another shaftman, was left off on the staging at the 12th set to turn the air off and let the water hose down to the bottom and, when the washing was completed, to coil up the hose again. The two Cryderman machine operators also got off at the 12th set and went to their machines.

Shortly after the washing started, the shaft captain, J. MacDonald, signalled from surface. J. Major went to surface for MacDonald, and on the trip down both men saw Major's light on the third set, and everything seemed in order. A few minutes later, while discussing the day's work, both MacDonald and the leader heard something strike the crosshead.

W. Perylo estimates that it was 3-5 minutes after he had coiled the hose up that he saw Major hit the top of the crosshead. As he landed, his feet slid out on each side of the cable towards the north-end plate. His head was thrown back against the opposite guide.

Perylo immediately went across the timbers to him and called to J. Major and MacDonald for help. On arrival at surface, he was taken to Perini's First-Aid Station and then to St. Joseph's Hospital in Blind River, where Dr. H. C. Smith attended him. Due to the serious head injury, the doctor decided to send him to Sudbury for further treatment, but he died en route at about 5.00 P.M.

Major suffered from contusion of the left side of the skull, swollen right elbow and left ankle. Death was due to a fracture through the base of the skull.

An inquest was held in Blind River on March 12 before Dr. V. S. Grigg, coroner. The jury returned the following verdict:

We say that Cecil Major came to his death at 7.30 A.M. February 18, 1956 at Sudbury, Ontario, and that death caused by the injury sustained by Cecil Major, Canadian, aged 20, single with no dependents, who fell in No. 2 shaft of Consolidated Denison Mines, Twp. 151, District of Algoma, while employed as shaftman for Patrick Harrison, and died at 5.00 P.M. while enroute from Blind River Hospital to Sudbury for surgery, was accidental.

Hollinger Consolidated Gold Mines, Limited

No. 7

Eugene Maissonneuve, Canadian, aged 58, married, with no dependents, employed as a stope helper at the Hollinger mine since October 3, 1934, was instantly killed at about 8.15 A.M., October 30, by a fall of ground in No. 153A East of 19.2 north heading, No. 2 stope, 4,100-foot level of the Hollinger mine.

This stope is being mined by regular flat-back cut-and-fill methods. The stope is 140 feet long, east to west, and ranges from 8 to 25 feet in width. Mining of the fourth 10-foot cut and filling of the third one was in progress. A breast 10 feet high was being advanced from west to east and had reached a point 80 feet from the west end of the stope when this accident occurred. The third lift of fill had been started at the west pillar and had advanced eastward some 50 feet. A pile of broken ore, 30 feet long and the width of the stope, extended from the face of the fill in the third cut eastward to the breast.

A combination, cribbed manway and mill-hole at each end of the stope gives access to the stope from the 4,100-foot level. A raise near the west end extends up to the 3,950-foot level. An air-operated slusher hoist and a scraper are used to distribute fill from the bottom of the raise and to move the broken ore to the mill-holes. On October 30 the breast was about midway between the two box-holes; the face of the fill was about 10 feet east of the west-end mill-hole, and the slusher hoist was set up just to the east of the east-end mill-hole. To operate the slusher the men in the stope could either walk east under the breast or climb up the east manway from the 4,100-foot level. The former was the usual route chosen.

Feorenso Baccega, stope runner, and Eugene Maissonneuve, stope helper, mined the stope on a one-shift schedule. The men had worked together for three years and had been working in this stope for three months. They had blasted a complete breast before going off the 3.00 P.M.-11.00 P.M. shift on October 26. No one worked in the stope on October 27 and 28. At 7.00 A.M., October 29, Baccega and Maissonneuve returned to the stope. They spent the shift scaling and installing sixteen 5-foot rock-bolts in the back and hanging wall near the breast. Shift Boss William Strong visited the stope at about 11.00 A.M., checked it, and instructed the men to continue rock-bolting and then to reblast three bootleg holes in the footwall back corner of the breast when going off shift. He decided at this time to stop mining the breast temporarily, to remove all the broken ore, and to advance the sand fill up close to the breast. He gave instructions for the men to scale and rock-bolt the breast to provide a safe travelway to the slusher hoist during the mucking and filling operations. The breast did not appear to be in a dangerous condition, but at this point the ore had rolled out into the footwall, and the stope had been slashed 8-15 feet wide. The increase in width made it seem advisable to use rock-bolts.

The men reblasted the breast going off shift on the 29th and returned to work at 7.00 A.M. on October 30. They washed the back and breast in the area of the previous day's reblast, and then Baccega started to scale. The muck pile was too close to the breast to permit drilling rock-bolt holes in it easily so Maissonneuve started to scale along the footwall and under the breast towards the slusher with the intention of removing some of the ore. He was sounding the footwall under the

breast when a large slab, measuring 10 feet long by 6 feet wide and 18 inches thick, fell on him from the breast.

At the inquest Baccaga testified that both he and Maissonneuve had checked the breast in the area from which the loose fell only a few minutes previously. It was also noted that the mine samplers had cut a channel sample across the breast on October 29, after the two miners had reblasted and gone off shift. The channel crossed the loose that later fell on Maissonneuve. The samplers claimed that they had scaled all loose from the area.

Baccaga was able to summon help quickly and Maissonneuve's body was recovered. He appeared to have died instantly from crushing injuries to his skull and brain.

An inquest was held before Coroner J. B. McClinton, M.D., at 4.00 P.M., November 28, in the Municipal Building, Timmins. The jury returned the following verdict:

We the jury hereby find that Eugene Maissonneuve, Hollinger miner met his death on the 30 of Oct. 1956 at app. 8.15 A.M. by a fall of loose and we hereby render our verdict as death by misadventure with no blame attached to anyone.

International Nickel Company of Canada, Limited

No. 8

Michael Gawron, Ukrainian, aged 42, married, with three grown stepchildren, was instantly killed when he fell about 125 feet in No. 9.6.2. chute of No. 9.1 stope at the Garson mine at 6.30 P.M. on March 12. He had been employed by the International Nickel Company, Limited, since 1947 and had been a stope leader since 1953.

The cut-and-fill stope, measuring about 85 by 40 feet, lies in an east-west direction with the footwall on the north side. It had been mined up 18 lifts above the 2,000-foot level and, with the exception of the northeast corner, below No. 9.6 fill raise, the fill was about 17 feet below the back. At each end of the stope were located a manway to the level below, a chute to which the broken muck was slushed, and a fill raise and manway from the level above.

No. 9.6.2. chute, located in the middle of the stope at the east end, dipped 70 degrees to the south. The chute with inside dimensions of 4 feet 6 inches by 5 feet was concrete lined up to the 14th cut where it was changed over to a cribbed chute with 8-foot by 5-inch flatted jackpine timber lining.

On the day shift of March 9, the stope crew of M. Gawron and G. Boudreau installed a staging in No. 9.6.2. chute in preparation for raising the cribwork. The staging was constructed with two cleats of 3- by 10-inch fir nailed to the lining. Company standard practice requires these cleats to be nailed with either three 8-inch nails or five 6-inch nails. On these cleats five pieces of 3-inch floor plank were laid from footwall to hanging wall with not less than 1-inch play at the ends. For this operation, a safety belt with marlin rope, and a hemp rope, is required to be worn by each workman.

On the afternoon shift, the opposite stope crew raised the cribbing of No. 9.6.2. chute 8 feet. On the following day shift no work was done on the chute since fill was being dumped down No. 9.6. fill raise and slushed in the northeast corner of the stope by Gawron and Boudreau. The fill was then within a few inches of the top of the new cribbing on the footwall side of the chute, sloping down to the old floor on the hanging-wall side.

No further work was done in the stope until the Monday afternoon shift when Gawron and Boudreau returned to work. Boudreau was instructed to set up and drill the breast about 64 feet west of No. 9.6.2. chute. Gawron was to

continue slushing fill at the east end. However, since no fill was available from the level above, he decided to line the new section of the chute.

At about 6.30 P.M. the shift boss, H. Chester, and the divisional foreman, R. Armstrong, visited the stope. They saw only Boudreau and asked where Gawron was. When told he had been working in the chute, they inspected the chute and saw that the staging had collapsed. Seven of the lining timbers had been nailed in place on the east side of the chute. Two other lining timbers were found resting against the footwall on the lining below. A safety belt was hanging between the footwall and these timbers, with the marlin rope attached to a slusher scraper in the fill about 10 feet from the chute. The cleat on the west side was hanging by one 6-inch nail on the hanging-wall side of the chute.

Chester and Armstrong went down the manway to the chute gangway and found Gawron lying in the chute against the steel headblock. He was immediately taken to the first-aid room on surface where he was examined by Dr. J. L. Kirk. Gawron had received a fractured skull, a dislocated neck, fractured ribs, and bruises to the back and legs. In the doctor's opinion, death was instantaneous from the injuries received.

It would appear that Gawron had installed seven of the lining timbers on one side while wearing his safety belt, then taken it off before climbing out of the chute to get seven more lining timbers. These were probably dropped from the top of the cribbing to the staging, a distance of 8 feet. The repeated impact of seven 75-pound timbers hitting the staging in one corner most likely weakened it so that it gave way when Gawron returned.

The investigation revealed that the cleat had been nailed with two 8-inch nails and two 6-inch nails. The three nails that had pulled out were bent in a manner that indicated the cleat had been driven down far enough to pull the nails out. A similar staging was loaded, in a test made later, with 6,400 pounds of dead weight before it started to fail.

An inquest was held in Garson on April 4 by Dr. Gilles Desmarais, Coroner. His verdict was as follows:

Michael Gawron, age 42 years, address 539 McLeod St., Sudbury, miner at Garson Mine, level 2000, shaft 2, stope 9.1, died on March 12th, 1956 between 6.00 and 6.30 P.M. of injuries received in a fall approximate distance 125 ft., from chute 9.6.2.

From evidence of witnesses, I found his death accidental, with no blame attached to anyone.

International Nickel Company of Canada, Limited

No. 9

Armand Dupuis, Canadian, aged 28, married, with two children, was instantly killed at 1.10 P.M. on April 24 in the blasting chamber of No. 24.32 chute, 30 feet above the 2,200-foot level at the Garson mine of the International Nickel Company of Canada, Limited, when a premature explosion occurred while he was placing a charge in the chute. He had been employed by the company as a driller since 1950.

The blasting chamber in No. 24.32 chute is connected to No. 24.31 manway raise by a crawl-through, 24 feet in length, about 30 feet above the gangway over No. 3 east drift. No. 24.31 manway extends up to No. 24.3 cut-and-fill stope and to the level above. The stope is also serviced by No. 24.35.2 manway 60 feet east of No. 24.31 manway. Between No. 23.32 chute, 67 feet west of No. 24.31 manway, and No. 24.32 chute, 22 feet east of the manway, a blasting line of double, No. 12 insulated wire is strung on the gangway for the convenience of the chute blasters when blasting at either Nos. 23.32 or 24.32 chutes.

At the beginning of day shift on April 24, the shift boss, F. Dim, instructed a timber crew consisting of R. Lake, L. Lajala, and two helpers, to drill and blast

a slash in No. 3 east drift a few feet west of No. 24.31 manway to make room for drift timbers. He also instructed the No. 24.31 stope crew of A. Henry, stope leader, A. Dupuis, driller, and L. Raymond that the previous shift had blasted a three-set breast and that they were to clean up the stope and boom out for the next set. He told them that No. 24.32 chute was hung up 15 feet above the blasting chamber, and that they would have to blast it down before lunch. Shortly after 10.00 A.M. the shift boss arrived at the stope on his morning round. He told Dupuis to do the blasting in the chute since Henry had only worked four shifts in the stope and was not familiar with it.

Henry and Dupuis went down to the 2,200-foot level leaving Raymond to finish the work in the stope and to guard the top of the manway when they blasted. Henry got powder and caps from R. Gareau, the trammer boss, who returned with him and helped string No. 20 lead wires from the crawl-through down to the foot of No. 24.31 manway. Gareau suggested that they connect on to the blasting line since the bottom of the manway was too close to the blast. Meanwhile Dupuis had borrowed a one-shot blasting battery from Lake and arranged for guarding the drift. He detonated the charge from the west end of the trunk line at No. 23.32 chute while Henry guarded the gangway at No. 24.32.5 manway. Dupuis returned the blasting battery to Lake and returned to the stope by No. 24.31 manway. Henry climbed up No. 24.32.5 manway to the stope.

At about 11.15 P.M. Lake and his crew were ready to blast an 8-hole slash in the drift. Instead of stringing lead wire along the gangway to the locomotive as instructed by the shift boss, he connected short leads up to the trunk line and extended it east to the motor with lead wire. After the blast, the trammer boss walked along the gangway to check for timber damage. At No. 24.31 manway he saw that the lead wires to the blasting chamber were still connected to the trunk line, so he pulled them off and left the loose ends hanging in the manway.

Since the chute blast had not dislodged the hang-up, Henry, Raymond, and Dupuis returned to the 2,200-foot-level gangway after lunch. At this time Henry remembered seeing the loose wires hanging in the manway. While he went to the trammer boss again for powder and caps, Dupuis and Raymond went after some blasting poles. When Henry arrived back at the foot of the manway with the powder, Dupuis and Raymond had already returned and were taking the blasting poles up the manway. Henry does not remember whether the leads were connected or not, but apparently the wires did not get in his way as they had when he was coming down. In the blasting chamber, Dupuis was in front, Raymond next, and Henry in the rear. The 5-stick charge had been placed on the end of the blasting pole and the leads connected to the No. 20 wire that Henry was untangling when the three men heard the shout "Fire" from below. A few seconds later the charge exploded.

At about 1.10 P.M. Lake was ready to blast one small pop in the drift wall. He had connected the short wires from the trunk line to the delay cap leads and detonated the shot with the one-shot battery while standing on the gangway near the east end of the trunk line. Two shots went off, the first heavier shot from the chute, and the second from the delayed pop in the drift.

Henry managed to find his way down the manway and told Lake that they had been blasted in the chamber. Raymond and Dupuis were brought down and taken to surface in stretchers. Dr. A. B. Giffen was in attendance at the first-aid room on surface. Raymond had received punctured ear drums, a slight lung hemorrhage and facial lacerations. Henry had a punctured left ear drum and foreign bodies in the eyes. Dupuis had been killed instantly by decapitation. His left arm was also shattered and torn at the elbow.

An inquest was held by Coroner Gilles Desmarais, M.D., in Garson on June 6. His verdict was as follows:

Armand Dupuis, aged 28, address 44 Patricia Street, Minnow Lake, miner at Inco, Garson Mine—shaft 2—level 2200—24.3 stope, died from injuries received in chute 24.32 from premature explosion of dynamite on a blasting pole.

From the evidence of all witnesses, I found his death accidental.

International Nickel Company of Canada, Limited

No. 10

Anicet Lemire, Canadian, aged 39, married, with one child; Franz Lukanz, Yugoslavian, aged 41, married, with one child; and Earl Barker, Canadian, aged 36, married, with five children, were instantly killed by a fall of ground causing the collapse of a section of square-sets in No. 18 stope, 2,600-foot level of the Garson mine at about 7.15 P.M. on May 16.

Lemire and Lukanz were employed as drillers and had been with the International Nickel Company of Canada, Limited, since September, 1952. Barker was a shoveller, employed with the company since November, 1953.

No. 18 stope is a north-south transverse, square-set stope about 25 sets long and 5 sets wide. The sets of 8-inch flatted, framed timber are 6 feet 5 inches centre-to-centre horizontally and 7 feet vertically. The breast, which was being advanced south to the hanging wall on the 16th floor, was 20 sets from the footwall. Sand filling of the 15th or mucking floor had followed the advance and was within 7 sets of the breast. A fill raise and manway at the north or footwall end of the stope provided access to the stope from the 2,400-foot level above. Nos. 18.1 and 18.2 manways located on the west and east pillars near the footwall end of the stope were open to the level below. Broke ore in the stope was slushed to either No. 18.22 chute near the footwall in the west pillar line of sets, three sets south of No. 18.1 manway, or to No. 18.3 chute near the hanging wall, which was one set behind the breast at this time.

The ground in this cut in the stope had arched from 2 feet to 8 feet above the mining floor sets along the centre line of the stope. This space was well cribbed and blocked to the back over each set with 8-inch blocking. Although there was no apparent excess weight on the timbers, four cribworks had been built in the middle line of sets of the mining floor in the 6th, 9th, 12th, and 16th sets from the footwall. Additional reinforcing posts had also been placed under the caps in several sets for added protection while blasting.

Operations in this stope were conducted by two 8-hour shifts daily. The afternoon shift at this time consisted of E. Cleroux, a stope leader of some 19 years experience, A. Lemire and F. Lukanz, miners, and R. Lefave and E. Barker, shovellers. A reblast of part of the breast had been made by the day shift to allow for standing a full row of sets across the stope. The afternoon shift were instructed, by Shift Boss L. H. Pletzer, to clean up the stope, scale the breast, and boom out in preparation for standing sets. At about 5.00 P.M. when Pletzer visited the stope, he and Cleroux checked the timber and blocking thoroughly and found it all in good condition. At that time, the stope crew had placed the six 8-inch by 10-inch by 13-foot booms ahead of the last set on the mining floor and had blocked two booms on the east side to the back. At 7.15 P.M. all the booms were blocked to the back. Cleroux, Lemire, and Barker were standing five or six sets back of the breast, on the mining floor, while Lukanz was on the mucking floor below getting the slusher ready for operation after lunch. As the men started to move away for lunch, Cleroux felt the timbers shake and heard small pieces of muck falling on the back lagging. He yelled to the men to run and he ran about 20-25 feet himself. He thought that Lemire and Barker were following right behind him. Lefave, who

had little experience, ran towards Cleroux and was the only other member of the crew to reach safety.

Without warning, the back of the stope had failed across the width of the stope for a length of eight sets back from the breast. All the timber on the mining and mucking floor were collapsed in that area with the exception of one set in the northwest corner and one or two posts left standing near the breast. The caved section of the back was estimated to weigh about 1,000 tons, and the largest piece of ore found in the debris weighed approximately 40 or more tons. The witnesses said that they were neither drilling nor slushing in the stope during the shift, and that no cracking of timber or other unusual noises were heard. There was also no heavy blasting in any of the adjacent stopes at the time of the accident.

B. T. King, superintendent of the mine, arrived at the stope at about 8.00 P.M. to take charge, but rescue operations could not be started for about an hour after the accident since the ground was working extensively over the area. When the ground had quieted, the sandfill was removed from below the mucking floor in the two line of sets where the men were believed to be located. After 15 hours, Lemire was found about two sets from the collapsed area. At the end of 46 hours, Barker was located two sets behind Lemire, and Lukanz was found in the set next to the west pillar, or three sets west of Lemire and Barker. All three men had apparently been killed instantly by severe crushing injuries. The cause of death of Lemire was attributed to a crushed chest, abdominal injuries, and fractures.

From investigations made during the stope recovery operations it was noted that a rock intrusion occurred at the north end of the break, running diagonally across the stope. The relatively smooth walls of the arch indicated lines of weakness in the back. It is thought that, although the back was supported tightly by the square sets and blocking, it suddenly gave way causing the collapse of some sets, which in turned weakened others over the area sufficiently for them to fail.

An inquest into the death of A. Lemire, which also covered the deaths of F. Lukanz and E. Barker, was held by Coroner Gilles Desmarais, M.D., in Garson on September 12. His verdict was as follows:

Anicet Lemire, Age 39, 316 Leslie Street, Sudbury, Miner at Garson Mine, Inco, died on May 16th at 7.30 P.M. from crushing injuries to his body in 2 shaft, 2600 level, 18th stope by caved section of ore, approximate weight 1000 tons.

From evidence of all witness, I found his death accidental with no blame attached to any employee and employer.

International Nickel Company of Canada, Limited

No. 11

Alfred J. Hunt, Canadian, aged 26, married, with one child, died of carbon monoxide poisoning in the return-air raise on the 500-foot level of Levack mine of the International Nickel Company of Canada, Limited, between 9.30 and 9.45 P.M. on October 4.

The return-air raise is about 3,200 feet east of No. 1 shaft. It is a vertical, 7 by 11-foot, two-compartment raise, which at the time of the accident was 289 feet above the level. At the 109- and 196-foot elevations the raise had been widened on all four sides to enable it to be diamond-drilled and blasted to a full 19-foot diameter. A third diamond-drill station was being cut at the 281-foot elevation.

The raise is divided into a muck chute on the west end and a 5-foot 6-inch cribbed manway at the east end. The ladders are staggered with platforms placed at 14-foot intervals. A steel box is installed beside the ladders. A 4-inch air line extending from the bottom of the raise to within 13 feet of the bulkhead supplies air through two 2-inch hoses for drilling. An auxiliary 1-inch air line with

the valve at the bottom of the raise provides fresh air to within 4 or 5 feet of the bulkhead. There is also a 2-inch water line in the raise.

The day-shift crew on October 4 finished drilling in the third diamond-drill station and started to load the four rounds plus the cut in the raise round above the diamond-drill station. The afternoon shift crew, consisting of Hunt and L. Chabot, were instructed by the divisional foreman, W. O. O'Neil, before going underground to continue loading and to blast when ready. They were also told not to go back in the raise after blasting but to wait until O'Neil arrived there.

Hunt and Chabot completed loading the 170 holes with 943 sticks of 1-inch, 70 percent Dygel shortly before 7.30 P.M. Before Hunt placed the end of one air hose through the crawl-through and the end of the other hose down the steel chute, the hoses were blown by turning on the air at the bottom of the raise by the nipper, M. O'Bumsawin. Chabot then went down to the first diamond-drill station to pull muck at the chute located there, leaving Hunt to finish the work at the top of the raise. At about 7.30 P.M. the rounds were blasted. The air was turned on in the 4-inch air line and the 1-inch line at the bottom of the raise. Air was also exhausted from the foot of the raise through a 12-inch ventilation pipe by an auxiliary fan.

The men, including Hunt, Chabot, O'Bumsawin, the nipper, and the level boss, F. Ibbotson, went out to No. 1 shaft station for lunch. They remained there until 9.30 P.M. when Hunt decided to go back to inspect the raise. This was contrary to the foreman's instructions and also to the advice of his fellow workers. However, since he was determined to go up, Chabot following him up the raise and O'Bumsawin went as far as the first diamond-drill station. Hunt reached the second drill station, but Chabot was only able to go as far as one ladder length below the drill station before being forced to climb back down. At the first drill station he told O'Bumsawin that he too had better come down. Before reaching the bottom, Chabot was affected by the gas and required the assistance of O'Bumsawin. Ibbotson and H. Gallant, another nipper, who had remained at the bottom of the raise had to bring the two men down the last 20 feet when they were both overcome by gas.

Ibbotson went to No. 1 shaft station and called for help at about 10.00 P.M. At 10.40 P.M., F. McAteer, superintendent, and M. Young, assistant superintendent, entered the raise wearing a self-rescuer and a Chemox apparatus. They found Hunt lying on the first platform below the first diamond-drill station, about 101 feet above the level. He had a deep laceration on the left side of his head with a possible fracture of the skull. It is probable that he had fallen down one or two ladders and received the cut at that time. Hunt was removed to the shaft station where he was treated by Dr. J. Harvey. "He was given artificial respiration, oxygen, and intravenous plasma substitute over a period of three hours." At 2.10 P.M. the doctor pronounced the man dead. Dr. C. P. Jessup made blood tests later and found a high concentration of carbon monoxide in the blood.

Evidence given at the inquest disclosed that the valves on the air hoses at the bulkhead were for some unknown reason in the shut-off position when examined after the accident. A carbon monoxide test taken part way up the raise at the time of the rescue indicated 0.3 percent carbon monoxide. Tests taken previously in a similar raise under similar conditions with the valves on the air line open showed that the raise had been cleared of noxious gases within 40 minutes of the blast.

An inquest was held at Levack on November 7 by Dr. R. M. Mitchell, coroner. His verdict was as follows:

Inquest on the body of Alfred John Hunt.

Found dead on Oct. 4, 1956 on the 500 ft. level of Levack Mine of the International Nickel Co. of Canada.

Death resulted from inspiration of poisonous gases, chiefly carbon monoxide, which he encountered when climbing to the working face of a blockage of the air lines, which in turn was likely caused by the blast. It is probable also that the excessive amount of muck blown into the raise caused the blockage of air lines, and it was the result of faulty covering of the "crawl through." As the evidence shows that the deceased was the last one to leave the working face, and was responsible for closing the "crawl through," no blame can be attached to anyone else.

The evidence was that repeated tests have shown that with an unobstructed flow of air through the two hoses, the gas would have been cleared in a time far shorter than that allowed on the day of the accident. Further, though witnesses testified that they had advised Hunt not to return for a further period of time, under normal operating conditions, the deceased should have expected to find his working place safe and free from gas. It is further evident that even with the recommended additional time, the gas would not have been cleared, in view of the blocked air lines.

It is therefore recommended that the possibility of testing for gas by chemical means be explored, and if feasible, such practices be adopted.

Kerr-Addison Gold Mines, Limited

No. 12

Janis Gulbis, Latvian, aged 32, married, with two dependent children, was killed instantly on January 21 at approximately 3.00 P.M. by a fall of ground in No. 2616-56.5 stope. Gulbis, an experienced miner, had been employed by Kerr-Addison Gold Mines, Limited, from June 10, 1953, to September 8, 1955. He was rehired on October 13, 1955, as a miner. Previously he had worked 2½ years in the coal mines in Belgium.

No. 2616-56.5 stope is a cut-and-fill stope, developed on the 2,650-foot level. It is about 35 feet long by 35 feet wide and is serviced by a cribbed manway driven along the footwall in the southeast corner of the stope. A circular concrete mill-hole, 5 feet inside diameter, is located 7 feet from the footwall on the north-south centre line of the stope.

At the time of the accident the back of the stope was 68 feet above the 2650 rail and the elevation of the fill was 61 feet above the rail. On January 20 preparations were made to start mining another 8-foot cut. At the end of the day shift, Gulbis and his partner blasted out 8 feet of cribbing from the service raise. On the night shift of January 20, S. Aubin and his partner spent the shift scaling the raise and blasting loose at the bottom in the section from which the cribbing had been blasted.

On the day shift of January 21, Gulbis and his partner were instructed to continue scaling from the raise. At about 10.00 A.M., the shift boss visited the stope and instructed the men to scale the north wall, support it with sprags, and then install rock-bolts. The west wall was to be scaled so that the first breast could be drilled north and west from the raise.

A large piece of rock, which had been previously scaled, was resting across the mill-hole. This was to be blasted with the first breast. Gulbis and Marchand scaled the north wall and put in three sprags. At about 3.00 P.M. the north wall had been scaled and supported, and Marchand had gone to the north end of the stope to obtain a sprag. He states that Gulbis moved from his position in the raise and was leaning over to observe the large rock across the mill-hole. While standing in this position a piece of rock, about 11 feet long by 3 feet wide and 3 feet thick, fell striking Gulbis and killing him instantly. Marchand stated that this area had been sounded with a scaling bar and was thought to be safe.

An examination after the accident indicated that the rock had fallen from a graphite slip dipping at 82 degrees to the north and intersected by a calcite slip dipping 32 degrees to the south.

An inquest was held before Coroner J. F. Edis, M.D., in the Municipal Hall in Virginiatown on January 25 at 7.45 P.M. The jury returned the following verdict:

That Janis Gulbis came to his death on the 21st day of January 1956 A.D., at approximately 3.00 o'clock in the afternoon, in a cut-and-fill stope at the Kerr-Addison Gold Mine between the

2500 and 2650 level. Cause of the death was traumatic asphyxia caused by a large piece of loose rock falling on him.

From the evidence we are of the opinion that death was accidental and can find no blame attached to anyone.

Kerr-Addison Gold Mines, Limited

No. 13

Kalman Szucs, Hungarian, aged 33, married, with three dependent children, died on February 10 at 4.50 P.M. as a result of injuries received the previous day when he was trapped in a mill-hole in No. 2521-66.5 cut-and-fill stope at the Kerr-Addison gold mine.

Szucs had been employed at Kerr-Addison since July 30, 1954, and, at the time of the accident, was working as a miner in No. 2521-66.5 cut-and-fill stope.

This is a transverse cut-and-fill stope 22 feet wide and 48 feet long from hanging wall to foot wall. It was developed on the 2,500-foot level and on February 9 had been mined to a point 9 feet below the 2,200-foot level. The stope was filled with de-slimed mill tailings with the slushing floor about 16 feet below the back. The stope was serviced through a 6- by 10-foot raise from the 2,200-foot level. A 5-foot inside diameter concrete mill-hole, 12 inches thick, extended from the 2,500-foot level to the top of the slushing floor, a distance of 275 feet.

An 8-foot cut had been mined to the south end of the stope, and on day shift, February 8, Frank Sacher and Kalman Szucs had slushed all broken ore from the south end of the stope into the mill-hole, which was left full to the top. They then moved the slusher to the south end of the stope.

The night-shift crew of February 8 moved all drilling gear and staging planks to the southwest corner of the stope and loaded the north breast. The face of the breast was about 4 feet north of the mill-hole and was drilled off with 10-foot steel. The crew also erected a plank barrier to protect the slusher hoist and instructed the tram crew to pull ten cars of muck. This was done between 1.20 A.M. and 2.00 A.M., February 9, and the muck in the mill-hole was reported to have dropped 25 to 30 feet. The breast was blasted at 2.45 A.M. as the men were going off shift. The shifter left a report for day shift stating that his crew had moved gear, slushed, and blasted the breast north.

On day shift, February 9, Sacher and Szucs were instructed by their shift boss, R. Laroque, to scale and roof-bolt the north end of the stope as required. They were also to drill test holes in the north wall. At 10.00 A.M. Laroque visited the stope. At that time, the broken muck from the previous blast covered the mill-hole to a depth of 4-5 feet. The miners were working north of the mill-hole scaling and erecting a staging to install roof bolts and drill test holes. At about 11.00 A.M. Szucs was installing a 16-foot plank as a brace for the staging when the muck over the mill-holes suddenly dropped. Sacher stated that Szucs hung on to the plank for a short interval, but the muck around his legs dragged him down, and he fell into the mill-hole. The remainder of the muck then hung up, trapping Szucs about 25 feet below.

Sacher summoned assistance, and rescue operations were started. An entry was made in the side of the concrete mill-hole, and Szucs was recovered about 16 hours later. After treatment, he was taken to Kirkland District Hospital, where his condition was reported as satisfactory. However, on February 10 at 4.00 P.M. he had a relapse and died at about 4.50 P.M.

It is necessary after blasting to first scale and support the stope back by roof bolting to permit safe operations underneath. This was the procedure of Sacher and his partner Szucs after coming on shift. They were erecting a staging over the drawpoint to place the rock-bolts. An error was made in walking over the drawpoint that was hung up. Although scraping had been reported in error by the

previous shift boss they should not have necessarily assumed that the drawpoint was full. The report of "slushing" would not necessarily mean that the drawpoint had been filled completely prior to blasting.

A mine rule requires that no blasting be done directly over a mill-hole unless the mill-hole be full. The face of the breast blasted was 4 feet to the north of the mill-hole so it would be expected that the mill-hole would not necessarily block at the top, and that the probability would be that any broken ore reaching it would drop into it.

Since the accident a mine rule has been added requiring that in any stope, any mill-hole that is covered by muck during a blast is to be considered as hung-up, and no man may work on top of the muck under any circumstances.

An inquest was held before Coroner J. F. Edis, M.D., in the Municipal Hall in Virginiatown on February 22 at 7.45 P.M. The jury returned the following verdict:

That Kalman Szucs died February 10, 1956, at 4.50 P.M. in Kirkland District Hospital, from a pulmonary embolism from thrombosis of the left femoral vein, due to a crushing injury of left leg with fracture of the tibia.

Injuries resulted from falling into a hung-up mill hole as the muck dropped from 2521-66.5 cut-and-fill stope at the Kerr-Addison Gold Mines Limited.

Kerr-Addison Gold Mines, Limited

No. 14

Jan Kubalak, Czechoslovakian, aged 26, married, with no dependents, was instantly killed at about 1.30 A.M. on September 27, when struck by a fall of ground in No. 2602-21 cut-and-fill stope, on the 2,650-foot level of the Kerr-Addison gold mine. He had been employed by the company as a temporary stope leader.

No. 2606-21 cut-and-fill stope was silled out between the 2,800- and 2,650-foot level. It was mined up through No. 2606 west drift, 2,650-foot level, to a height of 38 feet above 2,650-foot-level rail at the time of the accident. No. 2,606 west drift was re-established through the stope with timber. The mining floor was 19 feet above base of the rail. There was about 10 feet of fill over the drift timber and 2-3 feet of fill over the gangway timber at the mill-hole chutes. The stope is about 210 feet long and ranges in width from 10 feet at the west end to 35 feet at the breast where this accident occurred.

The mining of the fourth cut was started at the service raise at an elevation of 38 feet above the base of the rail and had been completed a distance of 70 feet to the west end of the stope. The breast was then advanced east from the raise 45 feet. The back of the stope was supported with 7-foot rock-bolts installed at 4-foot centres to within 7 feet of the breast. Access was gained through a timbered manway from the 2,650-foot level or a 6 by 10-foot timbered raise down from the 2,500-foot level.

Kubalak was the leader of a three-man stope crew. His partners and witnesses of the accident were Nick Cilluza, miner, and Falece Gallina, mine labourer.

The three men came on shift at 7.00 P.M., September 26. Their instructions for the shift were to finish drilling 9 holes to complete the east breast, to slush muck to make room under the breast for the blast, and then to blast the breast in two sections, using electric caps. Ordinarily the breast would have been blasted all at once, but in this case the shallow depth of fill over the drift timber made heavy blasting inadvisable.

The crew were visited in the stope by Shift Boss M. Schaetzler at about 8.20 P.M. The stope was in good condition, and the work was proceeding satisfactorily at that time. Kubalak, Cilluza, and Gallina finished drilling around 9.30 P.M., slushed some ore, obtained powder and fuse, and loaded and blasted 30

when he got off the No. 5 shaft cage on the 3,325-foot level to pull the chute. His body was recovered from the run of sand at 1.30 P.M.

Fortey and his partner, Nick Pochopsky, were engaged as fill-pass tenders. They tended the fill-pass from the first chute on the 600-foot level down to the 3,950-foot level. They were both engaged full time at this work, and Fortey had been doing it for the past 10 to 15 years.

The sand-fill raise at the Lake Shore mine extends from surface to the 7,700-foot level. It consists of a series of raises, each extending from a chute on one level to a dump on the level above. On each level the chute at the bottom of one raise is directly opposite the dump of the raise below. A hinged extension to the lip of each chute can be raised into place to connect the chute to the dump opposite it. Thus on each level sand can be pulled out of the sand pass into cars; waste from cars can be dumped into the sand-pass system or, by raising the chute lip extension, sand and waste from the raise above can be passed across the level to the raise below.

The chute on each level is equipped with a cramp chain gate. These gates are constructed of lengths of very heavy chain with a large steel ball fastened to one end. The chains are hung in a row from the head block of the chute so that the steel balls lie across the chute in line with the lower edge of the chute lip. The chains are connected to a heavy steel bar at a point just above the balls. The chain gate is raised and lowered by means of a length of $\frac{1}{4}$ -inch steel cable. The cable extends from the steel connecting bar, over pulleys, to a small windlass fastened to a post beside the chute. The fill-pass tender cranks the windlass to wind in cable and raise the balls and chains to allow sand to flow. A block of wood is wedged between the windlass crank and the post to hold the gate open while the sand flows. If the windlass handle is not held, the gate will fall of its own weight to stop the flow of sand. This type of gate is standard at Lake Shore and has been for a very long time.

The dumps at the tops of all the raises except the one on the 3,325-foot level are wide open. The steel lip extensions on all the other levels act as guards across the dumps when they are in the raised or lowered position. The 3,325-foot level chute and dump were wrecked in a rock burst several years ago. As a result of ground caving the dump hole was so enlarged that the lip extension did not properly guard it. The opening was therefore guard-railed, and a grizzly consisting of lengths of 40-pound steel rail set to give 10-inch wide openings was constructed over it. This is the only grizzly on the whole system.

On the morning of October 15, Fortey and Pochopsky had been engaged in passing sand on the levels above the 3,325-foot. They met and ate lunch together on the 3,200-foot level at 11.00 A.M. Fortey phoned his shift boss, A. MacMillan, at this time and was instructed to go down to the 3,325-foot level and let the sand through there. Fortey helped Pochopsky pull the chute on the 3,200-foot level and then went down to the 3,325-foot level alone. He was last seen alive when he got off the cage on the 3,325-foot level station.

Pochopsky stayed on the 3,200-foot level to pass sand down to 3,325-foot level as Fortey pulled it there. As he pulled, Pochopsky's chute blocked up with rock. He could not bar it free so he climbed down No. 5 shaft to the 3,325-foot level to get powder from Fortey to blast it. He walked into the main crosscut and found it blocked tightly with wet sand at the sand-pass chute. Fortey was not in sight. Pochopsky called but did not receive an answer. Pochopsky returned to the shaft and reported to the cagetender by phone that Fortey was missing, and that there had been a spill of sand. The cagetender notified Morris Seymour, assistant underground superintendent, on surface. Seymour and the mine captains, who

were eating lunch, took the cage down to the 3,325-foot level and examined the spill. Seymour directed the men to start digging to look for Fortey, while he took one man to the 3,200-foot level, climbed down to the 3,325-foot level through the old workings, and approached the spill from the mine side. As he approached, Seymour saw the back of Fortey's head protruding from the sand. The remainder of the body was completely covered. Fortey's face and head were freed as quickly as possible, but he was dead.

After Fortey's body had been recovered, an investigation revealed that the grizzly on top of the raise from the 3,450-foot level was covered with rock. The raise under the grizzly was empty for about 50 feet.

Apparently as Fortey pulled, the grizzly became blocked with rock; whether or not the rock came all at once or a piece at a time is not known. The latter seems more likely. Fortey may have been attempting to keep the grizzly open as the sand ran. He had a shovel in his hand when his body was recovered. A quantity of wet sand came from the chute on to the blocked grizzly and overflowed on to the level. Fortey was caught and buried. About 150 tons of sand flowed out into the crosscut completely filling it at the chute.

Pochopsky had passed a considerable amount of rock through the chute on the 3,200-foot level but had not noted any wet sand. The 3,325-foot level chute had not been pulled since October 10th or 11th. Pochopsky had cleared the grizzly himself on the morning of the 12th, and Fortey had reported to his shift boss that the grizzly and level around the chute were clean when he went off shift at 4.00 P.M., October 12.

The rock on the grizzly must have accumulated while Fortey was passing sand just prior to the accident, and it seems likely that the water accumulated in the sand in the raise between the 3,325-foot and the 3,200-foot levels. An examination of all levels above the 3,200-foot did not reveal any source of water. Wet sand had been encountered several times lower in the mine where precautions are taken to handle it safely. Water had never been encountered above the 3,325-foot level. The water may have entered the raise through cracks that are known to extend into the raise in this area.

An inquest was held before Coroner J. F. Edis, M.D., in the Town Hall, Kirkland Lake, at 7.30 P.M., October 24. The jury returned the following verdict:

William Fortey came to his death on October 15, 1956, at Lake Shore Mine, Kirkland Lake, while passing sand and rock at 3300 Foot Level by becoming accidentally trapped and buried by sand. William Fortey was evidentially clearing rocks from the grizzly without closing the chain gate to the chute.

Madsen Red Lake Gold Mines, Limited

No. 16

Ivan Jurisa, Yugoslavian, aged 33, married, with no dependents, was killed by a fall of rock in the No. 12-24 stope at Madsen Red Lake Gold Mines, Limited, at about 11.30 A.M., February 14. He had been employed since October 8, 1955, and at the time of the accident was working as a machine helper.

No. 12-24 is a horizontal cut-and-fill stope 260 feet long and averaging 14 feet in width with a dip of about 75 degrees. It is located 3,200 feet from the main shaft. At the time of the accident the stope had been mined to an elevation of about 70 feet above the 12th level.

For several days previous to the accident no actual mining operations had been carried on in the stope. Both shifts were employed slushing, scaling, and rock-bolting.

On the morning of February 14, John Komorowski, shift boss, had given

Tadeusy Kuzdak, the stope leader, and Jurisa orders to carry on scaling and rock-bolting. Kuzdak was an experienced miner and had been employed in No. 12-24 stope for about a year.

Komorowski visited the stope at 9.50 A.M. and after examining the stope and outlining the work left at 10.15 A.M., about the same time G. Cox and J. Weber, engineers, entered the stope and were surveying until 11.25 A.M. During this time Kuzdak and Jurisa had scaled and installed one rock-bolt.

At 11.30 Kuzdak states he had completed scaling the section of back he intended to rock-bolt and considered it safe enough to drill.

Jurisa helped Kuzdak to collar a hole in the back about 7 feet above the stope floor, and according to Kuzdak, then stepped back behind the machine to a safe place. When the hole had been drilled about 2 inches, a section of the back in which the hole was being drilled broke loose. Kuzdak released the drill, and while turning away noticed that Jurisa for some unknown reason had stepped forward under the loose. Kuzdak made an unsuccessful attempt to push Jurisa clear and as a result was hit a glancing blow on the hip and right leg by the falling rock. When he picked himself up he saw that the upper part of Jurisa's body had been pinned by the leg of the rock-drill and the loose. Kuzdak could not move the rock and started out to get help. He found that he was unable to walk and realized his right leg was broken. Using a drill rod as a cane he proceeded 80 feet to No. 3 mill-hole manway and descended 70 feet to the 12th level. He then started to make his way to the station.

When Kuzdak and Jurisa did not check out at their normal time, Shift Boss John Komorowski, went underground to find out why they had not come to surface. He found Kuzdak in No. 12-E drift about 2,400 feet from the station and learned of the accident from him. Komorowski then went into No. 12-24 stope and found Jurisa. Being unable to remove the loose by himself, he returned to the 12th level station, notified the mine office, and then took Kuzdak to surface.

Mine Captain John Burmachuk with three other men went to the scene of the accident and extricated Jurisa, at about the same time Dr. E. Daniel, M.D., arrived in the stope and pronounced Jurisa dead.

Coroner D. Polan, M.D. was called and on examination found that Jurisa had died almost instantaneously of crushing injuries to the chest. The piece of rock was estimated to weigh 2,200 pounds, measuring 9 feet long, 4 feet 9 inches wide, and averaging 8 inches thick.

An inquest was held in the Red Lake Police Station on February 15, before Magistrate T. H. Wolfe and Crown Attorney T. A. O'Flaherty. The verdict was as follows:

While engaged in scaling operations in stope Number 1224 of the Madsen Gold Mines, Limited, deceased came to his death as the result of being crushed by a slab of rock which fell from the back of the stope, crushing his chest.

The facts given in evidence show that death was due to accidental causes and no blame is attached to anyone concerned.

Madsen Red Lake Gold Mines, Limited

No. 17

Joseph Dragovich, Yugoslavian, aged 54, married, with no dependents, was fatally injured about 1.00 A.M. March 6, when he fell from No 14-20 raise to the floor of No. 14-20 stope at Madsen Red Lake Gold Mines, Limited. He had been employed at Madsen as a miner since September, 1955. Dragovich was an experienced miner having worked underground for more than 20 years.

No. 14-20 stope is a horizontal cut-and-fill stope about 220 feet long, with an average width of 15 feet. At the time of the accident the stope had been mined to

an elevation of 35 feet above the 14th level. The west half of the stope had been filled, and the east half was being prepared for fill. The distance from the floor to the back of the stope in the east half was 22 feet. No. 14-20 service raise is about 5 feet by 5 feet and extends from the east end of the stope at an angle of 50 degrees to the 13th level. This raise is equipped with a timber slide made of 2- by 6-inch planks 20 inches wide, a ladder way, and air, water, and backfill pipes. At the top of the raise on the 13th level there is a C.I.R. single-drum, air-driven tigger hoist with a rope pull of 2,000 pounds. The cable used is $\frac{3}{8}$ -inch with a breaking load of 5 tons. The bucket is made of $\frac{1}{4}$ -inch steel plate 8 feet long by 12 inches wide and weighs 247 pounds. The cable is fastened to the bucket using a chain bridle with a ring into which fits the cable thimble. Two cable clamps are used to fasten the cable to the thimble.

On the night shift of March 5, Dragovich and his partner, Johann Schissler, were instructed to continue raising the No. 2 mill-hole at the east section of the stope that the day shift had started. They worked on the mill-hole until they had used all the cribbing that was in the stope, and then Schissler went to the 13th level and commenced lowering 8- by 8-inch by 8-foot rough timber cribbing down the raise to Dragovich, who stood on the bottom ladder and removed the cribbing from the bucket and dropped it to the stope floor 22 feet below.

They had taken down 14 pieces of cribbing when, at about 1.00 A.M., while Schissler was hoisting it, the empty bucket broke loose from the cable. The bucket was 16 feet from the 13th level at this time. Schissler seeing the bucket drop shouted a warning to his partner, but does not know if he was heard or not.

When the bucket came to rest Schissler started down the manway. When he reached the stope he found Dragovich lying on the stope floor under the raise. He was unconscious and had an extensive gash in the top of his head.

Schissler went down to the 14th level and out to the station and reported the accident to the surface deckman, who notified mine superintendent A. Heather and Dr. E. Daniel at 1.10 A.M.

While Schissler was away getting help, T. Berlinsky, P. Yagelnetsky, and I. Romaysszyn who had followed Schissler down the raise from the 13th level, decided to attempt to bring the injured man to the 14th station. They made up a stretcher from burlap and a section of ladder and managed to get Dragovich down to the level where they were joined by T. Davis, a drift man, and J. Busch, shift boss.

They had made their way about 2,000 feet along No. 14E drift towards the station when they were met by Dr. Daniel and W. Carlyon. Dr. Daniel examined Dragovich and declared him dead at 1.40 A.M. from a fractured skull.

On inspection of the raise after the accident it was found that the cable had broken about half way around the thimble. The 20 feet of cable adjacent to the bucket was badly corroded, although the remaining cable on the drum was apparently in fair condition. The bucket had not stuck in the slide and the total weight on the cable at the time was only 247 pounds. From marks on the slide it was decided the bucket had probably only jumped the slide once at a point 80 feet above Dragovich and had then bounced back into the slide. The top end of the bucket had struck the hanging wall of the raise in several places, but the only damage in the raise was a bolt broken on a victaulic coupling.

There were no marks on Dragovich's body to suggest that he had been struck by the falling bucket. From the position of the body and the injuries, it is thought that Dragovich seeing the bucket coming towards him, fell backwards off the ladder and landed on his head on one of the cribbings lying on the floor of the stope. His hat had apparently fallen off before he struck the timber and was found undamaged beside his body.

The Madsen mine has a mine regulation that no man shall stand under, or in, a raise while the bucket is being moved. If Dragovich had obeyed this regulation the accident would not have occurred.

The corrosion to the tigger cable was not apparent by a visual check. There were no broken wires at any other spot in the cable except where the break occurred.

An inquest was held by Magistrate T. H. Wolfe in the Red Lake Police Station on March 15. The verdict was as follows:

Joseph Dragovich came to his death at 1.15 A.M. on the 6th of March 1956 at Madsen, Ontario and death was due to multiple fractures of the skull received while working underground in stope 14-20 of the Madsen Red Lake Gold Mines Limited, resulting from accidentally falling a distance of about 20 feet from the ceiling of the said stope to avoid a bucket which broke loose from the bucket slide at the top of this shaft, and striking his head upon an 8" x 8" timber then lying on the floor of the stope.

MacIsaac Mining and Tunnelling Company, Limited

No. 18

Arthur Betti, Canadian, aged 30, married, with two children was fatally injured when he fell 108 feet down No. 2 shaft of the Panel Consolidated uranium mine at about 3.35 P.M. July 29. He died at St. Joseph's Hospital, Blind River, at 7.15 P.M.

Arthur Betti was a miner of 10 years experience and had been employed before in 1954 by the MacIsaac Mining and Tunelling Company, Limited, and on this occasion he had been working two months for the company.

The MacIsaac Mining and Tunnelling Company are sinking the three-compartment, No. 2 shaft of the Panel Consolidated Uranium Mines, Limited, at Quirke Lake on a small island off the shore, on which the mine has its campsite. The depth of the shaft at the time of the accident was 245 feet. Sinking had started with single hoisting but had changed to double hoisting in an attempt to overcome the overloading of the hoist and the cut-outs of power. After a shut-down the problem of overloading was overcome, and double hoisting was again resumed.

The accident involving Arthur Betti and Albert Sanscoucy of the timber crew took place on the day shift of July 29. This was Sanscoucy's first day of work at this shaft. He had had 14 years experience, much of it in shaft-sinking. The timber shift under the shaft leadership of George Tuomi installed two sets of timber in the shaft and one set of guides in No. 3 compartment. No. 2 bucket was now used to hoist up the air and water header to a divider out of the way of the Riddell mucker and to install a 14-foot section of ventilation pipe in the manway, No. 1 compartment. The divider at the manway compartment was placed, and at the time it was found that a squeeze block was needed to bring a post back into position. A suitable balance was made on the two buckets by the hoistman, and the four men of the timber crew then came up on No. 2 bucket to where the engineers' plumb line plates were attached, in order to take up the four plumb lines.

Arthur Betti and Albert Sanscoucy got out of No. 2 bucket at this point, 137 feet down from the collar, and walked across on the timber to No. 3 compartment to take up the plumb lines. Ray Kamppi got off two sets higher to take up the plumb lines hanging in No. 1 manway compartment. George Tuomi went up with the bucket to the deck to get the squeeze block. As the No. 2 bucket went up, No. 3 bucket and the closed crosshead came down and struck Arthur Betti and Albert Sanscoucy as they were reeling in the plumb lines. Ray Kamppi heard Albert Sanscoucy yelling and saw Sanscoucy with his hat dangling at the end of

his lamp cord. Sanscoucy told Kamppi that Arthur Betti had fallen down the shaft.

Kamppi started climbing up the ladders to surface to get help when George Tuomi came down on No. 2 bucket. Kamppi told Tuomi what happened. Kamppi climbed the ladders to surface and told the shaft captain, Alec Cameron, who radio-phonied to the mainland for a boat and a doctor. Tuomi brought Sanscoucy to the deck.

Cameron and Tuomi went down on No. 2 bucket with the basket stretcher and brought Arthur Betti up by 3.45 P.M. He was found lying on the muck pile, up to his chest in water, making noises and movements of his body.

On information from the mainland that the resident doctor at the Denison mine would not be available, it was decided to take Betti across the lake to the Spanish American mine where the contractor had an ambulance. However, the man's condition was so poor that he was flown by Lauzon Airways to Blind River Hospital and arrived there at 5.45 P.M.

Dr. S. V. Hamill attended Betti at St. Joseph's Hospital; Betti died at 7.15 P.M. of hemorrhage of the brain and traumatic shock.

An inquest was held before Coroner J. Pigeon, M.D., in Blind River at 1.00 P.M. on August 13. The jury gave their verdict as follows:

Arthur Betti a deceased person came to his death at 7.00 P.M. o'clock in the afternoon on the 29th day of July, 1956 at Blind River and that the death was caused by hemorrhage of the brain due to an accident at Panel Uranium Mines, Twp. 144, District of Algoma at 3.35 P.M. July 29, 1956, due to negligence on the part of the deceased. The Jury strongly recommends that a method of attaching a signal either to the bucket or on the wall of the shaft be considered.

MacIsaac Mining and Tunnelling Company, Limited

No. 19

Paul Morin, Canadian, aged 27, married, with four children, was killed instantly at about 10.00 A.M. on December 18, when the sinking bucket he was in fell about 1,875 feet from the 526-foot level to the bottom of No. 1 shaft at the Lake Nordic property of Northspan Uranium Mines, Limited. Death was due to multiple injuries sustained in the fall. Morin was an employee of the MacIsaac Mining and Tunnelling Company, Limited, who were sinking the shaft under contract.

MacIsaac Mining and Tunnelling Company are sinking two shafts, Nos. 1 and 2, from surface, the ultimate depths of which are to be about 2,650 feet. Sinking in No. 1 shaft has reached 2,387 feet. In this shaft three stations have been cut, one at 526 feet, one at 1,000 feet, and one at 2,000 feet. Another station will be cut at 2,400 feet as measured from surface. This shaft was sunk from surface to the 526-foot level as a three-compartment shaft, each compartment being 6 feet by 6 feet. Below the 526-foot level the shaft was sunk as a four-compartment shaft, each compartment being 6 feet by 6 feet. The long axis of the shaft lies approximately in a north-south direction, the hoist being on the west side of the shaft. The compartments are identified, from north to south as, man-way compartment, No. 1 hoisting compartment, and No. 2 hoisting compartment. Below the 526-foot level a ventilation compartment adjoins the No. 2 hoisting compartment on the south. The sinking operation was on a three-8-hour-shift basis. A Riddell shaft-mucking machine was being used, and the shaft muck was hoisted to surface in both hoisting compartments.

The hoist is a double-drum, 60- by 48-inch PE-1, with single clutch, serial No. 1700-B, manufactured by the Canadian Ingersoll-Rand Company, Limited. The hoist was driven by a 300-horsepower, 60-cycle, A.C., wound-rotor motor, through single reduction herringbone gears. The drums are identified by number,

corresponding to the shaft compartments. As viewed from the hoistman's platform the left, or No. 1, drum is keyed to the hoist main shaft and the right, or No. 2, drum is driven from the hoist main shaft through an internal expanding gear clutch. The clutch is engaged or disengaged by a double-acting pneumatic engine. Each drum is fitted with a parallel-post, basswood-lined brake that acts on a path attached to the side of the drum. Track limit switches in each hoisting compartment of the headframe provide overwind protection. Each drum of the hoist is fitted with a Model D Lilly controller providing overspeed and slow-down protection. An emergency switch is provided at the hoistman's control stand. These devices, when operated, open the circuit breaker cutting off power to the hoist motor and actuate the emergency setting of the hoist brakes.

A closed crosshead and bucket were used in each compartment, weighing 1,812 pounds and 2,400 pounds, respectively. These were suspended in the compartment from a 1-inch non-rotating hoisting rope. The ropes passed over 72-inch diameter bicycle-type sheaves which were mounted on top of a 75-foot headframe. The ropes passed through sprouts in the drums and were clamped to the drum spiders. The rope attached to No. 1 drum was underwound, the rope attached to No. 2 drum being overwound.

The break shoes are pressed against the brake paths by a deadweight acting through the medium of levers and rods. This deadweight is lifted and the brake released by compressed air working through a double-acting pneumatic brake engine. The pneumatic brake engine operates on the balanced-air principle having line pressure, in this case about 100 pounds per square inch always on the lower side of the piston. The air on the upper side of the piston is varied in pressure by admitting or exhausting air through a double poppet valve. When the air pressure on the top of the piston is equal to that on the lower side of the piston, the deadweight pulls the piston and the brake mechanism down and sets the brake. Exhausting the air from the upper side of the piston allows the air pressure under the piston to lift the deadweight and releases the brake. Normal control of the air pressure on the top of piston is accomplished by the double poppet valve actuated by a cam, which is connected through a series of rods and levers to the hoistman's hand lever. A compensating mechanism is provided whereby the motion of the valve cam is returned to the neutral position. The movement of the brake linkages is thereby made proportional to the travel of the hoistman's hand lever. The opening of any of the safety switches de-energizes a solenoid on the side of the brake engine which, in turn, causes the safety latch to release a holding lever allowing a weighted bell crank to move through an arc so that the valve rods actuate the poppet-valve cam in such a way that air pressure is admitted to the top of the brake engine thus applying the brake. At the same time the bell crank releases a regulating valve the position of which governs the rate of flow of air out of the under side of the brake engine while the brake is setting, thereby determining the speed of emergency setting of the brake.

The events leading up to the accident were as follows. On the preceding two shifts, the afternoon shift had mucked, drilled, and blasted the shaft bench, and the night shift had advanced the shaft timber. The day shift had gone underground at 8.00 A.M. and had washed down, scaled, and started to muck by 8.30 A.M. Harold Helmer, the hoistman employed by MacIsaac, had hoisted and dumped ten buckets of muck. In the meantime, Paul Morin had come up to the 526-foot level on a bucket to get drinking water. On a later trip, while hoisting a full bucket of muck on No. 1 drum, Helmer slowed the hoist while the No. 2 side was passing the 526-foot level anticipating a stop signal from Morin. When he received the expected signal he stopped the hoist and raised the No. 2 bucket back to the 526-foot level in response to a one-bell signal from Morin. Evidently Morin

got on No. 2 bucket and gave a 2-bell signal. At this point, Helmer, who had been having trouble with No. 2 drum brake releasing sluggishly, decided to summon a hoist mechanic. Helmer went to the headframe and requested one of the men there to get either of the two men authorized to do any work on the hoisting machinery, these were the master mechanic and assistant master mechanic of Lake Nordic Uranium Mines, Limited. Helmer returned to the hoist-room. Joe McIntyre, the shaft captain for MacIsaac, entered the hoist-room and inquired as to the trouble. When Helmer explained that the brake was slow to release, McIntyre disconnected a union in the exhaust line of No. 2 brake engine and found the line plugged with icy slush. During this delay the two-bell signal had been repeated several times. While McIntyre was examining the exhaust line John O'Leary, a mechanic employed by Lake Nordic, had been sent to the hoist-room by the shop foreman to see if the master mechanic or his assistant had arrived. O'Leary became interested in the work McIntyre was doing and at this point Helmer re-entered the plywood cabin surrounding the hoist controls, which cut off his view of what McIntyre and O'Leary were doing. Helmer decided to hoist and dump the No. 1 bucket. He unclutched the No. 2 drum; the clutch is fitted with an electrical interlock that released the No. 2 brake solenoid thus ensuring that No. 2 brake could not be released in the normal manner. He was about to hoist the bucket of muck in No. 1 compartment when he heard a sudden rush of air and saw No. 2 drum start to rotate. Almost immediately the overspeed device of No. 2 drum Lilly controller tripped the hoist circuit breaker. Helmer attempted to engage the clutch of the No. 2 drum but, owing to the speed of drum, was unable to get it in. He was still trying to engage the clutch when the grease guard of No. 2 drum was knocked loose. Helmer then left the hoistman's platform. No. 2 bucket, carrying Paul Morin, had fallen from the 526-foot level to the bottom of the shaft. The drum at this time was rotating as such a speed that, when the rope was completely unwound it was snapped off inside the drum sprout.

The runaway of the unclutched No. 2 drum was caused by the removal of a ½-inch threaded plug from the top of the brake engine cylinder. The removal of this plug by McIntyre, the shaft captain, exhausted the air to atmosphere from the top of the cylinder, and the air pressure on the bottom side of the cylinder released the brake and held it off.

Joe McIntyre summoned Jack Beaton, the area superintendent for MacIsaac Mining and Tunnelling Company, Limited. Beaton took charge of rescue operations while McIntyre brought shaftmen from No. 2 shaft and others that were off duty over to No. 1 shaft for rescue operations. Two engineers of the Lake Nordic mine, John Follinbee and Mike Stoner, climbed down the ladder to examine the hoisting compartments. At the 1,000-foot level they hammered on the pipes and received a reply from the shaftmen at the bottom. They found the full bucket of muck hanging 1,865 feet below the collar and down to that point they had found the shaft in satisfactory condition. They continued down to the 2,000-foot level where they met the three shaftmen who had climbed up from the bottom and who reported that the shaft timbers were in satisfactory condition below. The three shaftmen had not been injured. They went back up to the 1,865-foot level and wrote instructions on the side of the full bucket to empty the bucket and send it back. When the hoistmen returned the empty bucket to them, the three shaftmen went up to surface. Dr. Rouse and two shaftmen came down on the next trip. Two mechanics with cutting torch, cylinders, and rope clamps were also brought down later. The party went to the bottom of the shaft where they found that Paul Morin was buried at the bottom of the shaft beneath the crosshead and the pile of hoisting rope. Parts of the rope, hung up on the timber at about the 2,000-foot level, were clamped to the hanging rods. After the cutting

of some rope, the clam operator was able to use his Riddell mucker to move the rope from the top of the crosshead. More rope was cut and the man removed from the bucket. Dr. Rouse pronounced the man dead. The body was sent to surface on a stretcher.

An inquest was held before Coroner J. Pigeon, M.D., at Blind River on February 1, 1957, at 3.00 P.M. and on March 8, 1957, at 10.00 A.M. The jury returned the following verdict:

Paul Morin the deceased person came to his death at 10.00 o'clock in the forenoon, on the 18th day of December, 1956 at Lake Nordic Mine and that the death was caused by falling down shaft in bucket when hoist drum went out of control due to removal of plug from top of brake cylinder releasing brake, plug was removed by shaft captain who was neither qualified or authorized to attempt repairs.

McKenzie Red Lake Gold Mines, Limited

No. 20

Parliament Mamakesick, Canadian Indian, aged 22 years, married, with no children was fatally injured at about 12.45 A.M. on January 2, when crushed between a chute and an electric trammer while working as a motorman on the 1,250-foot level. He had been employed by McKenzie Red Lake Gold Mines, Limited, on four different occasions, the last time being December 19, 1955.

On the day of the accident Mamakesick and his partner Istvan Hoffman, were tramping ore from No. 1218 chute in No. 1213 crosscut east to the loading pocket at the 1250 No. 3 shaft station, a distance of 1,600 feet. They were using a 1½-ton Manchu battery-operated electric trammer with five 1-ton end-dump cars. The train was made up so that the motor, facing the last car, pushed the empty cars from the station to the chute. Seventy-five feet back from No. 1218 chute is No. 1214 chute so that it was necessary to pass under this chute to get to No. 1218.

Mamakesick and his partner had already taken one train load to the station and had returned and loaded a second train. While Hoffman was cleaning up spill from the track under No. 1218 chute, Mamakesick started out to the station with the loaded train. A few seconds afterward Hoffman noticed the train coming back towards him without a motorman. He stopped the motor and on investigating found Mamakesick lying beside the track at No. 1214 chute. Mamakesick said he was hurt and Hoffman put him on the motor and took him to the 1250 station. These were the last words spoken by Mamakesick that could be understood by anyone although he normally spoke fair English. Hoffman called the skiptender and with the help of B. Barstad, a miner who was nearby, they brought the injured man to surface.

Dr. D. Polan from Cochenour was called and arrived in the mine dry at 1.20 A.M. Mamakesick died in the dry at about 1.25 A.M. from severe crushing injuries to the right lower chest and stomach.

Hoffman did not see the accident take place, but what apparently happened was that Mamakesick was standing up in the cab of the motor facing the cars and backed the motor under No. 1214 chute. The chute struck him in the back forcing him over the battery of the motor, crushing him between the chute and the battery. He was able to reverse the controller when he felt the chute but the momentum of the train carried him far enough to cause the injury. When the train moved ahead he fell out of the cab into the drift, and the train continued ahead about 40 feet until stopped by Hoffman, who was still at No. 1218 chute.

The clearance between the top of the motor and the lip of the chute is 3 inches. There is an ⅛-inch steel guard plate projecting from the top of the battery over the controller, and when Mamakesick was struck from behind by

the chute this guard plate was forced into his stomach. Investigation showed this plate had been bent downward about 3 inches. Had Mamakeesick been sitting down in the cab the accident could not have happened.

An inquest was held in the Red Lake Police Station on January 12 at 1.00 P.M. before Magistrate Cox with Crown Attorney T. A. O'Flaherty and Coroner E. Daniel, M.D., in attendance. The verdict was as follows:

The deceased person, Parliament Mamakeesick came to his death at 1.20 A.M. January 2, 1956 at McKenzie Red Lake Gold Mines Limited in the District of Kenora. Death was caused by severe crushing injuries to the lower chest and gastric area. These injuries were suffered by the deceased when he was struck while riding a tramping motor by the 1214 chute on the 1250 level of McKenzie Red Lake Gold Mines, Limited. Death was due to the negligence of the deceased.

Temiskaming-Inspiration

No. 21

Marcel Sevigny, Canadian, aged 25, married with three dependents was instantly killed in No. 1 shaft of the Fecunis mine of Falconbridge Nickel Mines, Limited, at 11.15 P.M. on April 15, when the hoist on the Cryderman mucking machine, which he was operating, broke and allowed the machine to fall 32 feet to the bottom of the shaft.

Temiskaming-Inspiration, contractors, are sinking the Fecunis Lake No. 1 shaft for Falconbridge Nickel Mines, Limited, and the depth at the time of the accident was 3,617 feet. Owing to rock bursting of the shaft walls the change had been made from a Riddell to a Cryderman mucker to allow the timber to be put closer to the bottom, and at the time of the accident the timber was 22 feet from the bottom.

The Cryderman mucker cage had been built up to fit the guides, and a used 7½-horsepower tugger air hoist had been overhauled and mounted on the mucker. The mucker was installed in the shaft cage compartment, suspended on the rope of the tugger hoist. Two 10-inch sheaves were attached to the top of the cage, and two 10-inch sheaves to an 8-inch H beam which was set across the 14th set of timber up from the bottom set. The dead end of the 5⁄8-inch rope was secured to the H beam and passed through the sheaves to the hoist on the mucker to give a mechanical advantage of 5 to 1. Two ½-inch chains were used to anchor the mucker to the timber and take its weight.

On April 15 the afternoon shaft crew had finished mucking and were preparing to drill. Two men had remained on the bottom, and four men including the shaft leader, H. Foley, had come to the timber and blasting set to get the drilling gear. Marcel Sevigny, the operator of the mucker, had retracted and put the clam leg ready for hoisting, climbed up to the hoist platform immediately above the control platform, taken the anchor chains off the timber and operated the hoist to raise the mucker up. The mucker was hoisted clear of the bottom timber by 10 feet, to where it might normally have been anchored, when it suddenly fell down the 32 feet to the bottom. The force of the impact damaged the yoke and threw Sevigny down on the hoist. Foley immediately sent men up the shaft to get a stretcher and the doctor, then climbed down the cage to Sevigny. He found Sevigny dead and waited for the doctor.

Dr. A. G. Jalkotzy, summoned from Onaping and brought down the shaft, found Sevigny had died instantly from an open fracture of the head.

An inquest was held by Coroner R. M. Mitchell, M.D., at Sudbury on May 30 at 2.30 P.M. The coroner gave his verdict as follows:

Marcel Sevigny found dead on April 15, 1956 in No. 1 shaft of Fecunis Lake Mine of Falconbridge Mining Co. while employed as a shaft man by Temiskaming-Inspiration Co. Deceased died from a crushing fracture of the skull, that death was instantaneous and was the result of the mucking machine which he was operating, falling approximately 35 feet to the bottom of the shaft.

The cause of the accident was a failure of the tigger hoist which was used to raise the mucking machine. It was found that the particular hoist, which was of an old design, was not a safe machine to use for this purpose. Furthermore, even if of a recent design and mechanically perfect, this type of machine does not fulfill the requirements of a hoist for carrying men, and therefore should not be mounted, so that the operator or any other member of the crew is on the machine when it is being moved.

On examination of the hoist it was found that the drum was free to turn because the drive shafts of the motor and the drum had become sufficiently disengaged at the keyed coupling to allow the key to be sheared and to complete the disengagement. The moment the drum was free from the motor, the weight of the mucker falling downward completely unrolled the rope off the drums.

Following the accident Temiskaming-Inspiration mounted another hoist in the timber above the mucker with the similar advantage of the sheaves. The company has issued instructions that no one is to ride on the mucker during hoisting or lowering of the mucking machine, and that no man is to be at the bottom of the shaft at this time.

As a result of this accident a charge was laid against the contractor.

On Surface at Mines (Group 2)

Fisher Construction Company, Limited

No. 22

Frank Salminen, Finnish, aged 50, married, with two grown children, was fatally injured at 2.30 P.M. on January 19, when he was struck and run over by a truck at the open pit at the Murray mine of the International Nickel Company of Canada, Limited. He had been an employee of the Fisher Construction Company, Limited, as a driller since July, 1955.

Through a contract with International Nickel Company of Canada, Limited, the Fisher Construction Company, Limited, are removing, by open-pit means, a surface pillar of ore above the old workings east of No. 1 shaft. The ore was drilled by long-hole drills and blasted to a depth of 40 feet, which is the elevation of the 1st level of No. 1 shaft. As an approach to the pit floor, a 10-degree inclined ramp, 320 feet long, was cut on the west side. The roadbed is 18 feet wide allowing room for two trucks to pass, although it is customary for only one truck to be on the ramp at a time. At the top and to the right is a turning area in which empty trucks turn in order to back down the ramp in preparation for loading. The road was a hard smooth-packed ice and snow surface covered with fine gravel for better traction.

The trucks are owned and operated by H. Jenks, subcontractor. The truck involved in the accident, driven by Leo Richer, was a 1955, 5-ton, dual rear-wheel Ford. It was in good condition with the brakes in good working order. The top of the box is 6 feet 7 inches from the ground, and the bottom of the platform at the rear is 3 feet 9 inches from the ground. The truck is 22 feet 8 inches in length and 8 feet in width.

As Richer entered the turning area after returning from Frood mine at about 2.30 P.M., he saw no one on the incline. He started to back down the ramp with the truck in gear, standing with one foot on the running board and the other on the brake while watching the rear on the left hand side of the truck. When he had travelled about half-way down the ramp he felt a bump from the right front wheel and looking over the hood saw F. Salminen lying on the roadway.

At the same time G. Potvin, another driver, was sitting in the cab of his truck at the bottom of the pit with the foreman, W. Lambert. Potvin saw

Salminen walking down the centre of the road with Richer's truck approaching from the rear. He did not have time to give any warning before Salminen was struck, but immediately went up the ramp with Lambert to give assistance.

Salminen was placed on a stretcher and taken to the supply shack at the top of the ramp; he was still living. A few minutes later he was taken to St. Joseph's Hospital by ambulance where he was pronounced dead by Dr. J. D. McInnes.

An autopsy was performed the following morning and it was found he had suffered abrasions to the right forehead and left side of the face and a broken spine at about the small of the back, resulting in a torn aorta artery. Cause of death was due to the severe hemorrhaging and shock.

At the time of the accident, Salminen was wearing heavy winter clothing and a fur hat with flaps covering his ears. There is also some evidence that he was slightly hard of hearing.

An inquest was held by Coroner Gilles Desmarais, M.D., in Sudbury on February 1. His verdict was as follows:

Frank Salminen, aged 50, driller for Fisher Construction Company, Sub-Contractor for International Nickel Company of Canada, Limited, at No. 1 Shaft, Murray mine, died January 19th, 1956 at 2.30 P.M., from crushing injuries received by backing ore truck on inclined ramp to open pit.

From evidence of witnesses, I found his death accidental with no blame attached to anyone.

Nickel Rim Mines, Limited

No. 23

Eugene Lanteigne, Canadian, aged 23, crusherman's helper, married, no dependents, was killed in the crusher-house of the Nickel Rim Mines, Limited at about 6.30 A.M. on October 6.

Eugene Lanteigne had been previously employed by the company and was again hired on August 30 as a crusherman's helper. His duties were to watch that the screens and conveyer belts were working properly, to clean up any spilt muck, and to generally help the crusherman. He had worked one month at the job and on the last few days with Alec Kennedy, crusherman.

The crusher-house is a simple operation of crusher, screens, and conveyer belts. There are three floors from which to maintain the equipment. The first floor is at the crusher level, and the third floor is at the screen level. Two screens are mounted in parallel about 4 feet apart, and the crushed rock is fed to each by a 24-inch conveyer belt. The crushed rock drops off the 36-inch diameter head pulley down through a steel chute on to the screen. The sides of the chute extend up to the pulley shaft and are about 8-inches away from the ends of the pulley.

Kennedy and Lanteigne came on shift at 12.00 midnight and took over from the afternoon shift. Kennedy started the crusher plant and remained at the crusher at the first floor while Lanteigne went up to the third floor to watch the conveyers and screens. There was no stoppage in the operation, and Kennedy did not see Lanteigne until about 5.15 A.M. at which time Lanteigne reported that all the machinery was in proper working order.

At 5.50 A.M. Charles Verity, the assistant assayer, came up to the third floor and picked up the rock samples as was his custom. He spoke no more than a few words of greeting with Lanteigne but went about his duties of riffing the samples and then took them back to the assay office.

At 6.45 A.M. Kennedy closed down the crusher as the mill bin was full. He realized that he had not seen Lanteigne for some time but could not find him in the crusher-house. He inquired from Verity and the mill shift boss, Eric Beaton. Beaton and Kennedy returned to the crusher-house and made a more

thorough search for Lanteigne. The body of Lanteigne was found by Kennedy, lodged between the right-hand side of the left pulley, between the pulley and the side of the chute. His body hung downward into the chute. Lanteigne appeared to be dead. The manager of the mine was immediately notified and a doctor summoned to the mine. Dr. Henderson examined Lanteigne and pronounced him dead.

Lanteigne died of crushing injuries to the chest. His clothes were not torn, but there were friction burns on them. No reason was found for his falling into the chute. However, it had been the practice of crushermen and their helpers to use belt dressing on the conveyer belt near the head pulley or, if the belt had stopped, on the head pulley itself. A stick of belt dressing was found on the second floor below. The third floor did not extend as far as the head pulley, and for a man to apply belt dressing he would have to balance himself on some of the structural framework and reach in under the belt. It is possible that Lanteigne was about to do this and fell forward on to the head pulley and was dragged in between the pulley and the side of the chute.

An inquest was held before Coroner G. R. Jones, M.D., on December 5, in the Sudbury Court House. The Coroner gave his verdict as follows:

Eugene Lanteigne died on October 6th, 1956 in plant the Nickel Rim Mines, due to a crushing injury to chest. Safety Equipment around belts and crusher seemed crude and ineffective but the actual manner of receiving the injury was unexplained.

Steep Rock Iron Mines, Limited

No. 24

Paul Gerard Landry, Canadian, aged 36, married, with four children, employed as a bulldozer operator by Steep Rock Iron Mines, Limited, was instantly killed at 11.42 P.M. on February 28 when hit by a piece of flying rock from a blast in the pit of the Hogarth or A orebody.

Landry was first employed by Steep Rock Iron Mines, Limited, on August 26, 1949, and had been a bulldozer operator for 45 months.

The Hogarth orebody is located at the north end of the middle arm of Steep Rock Lake and is divided into three zones with the third zone, where the blast took place, being south and west of the other two. Access to the pit is by the main haulage road, which runs southwest along the hanging-wall or east side of the pit. A second road intersects the main haulage road at a point about 700 feet southeast of the scene of the blast. The intersection of the two roads is used as a parking place for heavy equipment at the shift changes.

At 10.10 P.M. on February 28, E. G. Newman, shift foreman, told L. S. Rostie who was in charge of the blast to detonate the blast at 11.30 P.M., shortly before the end of the shift. The blast consisted of 46 holes, each about 30 feet deep and 7 inches in diameter, and three missed holes. The holes were loaded with 6-inch diameter cans of nitro with two 5-inch diameter nitro primers in each hole. Wire-bound prima cord was used in the holes and reinforced prima cord from the tops of the holes to the place where the blast was to be initiated. The blast was planned to break 15,000 yards of ore with a powder factor of 0.92 pounds per yard being used.

Some 60 men were working in the pit area, and L. S. Rostie appointed guards to warn the men of the blast. Drilling was completed at about 10.15 P.M., and drills and other equipment were removed to a safe distance from the blast. Paul Gerard Landry and L. S. Chumway were operating TD24 bulldozers in the pit area. Their work was chiefly cleaning up the area around the shovels, and they moved around the pit area as required during the shift. Roy Greig, assistant

truck foreman, saw Landry at 10.15 P.M., and warned him of the blast. L. S. Rostie saw Chumway at 11.00 P.M., warned him of the blast, and told him to take cover under his bulldozer during the blast.

At 11.30 P.M. Chumway drove his bulldozer to the parking place at the road intersection and found Landry already parked there and seated on his bulldozer. Landry remarked that there was to be a blast, and Chumway suggested that they should take cover.

Rostie made a final check of the pit area and passed the parking place at 11.35 P.M. but did not see the two men. He then went to the blasting shelter and blew the initial warning signal, consisting of five short whistles. After the minimum 5 minutes delay he sounded the final warning signal, three long whistles, and the blast was detonated immediately after at 11.42 P.M.

When the final warning sounded, Chumway jumped off his bulldozer and took cover under it. After the blast he found Landry lying across the seat of his bulldozer. He had been hit on the left breast and shoulder by a piece of flying rock weighing 7 pounds. Dr. G. W. Kristjanson was called to the scene of the accident, arriving there at about 12.00 midnight. He stated that death had been instantaneous and due to a rupture of the heart and of the vessels leading to it.

The piece of rock had travelled a minimum of 700 feet in the air. It is thought that frost condition in the ground was partly responsible for the rock travelling as far as it did. Had Landry taken cover under his bulldozer, as is customary, he would have been safe. Chumway stated that he had heard the warning whistles clearly, and Landry's hearing was said to be good.

An inquest was held in the Atikokan Police Court at 1.30 P.M., on March 2 before F. C. Cornell, Magistrate, and Crown Attorney A. D. McLennan. The verdict of the jury was as follows:

We, the jury, have decided that Paul Gerard Landry, the deceased person, came to his death at about 11.42 o'clock in the afternoon on the 28th day of February, 1956, at Atikokan and that the death was caused by flying rock, caused by blasting, which struck the deceased on the left breast causing fatal internal injuries. Death accidental. We feel there was no negligence on the part of Steep Rock Iron Mines or employees.

Metallurgical Works (Group 3)

International Nickel Company of Canada, Limited

No. 25

Ludwig J. Ryski, Canadian, aged 35, married, with no dependents, and Grant Cranston, Canadian, aged 41, married, with one dependent, were fatally burned by a flash fire in the nickel roaster and reverberatory building of the Copper Cliff smelter about 1.15 P.M., August 6.

Both men were employed by the International Nickel Company of Canada, Limited. Ludwig Ryski had been employed since May, 1944, and had been the general foreman for the nickel roaster and reverberatory building for 2½ years. Grant Cranston had been employed since May, 1937, and was employed as a relieving coal-plant operator at the time of the accident.

The nickel roaster and reverberatory building is a high structure of steel which supports the hearth roasters, the flue dust bins, and the coal bins over the top of the reverberatory furnace. The equipment is serviced and maintained from floors alphabetically lettered from B at the bottom to M at the top. B is the tapping floor of the furnace. C floor is at the roof of the furnace. Sub D floor services the screw conveyer at the bottom of the coal bins. F floor services the top of the coal bins and the mechanism of the hearth roasters. G, H, I, and J. floors are service floors for the vertical hearth roasters. An office is located on

B floor and I floor. No. 3 reverberatory furnace is one of a line of seven furnaces; it is heated by pulverized coal drawn continuously from four drawpoints at the bottom of the 75-ton coal bin and blown in through four burners at the rate of 185 tons per day.

The pulverized coal is delivered to the bins from a pulverizing plant about 300 yards from the reverberatory building by compressed air at 65 pounds in an almost dry state. A slight draft is maintained on the bin by an air blower to the furnace. Routine measurements are made to check the amount of coal in the bins twice a shift, and deliveries are ordered from the coal plant as needed.

Grant Cranston, the coal-plant operator, and Marcel Fauvelle, a labourer, on a routine measurement walked along F floor and measured all the bins from No. 1 to No. 7 by lowering a flame-proof lamp down an inspection hole in the top of the bins. They had completed No. 7 when Cranston mentioned to Fauvelle that he would report a smell of smoke at No. 3 bin to the general foreman in the office on B floor. Smouldering coal is not unusual, and it is easily controlled by the addition of more coal. Fauvelle accompanied Cranston to the office where Cranston reported to Ludwig Ryski, the general foreman. Grant Cranston telephoned an order for Ryski to the coal plant to send over five lots of coal to No. 3 bin to smother the smoking coal in the bin.

It is known that, after phoning, Cranston and Ryski went up to F floor at the top of No. 3 bin, since their flashlight and burned pieces of clothing were found there, but it is unknown why, since the usual routine is to wait until the five lots of coal have been delivered to the bin before checking the bin. It is possible they hoped to see into the bin before the first 6-ton lot of coal was delivered. Whatever the reason, the two men were caught in a flash fire. Only one lot of coal was delivered, because Herb Eastwood, a shift boss who had learned of the explosion, phoned the coal plant and ordered further lots of coal sent to another bin.

Three explosions took place at the bin. Frank Perrin, a bricklayer, who was repairing the top of No. 3 furnace roof at D-floor level heard an explosion and saw fire at the bottom of the bin. The upper part of the bin was blocked from his view by a wall. He ran down off the furnace by the stairway but returned back again to warn other workmen in the vicinity, at which time he saw Cranston with his clothing on fire, crawling along the D-floor aisle. He went to Cranston's aid, although two further explosions occurred, and beat out the flames on his clothing with his hands. He cried out for help while doing so. Cranston was subsequently taken by stretcher to the B-floor office and thence to Copper Cliff Hospital. It appears from the trail of burned tatters of clothing that Cranston dropped from the top of the bin a distance of 23 feet to sub D floor and then down 14 feet to C floor in his attempt to get away.

It is apparent from a trail left by Ryski that he ran about on F floor until he reached the stairway at the east end of the bank of furnaces past No. 7 furnace. His cries were heard by Bob McCandless, a mechanic from the elevator, who came and began to pull the burning clothing from Ryski. McCandless was joined by Basil Jennings and Evans from H floor who came right away upon hearing cries from F floor. The three men followed Ryski up three flights of stairs to I floor, tearing away the burning clothing. They got a stretcher from the I-floor office and moved Ryski by elevator to B floor and thence by truck to Copper Cliff Hospital.

Both men died from shock due to the severe burning, Grant Cranston at 5.30 P.M. and Ludwig Ryski at 9.00 P.M.

The smouldering coal in No. 3 bin was put out by water, and the coal removed from the bin.

Both the inspection-hole cover set in the manhole cover and the manhole cover itself were found at the side of the manhole still attached by their chains.

As yet there is no explanation for the explosion nor for the ignition of a possible coal dust explosion. Ludwig Ryski is reported to have put out a cigarette before going to F floor and Cranston to have not been smoking. The explosion only took place outside the bin as a flash fire. Although both men spoke after the accident, and Cranston said they were looking for the fire in the bin, they gave no reason for the explosion.

Following the accident the methods in use for delivering coal to the bin, for inspection of the bin, and for smothering of bin fires were compared with internationally accepted practices. No hazard could be found in the methods after this study. The maximum explosion concentration of the coal of 12 ounces of coal to one cubic foot of air had been determined in 1954, and the proportion of coal in the coal-air mixture had been set at 38 ounces per cubic foot of air.

An inquest was held by Coroner G. Desmarais, M.D., in Copper Cliff Police Station on the afternoon of September 19 on the death of the two men. The Coroner gave his verdict only on Ludwig Ryski as follows:

Ludwig J. Ryski, age 35, 26 Nickel St., Copper Cliff, general foreman in Reverberatory plant of Inco Smelter, died on August 6th, 5.30 P.M. 1956 from extreme shock and 3rd degree burns covering 90 percent of his body surface by flash fire in No. 3 coal bin caused by an explosion of pulverized coal.

The inspection door of No. 3 coal bin was found open after the accident.

From evidence of all witnesses, I found his death accidental with no blame attached to any employee or employer.

International Nickel Company of Canada, Limited

No. 26

William Muraska, Canadian, aged 31, married, with four children, was instantly killed when crushed between the cable drum and drive shaft of the auxiliary hoist on No. 1 crane at the Coniston Smelter at 6.30 A.M. on December 20. Muraska was the assistant electrical foreman at the Coniston smelter of the International Nickel Company of Canada, Limited, and had been employed since 1941.

In the converter aisle of the smelter there are two 50-ton travelling cranes that handle material at the furnaces. Each crane has two main hoists of 100 horsepower each and an auxiliary hoist with a 45-horsepower motor. The No. 1 crane operates in the north end of the converter aisle on track extending the length of the aisle about 40 feet above floor elevation. The secondary carriage containing the hoist equipment moves on track in an east-west direction. The auxiliary hoist is located between the two main hoists. Between the westerly main hoist drum and the 24-inch auxiliary hoist drum is a 5-inch drive shaft connected by a gear box at one end to the drum and at the other end to the auxiliary hoist motor. Also between the drums is the hoist motor brake and limit switches.

At 2.00 A.M. a defect in the controls of No. 1 crane was reported. The crane was moved to the north end of the building to the No. 1 crane-repair bay. From that time until 6.00 A.M. two men, T. B. Conlon, 1st class electrician, and R. Squires, 2nd class electrician, worked on the crane in an attempt to find the trouble. At 6.00 A.M. Muraska, who had been called out, arrived to supervise the work. At this time, Squires and Conlon had centred the work about the limit switch of the auxiliary hoist. At about 6.30 A.M. Muraska, who was standing between the main hoist drum and auxiliary hoist drum with his back to the auxiliary hoist brake, instructed Squires to trip the limit switch. When he did so, the power, which had been intentionally left on in order that they might locate the

defect, released the auxiliary hoist brake, and the drum and drive shaft began to revolve in opposite directions towards the centre. Muraska appeared to fall to the left and was caught in the $5\frac{1}{4}$ -inch space between the drum and drive shaft. Neither Conlon nor Squires who were grouped about the limit switch had time to help Muraska; he passed through the opening and fell about 46 feet to the floor below.

Dr. W. Kober was called immediately, and when he arrived stated that death had been instantaneous and was due to a fractured skull. A post-mortem later performed by Dr. A. Lee indicated that Muraska had suffered broken ribs on the right side, which penetrated the lung, and a compound fracture of the skull with laceration to the brain. It was also disclosed that Muraska had a coronary attack at the time of the accident, but death was due to the multiple fractures received from the crushing between the drum and drive shaft.

An inquest was held in Coniston by Dr. R. M. Mitchell, Coroner, on January 10, 1957. His verdict was as follows:

I find that William Muraska died as the result of injuries which he received when he fell between the drum and the drive shaft of a hoist which he was repairing in the Coniston Smelter of International Nickel Company.

That death was instantaneous as the result of crushing of the skull and occurred about 6.15 A.M. December 20th 1956.

Evidence disclosed that the patient suffered a heart attack which however was not sufficient to cause death.

I find therefore, that the death was accidental with no blame attached to anyone.

Quarries (Group 4)

Chemical Lime, Limited

No. 27

William Idsinga, Dutch, aged 20, single, was instantly killed when the loaded Euclid truck he was driving ran off the Dyke road and upset in the Thames River at about 3.50 P.M. on December 18. Idsinga had arrived in Canada from Holland about 3 years ago and had had about 4 years of driving experience. He was employed by Chemical Lime, Limited, on December 5, 1956, as a Euclid truck driver and labourer.

Chemical Lime, Limited, operates a large quarry east of Ingersoll to produce various sizes of crushed limestone. A part of the stone is used in the manufacture of lime. The company has seven Euclid trucks, model 80FD, 15-ton capacity. Four trucks were used to haul stone from the quarry to the crushing plant, and three for the removal of overburden, south of the quarry face in the vicinity of the Dyke road. The Euclid that Idsinga was driving, serial No. 80FD11227, was purchased in 1950 and used on the removal of overburden. It had been completely serviced on Monday, the day before the accident. The loaded truck weighed about 30 tons and in fifth or high gear was governed to go 28 miles per hour.

The overburden consisted chiefly of clay and stone. It was trucked from the quarry about 1 mile west along the Dyke road, just north of the Thames River, and dumped for fill in a low area near the William Stone Company, Limited, plant at Ingersoll. Idsinga was making the last trip to the dump for the day. With the truck loaded he proceeded upgrade to the level of the Dyke road. The weather was clear and cold with good visibility. The Dyke road was straight, with a dry gravel surface in good repair. The road is about 27 feet wide with no shoulder to the south or river side. The roughest stretch in the road was the comparatively short section from the quarry to the level of the Dyke road. Idsinga was about half way to the dump at which point there was about 2-percent downgrade in the

straight road. The vehicle veered to the south at about a 30-degree angle to the road, went down the 25-foot river embankment, rolled over, and came to rest in an upright position about 11 feet from the north bank of the Thames River. Idsinga's body was found on the north bank with head and shoulders submerged facing in a southwesterly direction. The body was at a point 12 feet north and 3½ feet west of the right front wheel. The body was pinned down by two large rocks each weighing over 200 pounds.

The accident was seen by Richard Whitwall who was about 800 feet west on the Dyke road and D. G. Lebert who was travelling east on No. 2 highway. Help was summoned, with Whitwall and Superintendent J. Robbins removing the stones from the body and carrying it up the bank. Coroner K. B. MacKenzie, M.D., pronounced Idsinga dead. A post-mortem examination conducted by Dr. G. H. Emery of Ingersoll revealed that Idsinga had suffered a fractured upper and lower right leg, fractured back, pelvis, lower jaw, mangled and fractured left wrist and hand, possible concussion, and internal bleeding in body and head.

The Euclid truck was later removed from the river with difficulty because of the steep embankment. The accident had caused damage to the left side of the cab and door to the amount of about \$250. It was noted that the truck was in fifth or high gear, and the emergency brakes were full on. The steering arm connected through the power-steering link to the left front wheel was separated at a weld in the steering arm. The plausible explanation is that Idsinga when proceeding downgrade realized that he had steering trouble and applied all the brakes. Due to the weight of the truck and load it skidded to the left and proceeded down the river embankment with the driver's side of the cab downgrade. When Idsinga tried to get out, the truck rolled over crushing him. The accident was investigated by Constable William Anglin, No. 1303, of the Ontario Provincial Police, Woodstock detachment.

An examination of the failure in the power steering link was made by Terrence G. Bradbury of the Metallurgical Department of the Steel Company of Canada, Limited, at the Hamilton works. A number of polished sections were made and studied under the microscope and a report prepared. In brief, Mr. Bradbury's findings may be listed as follows.

The weld between the tubing and arm of the power steering link was a poorly made weld, which demonstrated progressive failure. The tubing was welded on the circular portion of the arm about ½-inch away from the square shoulder where the weld is normally made. The roughness of the weld did not indicate it to be a factory made weld but rather that it was made by someone in the field. Consideration is being given to improving the design of this power steering link.

An inquest was held before Coroner K. B. MacKenzie, M.D., in the Court House, Woodstock, on March 25, 1957, at 8.00 P.M. The jury returned the following verdict:

We the Jury find that William Idsinga came to his death about four o'clock on December 18th, 1956 in an accident on a private road owned by the Chemical Lime Company near Centreville on the north side of the river. Probably the steering failure caused the truck to veer off and roll into the river and caused a large rock to fall on his head, causing multiple fractures of the skull. And further we recommend that the rest of the Company trucks be thoroughly over-hauled at that particular part of the steering.

Nelson Crushed Stone, Limited

No. 28

Cornelius Boekee, Dutch, aged 32, single, was crushed to death under a Le Roi Tractair about 1.20 P.M. on July 18 at the Mount Nemo Plant of Nelson Crushed Stone, Limited. Boekee was an immigrant to this country from Holland

having been in Canada over 3 years. He had been employed by Nelson Crushed Stone, Limited for over 2 years working both in the old quarry and the newer Mount Nemo Plant. He had a good understanding of the English language and was reported to be a very good and willing workman.

The Nelson Crushed Stone, Limited, plant is in the Mount Nemo area a few miles northwest of Nelson and north of Hamilton. The company is engaged in a large quarry operation with a crushing and screening plant producing various sizes of crushed stone. Ready-mixed concrete and asphalt plants are also located on the property. The quarry face is advancing in an easterly direction with the height of face varying between 45 and 60 feet; the higher face is at the south end of the quarry where the surface rock rises gradually. A Joy heavy-duty Champion drill is used to drill 6-inch diameter holes for charging with explosives. This machine drills dry and is equipped with a compressor for blowing air down the hole to blow the drill cuttings out. The drill was advancing in a southerly direction drilling a line of holes about 18 feet east of the quarry face and spaced about 15 feet apart, spacing variations depending on the rock formation. There was a fairly level roadway running in a north-south direction over the stripped rock just east of the line of drill holes.

Cornelius Boekee was employed as helper to the drill crew foreman, George Gilbertson. His duties consisted of hauling the explosives from the magazine to the holes to be loaded and assisting with the loading as well as other general work. Prior to the use of a drop ball for breaking the large pieces of rock on the quarry floor, he had used the Le Roi Tractair for block-holing. The machine weighs 3,400 pounds and can be used as a tractor as well as a mobile compressor. The engine is equipped with governors and can only reach a maximum speed of about 15 miles per hour. The rear two wheels are equipped with 9- by 24-inch rubber tires, and front wheels with 6- by 16-inch tires. A metal guard encloses the rear wheels extending well down at the rear. A metal seat is fastened to a platform at the rear, which is 28 by 19 inches. When the machine is on level ground there is only a 10-inch clearance from the underside of this platform to the ground. When using the tractor for transporting explosives a rubber tired wagon is used. The wagon is equipped with a wooden box 11½ feet long, 40 inches wide, and 12 inches deep. When coupled to the tractor there is about 45 inches between the front end of the wagon box and the rear end of the tractor platform.

On the day of the accident Boekee had transported the explosives and the loading of the first two drilled holes had been completed. He was returning from the magazine with about a ¾-ton load of explosives consisting of 60 cans of nitron and 4 cases of dynamite in the wagon box. He was proceeding along the road in a southerly direction and had passed the two loaded holes. When the rear wheels of the tractor were opposite the third hole to be loaded, they apparently lost traction in the fine rock cuttings from the hole that were lying on the roadway. There were no eye witnesses to the accident, and what really happened is not known. The shovel operator, John Jorgenson, on the quarry floor, saw Boekee get off the tractor seat. The tractor was not moving, but the wheels were slowly spinning in reverse. He bent down as if to pick up something. Since the tractor had been stuck on previous occasions he resumed the loading of trucks unaware that anything had happened until he was summoned to help. The Joy drill was operating on the second hole to the south, a distance of 30 feet from the tractor. John Goodale was operating the drill, and George Gilbertson was measuring holes in, at the front of the drill; he saw Boekee come up and stop. When he looked again within a couple of minutes he saw the tractor was not moving, but the wheels were turning in reverse with no one in sight. He rushed down, shut off the engine, and saw that Boekee was pinned underneath. Help was immediately

summoned, and after uncoupling the wagon five men turned the tractor on its side.

Dr. Russel Dingle of Burlington was summoned and on arrival pronounced Boekee dead. The body was lying parallel to the length of the tractor close to the right rear wheel. The feet were pointed forward with the right side on the ground, the low rear platform of the tractor resting on the left side and shoulder. The revolving wheel had removed skin and flesh from the left arm. If Boekee had shouted for help it would not have been heard above the noise made by the drill in operation.

An autopsy was performed by Dr. W. J. Deadman on July 19. His findings were that there was a scraped right cheek, the left arm was scraped to the bone, and there were brush burns on right flank and abdomen. Death was attributed to a crushed chest with contusion of the heart and lungs. Boekee had been working stripped to the waist. The left leg of the denim trousers he was wearing had a clean tear extending crosswise about 4 inches in length. Whether he was drawn under the tractor by the spinning wheel, or the tractor had backed up and pinned him could not be determined. The accident was investigated by Sergeant William Turner of the Nelson Township police.

An inquest was held in the Nelson Township offices at 8.00 P.M. on October 15, before Coroner L. L. Dingle, M.D. The jury's verdict was as follows:

That Cornelius Boekee did accidentally meet his death through an error in his judgment while attempting to free the tractor which he was operating at Nelson Quarry on July 18th, 1956.

Nelson Crushed Stone, Limited

No. 29

Leroy Smoke, Canadian, aged 20, married, with one child, was killed instantly when the tractor-trailer he was driving upset at about 12.05 P.M. on December 12. He was employed by Nelson Crushed Stone, Limited, on October 31, 1956. Previous to this he had worked for the King Paving Company, Limited, Oakville, driving tractor-trailers. The tractor-trailer he was driving was one of two purchased by Nelson Crushed Stone, Limited, from King Paving Company, Limited. Smoke was reported to be a good, safe driver and had had no previous accidents.

A crew under Kenneth M. Kellins, foreman, was engaged in removing overburden, which consisted of heavy clay mixed with variable amounts of stone, from an area north of the present quarry face. On loading, the overburden was trucked about 2,000 feet in a southwesterly direction and dumped on a large hill or pile of stripped material. Two large DS caterpillar tractors equipped with blades and a power grader were used to maintain the roads and dumping pile in good condition. In addition to the caterpillar tractors and grader, on the day of the accident a 2½-yard shovel was used to load the overburden to the trucks and trailers. Four Euclid self-loading scrapers, two bottom-dump Euclids, and four trucks were used to transport the overburden. The two bottom-dump Euclids were loaded by the shovel, and when dumping, the material is discharged through doors in the bottom of the trailer. Leroy Smoke was driving a bottom-dump Euclid.

This type of Euclid consists of a tractor with four rubber-tired wheels, the larger being at the rear. The tractor, Model No. 6094, unit No. 6A3968, is equipped with a General Motors diesel engine of No. 671 type. The trailer has two large rubber-tired wheels and is coupled to the tractor. The trailer, serial No. 58W-5725, has a capacity of 13 yards or about 18 tons. The tractor and trailer empty, weigh about 12 tons; the total weight loaded is about 30 tons. The drivers were instructed to drive at 10 m.p.h. empty and 4 m.p.h. when loaded.

Smoke was proceeding with a load to the extreme west end of the dumping pile where he had to proceed part way down the slope to facilitate dumping the

load. The path taken by the deceased along the pile was at the south edge of a deep gully which was to be filled. The earth at this point, contained several large boulders and was quite wet and soft from recent rains. The dumping pile was about 175 feet wide, and drivers were instructed to drive down the road located near the centre of the pile. When Smoke realized he was too close to the south edge of the pile he turned the tractor to the right. This caused the left rear wheel of the trailer to slide over the south edge of the pile, and the trailer dragged the tractor with it. The tractor came to rest on its wheels at the bottom of the gully, and the trailer, still attached, came to rest on its right side. Smoke was thrown from the tractor to the south and part way down the gully slope. The tractor rolled completely over his body causing injuries that resulted in instantaneous death.

The accident was witnessed by foreman, Kenneth Kellins, and a bulldozer operator, Murray Joyce, who were some 800 feet north of the scene. Both men arrived at the tractor in the gully about two minutes after the accident. They found Smoke lying on his back with his head among some large rocks, about 8 inches north of the rear tractor wheels with his feet and legs pointing uphill due north of the tractor. The deceased was bleeding profusely from mouth and nose. There was no pulse, and the eyes were open. Help arrived in a few minutes, and the body was carried on a tarpaulin about 800 feet for loading into an ambulance. Dr. J. Quarry of Burlington arrived and pronounced Smoke dead. Dr. Russell J. Dingle, Coroner for Halton county, was notified and on arrival released the body to Smiths Funeral Home, Burlington. The accident was investigated by Constable W. Turner of the Nelson Township police.

An inquest was held in the Nelson Township offices on February 4, 1957, at 8.00 P.M. before Coroner Russell J. Dingle, M.D., The jury returned the following verdict:

We find that LeRoy Smoke came to his death at 12.30 in the afternoon of December 12, 1956 at Nelson Quarry and that the death was caused by injuries received in an accident caused by misjudgment by the victim of the distance of his vehicle from the edge of the slope on which he was driving.

Clay, Shale, Sand, and Gravel Pits (Group 5)

Clarkson Sand and Gravel, Limited

No. 30

Clairece Gaudet, Canadian, aged 18, single, died at 12.25 P.M. on November 3 from injuries he received at about 10.30 A.M., when the truck he was driving upset over the pit face, crushing him, at the property of Clarkson Sand and Gravel, Limited. He had been employed by Clarkson Sand and Gravel, Limited, for a period of about three months. His duties consisted of helping around the crushing plant and trucking the processed material from the plant bins to their respective stockpiles.

The Clarkson Sand and Gravel operation is located on part of lot 14, range 3, of Toronto township about $\frac{1}{2}$ mile north of the Queen Elizabeth highway on the Hammond road. A $\frac{3}{4}$ -yard diesel-powered shovel is used to load the material at the pit face into trucks, which are driven to the plant; the load is then dumped into the plant hopper. The hopper is equipped with a grizzly, which retains the larger material for hand breaking. An inclined conveyer transports the material to a vibrating screen, the oversize going to a jaw crusher. After crushing, it is returned by bucket elevator to a trommel screen where the various sizes are discharged to separate bins. The normal products from the plant are block and high-way sand, $\frac{5}{8}$ -inch, $\frac{3}{4}$ -inch, and 2-inch stone.

Fowler Construction Company are crushing and screening gravel at the pit, which is located in the north half of lot 19, concession III, Widdifield township, under contract to J. M. Wright Concrete Products, Limited, of North Bay.

To open up a new section south of the main pit, the frozen material was being stripped back by a bulldozer. The vertical face was about 50 feet long by 8 feet high with the gravel frozen to a depth of 3-4 feet. To break down the frozen gravel the bulldozer undercut the bank about 18 or 20 inches with the corner of the blade, then knocked down the overhang with the bulldozer. This method apparently worked well, and with the exception of a sand blast on one large chunk which had already fallen, no blasting was required during the day.

Shortly before 4.00 p.m., Lloyd Loucks, the bulldozer operator, had difficulty in getting one section down after repeated banging with the bulldozer blade. He called for help to McQuillan who was also in charge of blasting. McQuillan directed Loucks to dig a 6-inch hole in the soft material below the frost line. While Loucks was moving the bulldozer back out of the way, McQuillan placed a 10-stick charge in the hole, leaving a 3-foot length of fuse projecting from the hole. McQuillan then told Loucks to go to the other section of the pit, warn the men of the blast, and to take cover.

Loucks did not see McQuillan come from behind the bank but thought perhaps he had gone to guard in another direction. After the shot had not gone off, in about 15 minutes, Loucks went around under cover to a point where he could see the face of the bank. He saw McQuillan lying beside a large chunk of material with his head partly buried under one corner of it. Loucks called to William Jackson, another foreman, and two other workmen for help in lifting the chunk off McQuillan.

The charge had not been lit, although it seems probable that McQuillan was bent down on one knee in the act of lighting the fuse when the piece of frozen gravel gave away. From the evidence it would seem that his head had been crushed between the chunk and his left thigh. Dr. F. J. Lindsdell was called to the scene and upon examination pronounced the man dead. He suffered a fracture of the skull through the middle cranial fossa, and death was instantaneous.

The accident was also investigated by Provincial Police Constable A. Pike accompanied by Dr. E. J. Brennan, coroner. The piece of frozen material was about 8 feet long by 4 feet wide by 4 feet deep. It was estimated to weigh about 5 tons.

An inquest was held by Dr. Brennan, coroner, in the Widdifield Township office on April 25. His verdict was as follows:

From the evidence submitted to this court on April 25, 1956, Kenneth David McQuillan died as a result of a fractured skull sustained when crushed underneath an overhanging mass of frozen gravel which fell on him on April 18th, 1956, at four o'clock in the afternoon at J. M. Wright Gravel Pit at Lot 19, Concession 3, Widdifield Township. Death was accidental.

Sunderland Sand and Gravel, Limited

No. 32

Adrian Johannes Hendriks, Canadian, of Dutch descent, aged 20, single, was instantly killed on September 21, at 10.15 A.M. when he was caught between the bucket arm and the body of a front-end loader. Hendriks was employed as a shovel operator in his father's gravel pit, Sunderland Sand and Gravel, Limited, on lot 12, concession IV, Brock township, in the county of Ontario.

A ½-yard, K.12 Insley swing shovel is used in the pit to load trucks that haul to the crusher and wet screen plant that produces aggregate for concrete and gravel for roads. The excess is stockpiled, and a 1-yard Michigan, model 75A, front-end loader is used to load trucks from these stockpiles.

There are 10 men employed who work a 10-hour shift starting at 7.00 A.M. On this particular day Adrian had been doing some odd jobs such as changing oil and greasing trucks. Gary Eades was operating the front-end loader that morning and was about to be relieved by Adrian when the accident happened. Arnold Hendriks, Adrian's father, told Adrian to relieve Eades so that Eades might do some repairs on a truck. At this time a truck operated by Harold Brethour was backing up to the stockpile on the left side of the loader. The bucket was loaded and about two-thirds raised when Eades dismounted from the left side. Adrian, about to mount the loader from the right side, climbed over the front right wheel and under the arm of the bucket. In placing his left foot on the floor of the operator's stand he fouled the control on the hydraulic cylinders that position the bucket. The bucket descended and Adrian was caught between the arm and the body of the loader.

Brethour saw what had happened and shouted a warning. Eades, who was walking away, returned immediately, mounted the loader, and raised the bucket. Both Arnold and Andrew Hendriks, who were only about 100 feet away, heard the warning and rendered assistance. A doctor and ambulance were summoned immediately from Sunderland, which is only $\frac{1}{4}$ mile north of the pit.

Dr. J. Woodman from Sunderland stated that death was instantaneous and was caused by a fractured neck, crushed chest, and other severe internal injuries.

An inquest was held in the Sunderland Township office at 2.30 P.M. on October 11, before Coroner K. G. Jardine, M.D. The verdict of the jury was as follows:

We, the Jury, find the death of Adrian Hendriks to be accidental. We recommend that the bucket of any loader always be left on the ground when there is no operator aboard.

Contract Diamond-Drilling (Group 6)

Cameron Drilling Company, Limited

No. 33

Edmund Malinowski, Canadian, aged 24, single, employed as a diamond-drill helper, was fatally injured at 11.25 A.M., on January 6, when he tried to blow through 100 feet of copper tubing in a coil stove to see if it was blocked. Steam from the coil scalded his mouth and throat, and he died of suffocation in the Beardmore Red Cross Hospital at 6.20 P.M., the same day. He was working on claim T.B.67175 of the New Highridge Mining Company, Limited, 16 miles southwest of Beardmore at the time of the accident. He had been employed by the Cameron Drilling Company, Limited, as a diamond-drill helper since November 26, 1955.

No drilling had been done on the Highridge ground since December 19 when work was suspended. Malinowski and three other men returned to work on January 6 and prepared to resume drilling. The drill was set up on claim T.B. 67794 ready to start a new hole.

The pump-house was on the adjoining claim, T.B.67175, over a spring-fed sump. Water was pumped through 100 feet of copper tubing in the coil stove to raise the temperature of the water sufficiently to prevent freezing in the supply line leading to the diamond-drill. The coil stove was a 45-gallon oil drum with the copper tubing wound helically inside it.

Malinowski and the three other men went to the pump-house to start up the pump. To test the water supply, they disconnected the stove and started the pump. A fire was lit in the stove to warm the pump-house. It was found that there was not enough water in the sump for their purposes, and they decided to

move the pump-house to a new location. The fire was allowed to die out, and the stove was tipped on end to allow it to drain. E. Larogue, runner, decided to look for a new location and before leaving the pump-house warned the other three men not to try to blow through the coil until the stove cooled off. A. Martel, J. Seguin, and Malinowski, tore down the pump-house and prepared to move. At 11.25 A.M., Seguin saw Malinowski put his mouth over the end of the copper tubing and then step back. Steam was seen to come from both ends of the tubing. Malinowski told the others that the steam had burned his mouth and throat. Malinowski was taken by tractor to the Nama Creek office and by car to Dr. W. W. Wallingford's office in Beardmore, arriving there at 1.15 P.M. Dr. Wallingford examined him and sent him to the hospital where he was received at 1.30 P.M., and was given some pills to relieve his condition, and a sedative. At this time Malinowski could still talk without effort, and his condition was not considered serious.

By 3.30 P.M. he was experiencing difficulty in breathing, and Dr. Wallingford performed a tracheotomy and fed oxygen from a bottle, through the tube, to his lungs. This afforded temporary relief, but later the tube filled with mucus from Malinowski's lungs, and Dr. Wallingford was not able to prevent suffocation. Malinowski died at 6.20 P.M., January 6, in the Beardmore Red Cross Hospital.

Dr. Wallingford stated that there was evidence of moisture in the lungs and was of the opinion that the steam had reached the lungs.

Before starting the fire in the stove Larogue had blown down the tube and found that it was blocked, probably with ice. The fire had melted the ice, and it is believed that when Malinowski blew into the coil, he blew water to the still hot portion of the tubing. The water then turned to steam and blew back into his mouth.

An inquest was held in the Beardmore Police station on January 14, before Coroner A. H. Jeffries, M.D. The verdict was as follows:

We the Jury, find Edmund Malinowski was fatally injured at 11.25 A.M., January 6th, 1956, by blowing into a copper coil, the steam exploded into Malinowski's mouth, throat and lungs, severely burning them. Malinowski died of suffocation in the Beardmore Red Cross Hospital at 6.20 P.M., January 6th, 1956.

We the Jury, find the death of Edmund Malinowski accidental.

Canadian Longyear Diamond Drilling Company, Limited

No. 34

Harold King, Canadian, aged 19, married, with one child, was injured in a fall from a diamond-drill tripod on the property of Milliken Lake Uranium Mines, Limited, at 4.00 A.M. on January 28. He had been an employee of Canadian Longyear Diamond Drilling Company, Limited, on various occasions but had only been hired the previous day for this job and was working his first shift.

The diamond-drill location is approximately 2 miles east of Elliot Lake and 30 miles northeast of Blind River. With the deep drilling involved, a large drill is being used with a 48-foot tripod. The scaffold is about 30 feet above the drill shack and constructed of 2-inch planks placed between the tripod legs. An opening, 2 feet square, is left in the centre for removing and piling the diamond-drill rods. Around the outside of the scaffolding, a rope guard is fastened to each of the poles. For protection from the weather, a tarpaulin is hung over the platform. Each crew, consisting of a runner and two helpers, works a 12-hour shift (7.00 A.M.–7.00 P.M.)

At the time of the accident, Jules Latourelle, runner, and Ovide Savarie, helper, were in the shack while Harold King was up on the scaffold unscrewing rods as they were hoisted. Four rods had been hoisted when Latourelle and Savarie heard a crash on the shack roof. Latourelle and Savarie found King

unconscious on the roof. They carried him into the shack where he remained unconscious for about half an hour. Latourelle then checked him for any apparent injuries or broken bones and finding none drove him by car to St. Joseph's Hospital in Blind River. King said afterwards in the hospital that he blacked out while standing on the tripod scaffold and fell backwards on to the shack roof. It would appear probable that in order to land on the roof in the position he was found he must have fallen through the centre opening of the platform.

It has been the practice of the company to provide a safety rope for use on the tripod scaffolds for the large diamond-drills. None of the witnesses, however, recall seeing a safety rope on the tripod, and King was obviously not wearing one at the time.

Dr. J. Pigeon treated King from January 28 to February 5 at the hospital. He diagnosed that King was suffering from contusion of the brain with some intra-cranial pressure. His condition appeared to improve until Sunday, February 5, when he had a convulsion. King was sent to hospital in Sudbury where Dr. I. W. Davidson examined him and recommended removal to the General Hospital in Toronto on February 6. In Toronto he was under the care of Dr. E. H. Botterell, neuro-surgeon, until his death on February 10.

A post-mortem was performed in Toronto by Dr. Chester McLean. In his report read at the inquest in Blind River, he states:

Some hours after the autopsy had been performed and the body released from the city morgue, the following information was volunteered by a resident on the neuro-surgical service of the Toronto General Hospital.

1) The patient had been hospitalized for at least a week in Blind River before being transferred to the Toronto General Hospital.

2) The provisional diagnosis in Blind River and at the Toronto General Hospital had been subarachnoid haemorrhage.

3) Symptoms suggestive of subarachnoid haemorrhage had been present prior to his fall and head injury.

4) A congenital aneurysm was demonstrated on the anterior communicating artery by radiologic angiography at the Toronto General Hospital.

It is difficult to decide which was the more important factor which finally brought about death, diffuse head injury preceded and complicated by a relatively mild subarachnoid haemorrhage, or, subarachnoid haemorrhage complicated by diffuse head injury.

In my opinion, it is probable that this man did suffer from a mild subarachnoid haemorrhage, of spontaneous type. He then suffered a fall and acquired diffuse cerebral injury. Whether or not he could have recovered completely from these, cannot be answered with certainty now, for he no doubt suffered a second haemorrhage about one week after the first. His clinical activity, and the head injury previously suffered are factors which must be considered as probable aggravating factors in the second haemorrhage, and in a similar way, in his terminal haemorrhage.

An inquest was held in Blind River on March 12 before Dr. V. S. Grigg, coroner. The jury returned the following verdict:

We find that Harold King came to his death at 10.55 P.M. on February 10, 1956, at Toronto General Hospital by a haemorrhage due to a fall from a scaffold Jan. 28, 1956 in Township 149 in the District of Algoma.

We, the jury, recommend that the foreman on the job insist that the safety rope be used at all times.

Fitzpatrick Diamond Drilling Company, Limited

No. 35

Daniel Tomiuk, Canadian, aged 19, single, no dependents, employed as diamond-drill helper, was drowned while paddling from an island to the mainland in Chambers Lake. Tomiuk had been hired the morning of the accident.

B. Fitzpatrick, president of Fitzpatrick Diamond Drilling Company, Limited, had a contract to do some diamond-drilling for Canadian Astoria Minerals, Limited, in Chambers township about 10 miles north west of Timagami.

On the morning of July 25, 1956, Fitzpatrick was expecting to meet Tomiuk and a diamond-drill runner at Timagami. Tomiuk arrived in Timagami at about

9.00 A.M., and he and Fitzpatrick spent some time gathering supplies. At about 11.00 A.M. the two men were flown in to Chambers Lake in Chambers township.

The lake is about 3½ miles long from east to west and ½ mile wide. The shore line is irregular having numerous small bays. Fitzpatrick had established a dock on the south shore of one of the small bays on the south side of the lake.

On a small island about 400–500 feet north of this point he had established a cache for food supplies and other equipment.

Tomiuk was landed on the island, and Fitzpatrick returned to Timagami with the pilot to see if the drill runner had shown up. When the runner did not show up, Fitzpatrick returned to Chambers Lake, and this time the pilot landed him at the mainland dock. This was at about 1.40 P.M. The pilot then took off for Timagami with instructions to return at 7.00 P.M. When Fitzpatrick got off at the dock, Tomiuk started to paddle across from the island. When he was within 175 feet of the dock and about 60 feet from the west shore of the bay, Fitzpatrick turned his back to take stock of some of the equipment. After about 3 minutes Fitzpatrick stated that he couldn't hear the sounds of paddling and when he looked out he saw that the canoe was upside down and there was no sign of Tomiuk. Fitzpatrick then paddled out to the spot in another canoe and tried to locate Tomiuk but was unsuccessful.

He had to wait until 7.00 P.M. at which time the plane arrived. He then flew to Timagami and notified Tomiuk's father and the Provincial Police.

At 8.30 A.M. the next morning, Fitzpatrick accompanied the Provincial Police to the location, and they dragged the area for about 1 hour before recovering the body in 20–30 feet of water.

When Fitzpatrick was questioned he stated that Tomiuk was reported to be a good swimmer and paddler. He also stated that at the time of the accident the water was not rough, but that there was a small ripple on the surface.

The canoe in which Tomiuk was paddling was a canvas covered 14-footer in good condition and was not loaded at the time. Tomiuk was not wearing a life preserver. Fitzpatrick was the only person present when the accident happened and could not explain what had caused the canoe to tip as Tomiuk appeared to be all right when last seen.

The body was taken to the Buffam Funeral Parlour in Cobalt. Dr. H. A. Dunning of Cobalt, coroner for that district, examined the body and stated that Daniel Tomiuk had died as a result of drowning. There was no evidence of any other injury. Dr. Dunning decided that an autopsy was not necessary, and no inquest was held.

Joy Manufacturing Company (Canada), Limited

No. 36

Delphis Vaillancourt, Canadian, aged 32, single, with no dependents, died September 10 while en route to St. Joseph's Hospital in Sudbury, as a result of head injuries received the previous evening at 6.30 P.M. when struck by a plank that fell from the scaffold of a diamond-drill tripod.

Vaillancourt who was an experienced diamond-drill runner, was employed by the drilling division of the Joy Manufacturing Company (Canada), Limited. In July a contract drilling job for a 1,500-foot hole was started at Donald Lake. The drill location is on the east shore of the lake in lot 8, concession II, McCarthy township, about 33 miles northeast of Sudbury. The site is inaccessible by road, and men and equipment are taken in by chartered plane.

Since the hole was to be deepened to 2,500 feet, a heavier diamond-drill was brought in, and a new 30-foot tripod had just been erected. The work of setting up the tripod was completed by the four crew members, S. Oleksuik, foreman and

but Handley and M. Gironne could not be found. The three survivors were taken to shore, and a search was conducted for the missing men until it was too dark to carry on longer. The Provincial Police dragged and recovered the two bodies the following morning.

There was no apparent damage to the canoe that might suggest a cause for the capsizing.

At the inquest the company stated that it supplied life jackets for the camps where there is boat travel; however, of twelve life jackets which were thought to be in the general area only four were found, and only one was at this camp. Company officials stated they had issued instructions to each employee, following the accident, to refuse to enter a boat without a life jacket, and any employee found in a boat or raft without a life jacket, where available, would be subject to discharge.

Dr. Pentland's autopsy revealed that death was caused by asphyxia due to drowning.

An inquest was held before Coroner J. Pigeon, M.D., at Blind River on June 8, at 2 P.M. The jury returned the following verdict:

Nelson Handley and Marcel Gironne came to their death in the evening of 29th day of May, 1956, at Lake Lauzon, township of Long, Pronto Bay and that the death was caused by accidental drowning when the boat overturned and they attempted to swim to shore in extremely cold water.

Accidents for which Employment Figures are Unobtainable (Group 7)

E. G. M. Cape and Company

No. 38

Camille D. Rioux, Canadian, aged 17, single, was fatally injured when he was hit on the head by a falling concrete block, which was being hoisted up to the blocklayers on a construction job at the Noranda Mines, Limited, acid plant at Cutler, about 11.15 A.M., October 4. He had been employed by E. G. M. Cape and Company since August 23, 1956, as a mortarman whose duty it was to mix and to bring the mortar to the men who were hoisting the blocks up.

E. G. M. Cape and Company are constructing the sulphur-iron plant for Noranda Mines, Limited, at Cutler. A warehouse and machine shop is being built out of concrete and concrete blocks. A steel scaffold had been built up as the walls advanced.

The concrete blocks at the time of the accident were hoisted up by a rope and hook. A special angle of steel scaffolding held the rope pulley 18 inches away from the main scaffolding so that the concrete blocks would not touch it during hoisting. The right-angled hook was made from a piece of small reinforcing rod with the end turned up at the end to hold the block on the hook.

The hoisting of blocks to the blocklayers had been going on for a month. On the day of the accident about a hundred blocks had been pulled up by Marvin Jacobs and Ronny Owl. Godfrey Owl had been taking the blocks off at the top. Camille Rioux made the mortar in the warehouse and brought it by wheelbarrow outside and around to Marvin Jacobs and Ronny Owl. They would then pail the mortar and send it up to Godfrey Owl.

On this occasion Rioux brought a pail of mortar out and instead of placing it to one side for the two men, he set the pail down right under the rope and pulley. Jacobs was pulling up a block and as it was windy and dusty he did not see that the block would hit the pulley. When the block hit the pulley it came off the hook. G. Owl yelled down to the men to look out. The concrete block fell down about 53 feet and hit Rioux on the head and shoulder.

Jacobs, R. Owl, and two carpenters were carrying the unconscious man when the assistant superintendent, Fred Macdonald, came up and told them to lay

Riou down and got a stretcher to carry him to a waiting car that had been driven up by Mr. C. P. Jones the superintendent for E. G. M. Cape and Company.

Riou was taken to St. Joseph's Hospital at Blind River and was attended by Dr. Mizpah who put him under oxygen and gave him treatment to suck away the mucus from his throat. Riou died at 12.15 P.M. from asphyxia.

Dr. E. Pentland, the provincial pathologist, performed an autopsy and found that skull was fractured, but that death was due to asphyxia caused by blood entering the lungs. The condition was of the kind that is met with in drowning where water enters the lungs. Dr. Pentland advised that care should be taken in the transport of patients to the hospital so as to avoid this condition.

An inquest was held before Coroner J. Pigeon, M.D., at Blind River on November 5. The jury returned the following verdict:

The deceased person came to his death at 12.45 o'clock in the P.M. noon on the 4th day of October 1956 at Blind River, Ontario and that the death was caused by asphyxiation as a result of an injury caused by a falling cement block which struck the deceased on the head causing a fracture of the skull and hemorrhage into the lungs. Recommendation that buckets be used of a proper nature for such work and safety helmets be compulsory at all levels.

After the accident the company began hoisting blocks in a steel box to hold the blocks and a winch to pull on the rope. Hooks were no longer to be used on the job. Safety helmets were procured and issued to the men.

Ernest A. Jones, Limited

No. 39

John C. Boden, Canadian, aged 52, married, died from coronary thrombosis and from drowning when he fell into a full tank (No. 7D5) of water at 7.20 P.M. November 8, in the Nordic mill of Algom Uranium Mines, Limited. He was pronounced dead at 8.30 P.M. John C. Boden was employed by Ernest A. Jones, Limited, as a pipefitter on October 31, 1956, and then promoted to foreman.

On the Nordic mine property of Algom Uranium Mines, Limited, the construction of the concentrator was being completed, and Ernest A. Jones, Limited, was installing the piping. The accident occurred at No. 7D5 tank of the battery of leading tanks. Walkways, 2 feet 6 inches in width, had been installed over the tops of the leaching tanks, but the job had not been completed. The stairways and railings were being installed. The railing of the walkway over No. 7D5 tank was partially completed, but at the scene of the accident only the posts had been erected. The tops of the tanks were being covered with a floor consisting of 2-inch by 12-inch plank joists with a plywood decking. The plywood decking on tank No. 7D5 had been partially completed. The tank was full of water to within 2 feet of the joists.

Boden had no medical record of a weak heart condition, and he was regarded as being healthy. It was known that Boden although quite active, suffered from asthma and was short of breath. He perspired heavily on any manual job. On the afternoon of the day he had visited the first-aid room complaining of gas pains and pain in the chest and requested some soda. He was given some bicarbonate of soda and two aspirins.

Boden was supervising the work in the area of No. 7D5 tank, and just previous to the accident he helped John Love in adjusting a scaffold. He left Love and walked along the walkway across the tank. At about 7.20 P.M. he was seen by other men to slump and fall off the walkway down between the joists into the water.

Rescuers pulled his head up out of the water within a minute and then brought him right out of the water. Algom Nordic mine's first-aid attendants were notified immediately, and artificial respiration was performed until Dr. Ruse

arrived. The doctor pronounced Boden dead at 8.30 P.M. after an unsuccessful attempt to give oxygen, which was hindered by a throat blockage.

Dr. E. Pentland, provincial pathologist, reported that Boden had a coronary occlusion indicating coronary thrombosis, and had water in the lungs indicating drowning. He felt that death was due to drowning, complicated by the coronary thrombosis.

An inquest was held before Coroner J. Pigeon, M.D. at Blind River on December 10, at 2.00 P.M. The jury returned a verdict as follows:

John Cecil Boden the deceased person, came to his death at 7.40 o'clock in the afternoon on the 8th day of November, 1956, at Algom Nordic Mine and that the death was caused by drowning preceded by a severe Coronary Thrombosis.

Ernest A. Jones, Limited

No. 40

Vincent Toner, Canadian, aged 41, married, with two children was found dead 16 hours after he fell 30 feet into an empty tank (No. 7D7) in the Nordic mill of Algom Uranium Mines, Limited. He was last seen alive about 3.45 P.M. Saturday, November 24. He had been employed as a pipefitter since October 24, 1956, by Ernest A. Jones, Limited.

On the Algom Nordic mine property the construction of a concentrator was being completed, and Ernest A. Jones, Limited, was installing the piping. Toner with other men was employed in the area of the battery of leaching tanks within the building installing a steam main. There are 12 tanks, 30 by 30 feet, arranged in four rows of three tanks each. A walkway at the top of the tank permits travel from one to the other.

Toner was seen about 3.45 P.M. by several employees of Ernest A. Jones at No. 7D5 tank looking for 4-inch bolts. He went to a previous job location at No. 7D7 tank apparently in search of bolts. The area about No. 7D7 would be in semi-darkness since the portable lighting had been removed to another job location. The tank was covered with a plywood roof; one opening 4 feet by 6 feet had been left and was guarded by a wooden rail 3 feet 9 inches from the roof. It appears that Toner fell through this opening to the floor of the tank 30 feet below. He was injured, but none of his injuries would have caused immediate death. He was probably unconscious. No one noticed his disappearance sufficiently to search for him until the next morning.

Fellow workmen reported next morning at 7.45 A.M. to F. McMaster (Toner's foreman) that Toner had not returned to the bunk-house on the previous night. McMaster learned that Toner had not checked out with the timekeeper and started a search in the mill. R. Bilodeau found Toner's body at 8.20 A.M. in No. 7D7 leaching tank. Several 4-inch bolts of the kind sought by Toner were seen near his body where it lay under the tank opening in 1 inch of water.

Dr. Ruse from Elliot Lake was summoned; he found that rigor mortis had set in and pronounced Toner dead.

Dr. E. Pentland, provincial pathologist, reported that Toner had a small wound on his scalp and had suffered from severe hemorrhage of the brain and hemorrhage of the abdomen, but that none of these injuries would have caused immediate death; the lack of immediate attention brought about his eventual death from the injuries.

An inquest was held before Coroner J. Pigeon, M.D., in Blind River on the evening of December 15. The jury returned the following verdict:

Vincent Toner the deceased person, came to his death after 3.45 o'clock in the afternoon on the 24th day of November, 1956 at Algom Nordic Mine and that the death was caused by injuries received from a fall and exposure. The cause of the fall is not known and no blame is attached to anyone. No recommendations.

Mallard Ready-Mix, Limited

No. 41

John Golder, Canadian, aged 27, single, with a dependent mother, was instantly killed at 9.30 A.M. on February 20 when a 45-gallon gasoline drum, from which he was removing the top with an acetylene torch, exploded. He was employed by Mallard Ready-Mix, Limited, as a mechanic at their temporary plant at Algom Uranium Mines, Limited, Nordic property and had been with the company for 9 months.

Mallard Ready-Mix set up their temporary plant 800 feet east of the main haulage road and started operations on January 3 to supply concrete to Hill-Clark-Francis, Limited, for the construction of the surface buildings at Algom Nordic. The plant consists of a repair shop, boiler house, bunk-house, gravel hopper, and batcher and gas tanks.

At about 9.30 A.M. Golder, who was in the repair shop alone, apparently lit the acetylene torch in preparation for burning off the top of a 45-gallon drum that had contained gasoline or fuel oil. No order had been given for this job and the superintendent, L. Hummel, could not think of any need for the opened drum.

At the time of the explosion, Hummel and J. E. McEnry, supervisor for Hill-Clark-Francis, Limited, were next door in the office. They immediately rushed to the shop where they found Golder lying on the floor beside the burning drum. The top was completely blown off and bent in an inverted V-shape. The rim of the drum had been thrown about 15 feet and had gouged a piece out of the door of the shop. Golder's eyeshields and hat were found in the northeast corner of the building about 15 feet away.

After a brief examination by the first-aid man at the Hill-Clark-Francis camp Golder was taken to Blind River. Dr. E. S. Pentland, district pathologist, performed a post-mortem and gave the cause of death as extreme laceration of brain tissue in association with multiple fractures of the skull.

Examination of the top of the drum indicated that Golder had just started to apply the torch but had not yet cut through the top. The two bungs in the top were still screwed in place so that there was no means of relieving the pressure building up inside the drum. It is also apparent that the drum had not been cleaned beforehand nor that the accepted safe procedure for welding or cutting drums that have contained flammable liquid was followed.

An inquest was held in Blind River on March 12, before Dr. V. S. Grigg, coroner. The jury returned the following verdict:

We say that John Golder came to his death at 9.30 A.M. on Feb. 20, 1956 at Nordic Lake and that death was caused by a blow on the side of the head inflicted accidentally while operating an acetylene torch in the vicinity of a barrel said to have contained gasoline or fuel oil and which apparently exploded.

Norcanda Construction, Limited

No. 42

Michael James Lindy, Canadian, aged 28, married, with four children, was fatally injured on July 7 at about 7.30 A.M. when an angle iron fell on top of him in the headframe at Bicroft Uranium Mines, Limited. Lindy was employed as a surface laborer by Norcanda Construction, Limited, on the Bicroft Uranium property, which is located on lot 28, concession XI, in Cardiff township, Haldiburton county.

The erection of the new steel headframe had been completed by the Dominion Bridge Company. To leave space for the cables from the temporary sinking hoist six angle-iron braces that help support three crawl beams in the headframe had been left out. The top of the 10-inch I-crawl beams is 32 feet 6 inches above floor level or top of rail.

On the day of the accident two Norcanda employees, Earl Jessup and Eugene Milton, were on top of the crawl beams installing these angle braces. Stan Sullivan and John Turner were supplying them with materials. These four men were working under Ernie Hyckman, rigger foreman, who had not visited this part of the job prior to the accident.

They had installed all but one of the angle irons. This 2½-inch by 2½-inch by 5/16-inch angle iron, 10 feet 6 inches long and weighing 52½ pounds, was hoisted on a rope block to the men above. Jessup received the steel and placed one end on a 2- by 10-inch by 16-foot plank that was lying on top of the crawl beams and the other end on an angle brace that had been bolted in place. He removed the rope from the angle iron and lowered this end of it back down, then went to sit down on this plank when the angle iron rolled off and fell to the floor below on top of Lindy, striking him directly on the head.

Lindy with four other men, Cecil White, Dale Gillan, Donald Davis, and Ted Kilby were preparing the sub-floor of the shaft-house for concrete. These five men were working under Clarence Kilby, sub-foreman on concrete, who was with his crew at the time. They were placing and tying reinforcing steel inside the floor forms that the carpenters had built previously. When the angle iron was being hoisted these men all stepped back out of the way, but apparently as soon as it was landed they resumed work. White was alongside of Lindy when the accident happened, and Davis was 6 feet away.

The body was not moved until Dr. O. W. Anderson from Bancroft arrived at 8.15 A.M. The doctor claimed death was caused by a severely fractured skull and that Lindy had died almost instantly.

An inquest was held before Coroner O. W. Anderson, M.D. and Acting Crown Attorney J. A. McQuarrie on July 12 at 2.30 P.M. in the Assembly Hall of the Bicroft Uranium mine. The jury returned the following verdict:

Michael James Lindy came to his death by an accident caused through negligence on the part of the foremen. We recommend that all foremen familiarize themselves with the safety rules and see that they are enforced.

Coroner O. W. Anderson, M.D., with the jury's permission added:

Michael James Lindy was killed in the head frame at Bicroft Mine in the Township of Cardiff, in the County of Haliburton on Saturday about 7.30 A.M. on July 7th, 1956.

Obabika Mines, Limited

No. 43

Peter Dietz, German, age 21, single, with no dependents, was drowned in Lake Timagami on October 26 when the canoe in which he and Neil MacAlpine were travelling upset. Dietz was employed by Obabika Mines, Limited. His work consisted of line cutting, draughting, and other jobs at the property.

Obabika Mines, Limited, were carrying out an exploration program in Belfast township about 18 miles west of the village of Timagami. The camp was located at Allan Lake in Belfast township. Boyles Brothers Drilling, Limited, were doing the diamond-drilling for Obabika Mines, Limited.

Events leading up to the accident were as follows:

N. Jubenville, drill foreman with Boyles Brothers was to come out of the bush for the purpose of getting married. Arrangements had been made for a relief foreman to fly in earlier in the week, and Jubenville was to fly out on the return trip to the mainland. When the plane had not arrived by Friday morning, October 26, Jubenville accompanied by Neil MacAlpine, a drill runner, and Dietz set out by boat at about 8.00 A.M.

The intention was to go as far as Bear Island, a distance of 6 miles, where

they could phone for a plane. Jubenville and MacAlpine were going to fly from there to the village of Timagami on the mainland. Dietz was to leave the boat at Bear Island and fly back to the Allan Lake camp.

The boat used was a 16-foot aluminum canoe containing air-tight compartments under the seats. The boat was driven by a 3-horsepower outboard motor. Two paddles were also carried. There were no life jackets.

A 1-mile portage was required to get from Allan Lake to Obabika Bay in Lake Timagami. From here they proceeded east along the south shore of Obabika Bay and then turned south along the west shore of the Northwest Arm of Lake Timagami. The wind was quite strong from the southeast, and since Northwest Arm is about 7 miles long, the water was quite rough. According to MacAlpine, Jubenville was unable to swim and decided it was too dangerous to proceed to Bear Island. They let him off at Sand Point, which is about 3-4 miles south of Obabika Bay. Dietz and MacAlpine decided to go on to Bear Island, while Jubenville set out from Sand Point and was able to walk back to camp. They proceeded south and then turned east towards Bear Island trying to gain shelter from several small islands which are to the west of Bear Island. When they were opposite the north end of Island No. 1005, in Joan township, the boat upset, and they were thrown into the water about 175 feet from shore.

According to MacAlpine they hung on to the boat for a while. He was able to get his boots and some clothing off. Dietz had trouble getting one boot off, and since he was becoming numb, it was decided they would swim for shore. MacAlpine stated that when they were about half way to shore Dietz went down. MacAlpine tried to hold him up but was unable to do so. MacAlpine got to shore, removed more clothing and went into the water again but was unable to locate Dietz. He stayed on the island that night and next morning borrowed a canoe and paddled to Bear Island. H. Price of the Ontario Department of Lands and Forests stationed there was able to phone the mainland and notify the Provincial Police.

Dragging operations were begun on Saturday, October 27 at about 9.30 A.M. The body was recovered on Sunday morning in 110 feet of water.

Dr. Dunning of Cobalt who is the coroner examined Dietz and stated that death was due to drowning.

An inquest was held by Coroner H. A. Dunning, M.D., at the Provincial Police Office in Timagami on November 7, at 2.00 P.M. The coroner gave his verdict as follows:

Peter Dietz came to his death due to accidental drowning.

B. Perini and Sons Canada, Limited

No. 44

Kenneth Davis Reynolds, Canadian, aged 29 years, married, with two children was instantly killed when he was crushed by a truck at the Can-Met Explorations, Limited, property at 2.40 P.M., November 13. He was employed by B. Perini and Sons, Canada, Limited.

On the Can-Met property at Quirke Lake a mill and plant were being built by B. Perini and Sons Canada, Limited, for Can-Met Explorations, Limited. Roof gravel was being sent over from another Perini project at Consolidated Denison property also on Quirke Lake. Reynolds drove his model 87FD, Euclid truck over from Denison with a load of roof gravel. The roads on that day were very icy. On approaching the Can-Met property he had been told by Joe Duval, the assistant superintendent for Perini at Can-Met, to wait until the roads were sanded. He was told again by Duval nearer the main gate. It appears that, when

Duval left, Reynolds continued to drive on the icy road rather than wait for the sanding on the Can-Met property.

On descending the hill south of the mill area, the 20-ton truck slid off on to the right shoulder of the road. Reynolds jumped out of the truck. The truck then began to slide slowly backwards into a bulldozed cut. Reynolds tried to get back into the truck on the left side, but at that moment the rear right corner of the truck hit the side of the cut. The truck swung over to its left and crushed Reynolds against the opposite side of the cut.

Douglas Terry, an eye witness to the accident, got the first-aid man and a stretcher and Reynolds was taken to the first-aid room. Dr. H. C. Smith came over from the Consolidated Denison property before 4.00 P.M. and pronounced the man dead.

Dr. E. Pentland, provincial pathologist, found Reynolds had died from multiple internal injuries, including rupture of the spleen and liver, and fracture of the spinal column.

An inquest was held before Coroner J. Pigeon, M.D., at Blind River on December 14. The jury returned the following verdict:

Kenneth Davis Reynolds, the deceased person, came to his death at 2.40 o'clock in the afternoon on the 13th day of November, 1956 at Can-Met Mine and that the death was caused by accidental death (crushed by a truck, no blame attached to any person.)

With permission of the jury, the coroner added "crushed by a truck, no blame attached to any person."

Standard Steel Company

No. 45

John Trudeau, Canadian, aged 34, married, with four children, was killed when he fell 33 feet from a scaffold to ground at the Nordic mine boiler-house of Algom Uranium Mines, Limited, at 10.00 A.M., November 30. Trudeau was employed by the Standard Steel Company as an apprentice steel-worker.

The boiler-house is part of the Algom Nordic mine surface-plant building. The concrete coal silo is attached to the south wall of the boiler-house, and it is about 20 feet higher. The Standard Steel Company of Welland was engaged to make an alteration in the wall of the silo on the boiler-house side. A steel scaffold had been set up for a work platform on the roof of the boiler-house against the coal-silo wall. A journeyman steel-worker had drilled about thirty 1-inch holes with a jackleg rock-drilling machine into the concrete wall in order to cut an opening about 2 by 2 feet.

Loyola Marois had then been assigned to the job by the foreman since he had worked in a mine. John Trudeau an apprentice steel-worker was assigned to assist Marois. Both men and the foreman were familiar with rock drills but not this type of jackleg machine. The foreman had not given them any instruction on the operation of the machine.

The two men set up the jackleg on the platform in readiness to collar a hole, and they were holding up the machine in order to position it. When the air was turned on, the steel bit had made only a few turns when the excess thrust of the leg threw both men sideways off the scaffold.

Loyola Marois fell on the boiler-house roof whereas John Trudeau struck the edge of the roof and then fell to the ground, a total distance of 33 feet.

Trudeau was taken to the Algom Nordic first-aid room where he was pronounced dead by Dr. Ruse of Elliot Lake.

Dr. E. Pentland, provincial pathologist, found that Trudeau had died from a ruptured heart caused by a heavy blow to the chest cavity. He also suffered a fractured skull.

An inquest was held before Coroner J. Pigeon, M.D., at Blind River on the evening of December 15. The jury returned the following verdict:

John Michael Trudeau, the deceased person came to his death at 10.05 o'clock in forenoon on the 30th day of November, 1956 at Algom Nordic Mine and that the death was caused by internal injuries sustained as a result of a fall from a scaffold—a distance of approximately 30 feet—caused by a blow received from Jack Hammer. Death was accidental. We attach no blame to the company with which he was employed. We recommend that (1) for such operations the type of scaffolding as shown in exhibit 1A be used and (2) that only experienced labour be used for such construction projects.

The type of scaffolding mentioned as exhibit 1A referred to a photograph produced at the inquest, which showed that the scaffold extended upward past the platform for another set, providing protective railing all around the edge of the platform. In addition the use of the jackleg pusher leg has been discontinued.

Toronto Iron Works

No. 46

Robert Longwill, British, aged 33, single, employed as a welder by Toronto Iron Works was fatally injured at 5.20 P.M. on November 12 on the mining property of Can-Met Explorations, Limited, when he was run over by a truck.

On the Can-Met property at Quirke Lake a mill and plant were being built. The concrete foundations of the mill had been built, and the ground within the walls was being levelled. A backhoe was digging out the excess earth from within the foundation and loading it into a 6-ton Ford truck, which backed up through an opening in the foundation.

Toronto Iron Works was installing the steel work. Robert Longwill and Ernest Cort, employees of the company, drove up from Port Credit to report to Douglas Palmateer, the foreman. They left the car at the mine gate and walked in on the property to find the foreman.

The two men had come as far as the foundations where the excess earth was being removed when Cort stopped to make inquiries, and Longwill had passed the stopped 6-ton truck on the right side, in through the opening of the foundation. As he walked on, the truck was backed in by Jacques Laroche. The shovel operator shouted to Longwill, and Cort shouted to the truck driver, but they could not be heard above the noise. The right rear corner of the truck hit Longwill on the shoulder and knocked him to his knees. Cort ran around to stop the driver, but before he stopped the driver, the left rear wheel of the truck had run over Longwill.

The backhoe operator and his helper and Ernest Cort went to Longwill's aid but found him dead. The body was removed by stretcher to the first-aid room where Dr. H. C. Smith, who was summoned from the Consolidated Denison mine, pronounced Longwill dead.

Dr. E. Pentland, provincial pathologist, found that Longwill had died of multiple internal injuries to the chest and abdomen. Also he found that the blood contained 1.9 percent alcohol and the urine 3.2 percent, which findings gave proof to Cort's evidence that he knew Longwill had been drinking during a recent stop-over on their journey.

An inquest was held before Coroner J. Pigeon, M.D., in Blind River at 7.00 P.M. on December 14. The jury gave their verdict as follows:

Robert Longwill, the deceased person came to his death at 5.20 o'clock in the afternoon of the 12th day of November, 1956 at Can-Met Uranium Mines and that the death was caused accidentally (by being crushed by a truck).

Recommend that "No Trespassing" signs should be posted in dangerous areas. Direction signs should be posted showing locations of offices.

With the permission of the jury, the coroner added the words "by being crushed by a truck."

FIRES

Rare Earth Mining Corporation of Canada, Limited

No. 310

The temporary machine shop and contents owned by Norcanda Engineering Company, Limited, located on the property of the Rare Earth Mining Corporation of Canada, Limited, were totally destroyed by fire during the afternoon of January 5. The fire started under the wooden floor supposedly caused by brazing operations, which were carried out late that morning. No one was injured.

Kirkland Lake Gold Mining Company, Limited

No. 311

A small fire occurred at the Kirkland Lake Gold Mining Company, Limited, property on January 12, at about 9.30 A.M. when a short-circuit due to insulation deterioration developed in a 30-inch length of two-conductor, No. 12 gauge, B.X. cable. This cable was installed in a lighting circuit and had been in use for 30 years. The protective equipment for the burned section of the 110-volt circuit was in good condition. The 30-ampere fuse blew out, but the flash fire from the cable insulation crept up between the walls. The damage was repaired at very little cost, and a new cable, 2/12 B.X. lead, was installed and fused at 10 amperes.

Upper Canada Mines, Limited

No. 312

At 6.50 P.M. January 27, while starting the compressor at No. 1 shaft at Upper Canada Mines, Limited, the starting switch arced across the main cable causing the insulation on the cable to burn.

The fire was stopped in a few minutes by shutting off the power in the sub-station.

Later it was discovered that one of the main feed lines to the mill had grounded, this has now been repaired. Damage was confined to the compressor starting switch, which will have to be replaced.

Bicroft Uranium Mines, Limited

No. 313

The temporary mine dry at Bicroft Uranium Mines, Limited, No. 1 shaft, was totally destroyed by fire about 1.00 A.M. on January 29.

The building was a temporary structure being used until completion of the permanent dry at No. 2 shaft.

No person was injured, nor were any other buildings damaged.

At the time of the fire no regular shift was in the mine since it is the normal practice not to have a night shift on Saturday nights. However, three diamond-drillers were underground, and these men were promptly brought to surface.

No reason for the fire has been found. It was in the nature of a flash fire with the building being totally destroyed in about 20 minutes.

Coldstream Copper Mines, Limited

No. 314

Dense smoke was noticed coming up the shaft at the Coldstream Copper mine about midnight on February 1. After the smoke cleared it was found that a battery locomotive that had been used on the afternoon shift and left in the 3rd-level shaft station had developed a short-circuit causing the battery cable and wooden base of the battery box to catch fire.

It is possible that the short-circuit developed owing to insulation damage, either by a piece of rock lodged against the cable or by damage during the time that the battery was being changed.

Algom Uranium Mines, Limited

No. 315

On February 3, at 11.40 A.M. fire partially destroyed the No. 4 thickener tank at the mill site of the Quirke mine of Algom Uranium Mines, Limited.

No. 4 tank is a 100-foot diameter thickener tank and was the eighth tank to be rubber lined. At the time, the walls were lined, but only a small section of the floor had been done. During the operation a large tent covering was placed over the tank. The adjacent No. 3 tank was ready for vulcanizing, but only had its tent hanging loosely from the suspension cables and was not spread over the outside of the tank. No. 5 tank was covered with a tent while sand-blasting was nearing completion.

At 11.40 A.M. smoke was noticed rising from the north side of the tank. The alarm was sounded, but before any help arrived, the flames had run up the outside of the tank and started to burn the tent covering.

Although it was the lunch hour for all contractors other than those of Hill-Clark-Francis, Limited, there were seven Goodrich men working inside the tank. When they saw the flames over the side of the tank, they attempted to put out the flames with their own extinguishers but without success. One other crew went into the tent and rolled out a 45-gallon drum of naphtha gas, however several small cans of gas were left on the work tables. Within a few minutes the whole tent was in flames.

Water was directed against the fire and adjoining tents with two fire hoses off the 3-inch water main in the tunnel and from the two Wajax pumps taking water from the other tanks, which had been filled after completion of the lining. A bucket brigade was also organized, and men shovelled snow to protect Nos. 3 and 5 tanks. As the tent over No. 4 tank burned, the pieces dropped into the tank and ignited the rubber lining. The fire was out of control until about 75 percent of the lining was burned off. The fire also burned the tar compound between the outside of the tank and the insulation.

The losses consisted of: (1) the rubber lining in No. 4 tank; (2) the outside insulation of the tank; (3) the No. 4 tank tent and a large hole in No. 5 tank tent; (4) the Goodrich installation equipment; (5) fourteen drums of rubber lining stock; (6) the tank itself was not damaged too much except the launders were warped.

From investigation it is believed that the fire started in a heap of burlap, which had been taken off the end of the rubber lined pipe. It is not known how the burlap was ignited, but a gasoline welding machine had been operating about 12 feet away, and a spark could have been exhausted from it.

Nipissing-O'Brien Mines, Limited

No. 316

A fire occurred at Nipissing-O'Brien Mines, Limited, on February 10, at about 10.30 A.M. The damage was confined mostly to the blacksmith shop, which was badly charred inside.

The welder was cutting plate at the time when he heard a slight explosion and turned to see flame coming from the acetylene tank at the hose connection. In seconds the fire was going like a giant blowtorch and resisted all efforts to put it out until Cobalt firemen brought a fog nozzle into play.

Hollinger Consolidated Gold Mines, Limited

No. 317

A small fire was discovered at 9.40 P.M., on April 9, at Hollinger Consolidated Gold Mines, Limited, in an 8- by 10-inch timber situated alongside the wall plate at the collar of No. 11 shaft.

A steel catwalk was being constructed 20 feet above the shaft collar, and some acetylene burning was necessary.

The top of the cage was lowered level with the shaft collar and covered with asbestos blankets. One man was kept on the deck to watch for hot material falling, and he played water on the whole area before the burning started and while burning was in progress.

As the shaft is down draft, and smoke would not be noticed at the collar, the asbestos blankets were removed at intervals of 1-1½ hours, and the cage was operated.

When the job was completed at 9.40 P.M. and the blankets removed, some burning was noticed in the 8- by 10-inch timber.

More water was used in this area, and the burning was extinguished. The damaged section of the timber was then cut out, and the shaft wall planks removed 6 feet below the collar.

A complete shaft inspection was then carried out, and the shaft was inspected at regular intervals throughout the graveyard shift. No further burning took place.

Cavendish Uranium and Mining Company, Limited

No. 318

On the evening of April 29, L. Higgins, night watchman for the Cavendish Uranium and Mining Company, Limited, was working at odd jobs around the mine site. Around 9.00 P.M. one of the two portable 600-cubic-feet-per-minute compressors exploded while operating and threw burning oil around starting a fire on the second compressor and the enclosing building. Higgins emptied three ½-gallon carbon tetrachloride extinguishers, but the fire spread. Two adjacent buildings, a workshop (12 by 16 feet), and the change-house (24 by 36 feet) were burned to the ground. The hoist-room and headframe were not touched.

A twisted connecting rod found near the compressor afterward indicated that it had been blown out of the compressing unit.

The ½-gallon extinguishers have since been replaced by 2½-gallon Pyrene soda-acid extinguishers. The one compressor (600 cubic feet per minute) now at the mine is in the open, away from other buildings, and is not operated at night.

New Dickenson Mines, Limited

No. 319

A battery locomotive caught fire on the 7th level of the New Dickenson mine about 12.45 A.M. on May 3. The locomotive was not being used at the time. A mucking-machine operator was loading a car when he noticed smoke coming from the locomotive. He was able to uncouple the cars and take the locomotive from the drift to a crosscut, a distance of 200 feet, where he was forced to abandon the locomotive. Since one man was still in the drift beyond the locomotive, rescue men were sent down a raise from the 6th level and brought the man to surface. The rescue crew then returned by the same route and extinguished the fire in the locomotive.

The cause of this fire is thought to be the poor design of control resister on this particular locomotive and a poor choice of insulation on the conductors connecting the resister.

The design was such that if the locomotive was operated on the second control step for any length of time, the resister overheated and ignited the conductor insulation. Flame from the burning insulation played on the wood of the battery

trays through ventilating holes in the bottom of the steel battery box. These wood parts burned and ruined the battery cells. An attempt has been made to correct these conditions by the mine electrical staff, and at last report the changes were satisfactory.

Renabie Mines, Limited

No. 320

A small blaze occurred when the 6- by 12-foot ball mill 200-horsepower motor shaft broke at 4.05 A.M. on July 7 at the Renabie mine. The collar became overheated, and the grease caught fire. There was no damage done to the motor insulation or bearings, and the flame, which rose about 5 feet, was put out instantly with a Pyrene extinguisher.

The new, 200-horsepower, 2,200-volt Canadian General Electric motor was installed in August, 1950, and had given no trouble before. Upon examination of the shaft it was noted that an old break had occurred and of the 4½-inch shaft diameter, less than 4 square inches were holding at the time of the breakdown.

The sprinkler head located 10 feet above the motor did not release any water since sufficient heat had not been developed.

Siscoe Metals of Ontario, Limited

No. 321

A fire completely destroyed the headframe, the attached mill, and the machine shop and burned about 240 feet down the shaft timbers at Siscoe Metals of Ontario, Limited, at 3.05 P.M. on July 29.

The power-house, hoist-house, and machine shop are located 45 feet, 75 feet, and 10 feet, respectively, from the headframe, which was connected to the mill. A 550-volt underground cable feeds the mill and underground from the power-house. Overhead 110/220-volt lighting wires supply the mill and headframe from pole-mounted transformers near the power-house. Two overhead 110-volt lines from the hoist-house to the headframe supplied signals and track-limit switches.

The main shaft has two compartments and extends from surface to a depth of 452 feet at an inclination of 75½ degrees. The headframe is constructed of timber and has been in operation for many years. The ventilation splits at the 140-foot level being upcast above and downcast below the level.

The mine is serviced by the main shaft, No. 6 winze, which connects with the main shaft on the 350-foot level, and No. 11 winze, which connects with No. 6 winze on the 850-foot level.

The Siscoe 730-foot level connects with the Castle-Trethewey 800-foot level, and the Siscoe 1,150-foot level connects with the Castle-Trethewey 1,125-foot level.

The booster pump, which pumps water into the water storage tank was on the 550-volt circuit for the town. The mill and underground were off another circuit breaker in the power-house.

Some of the wiring and fused disconnects for underground circuits, which are located in the mill, had been overhauled and replaced about two months ago.

At 3.00 P.M. the manager passed the headframe and there was no smoke. About 3.05 P.M. the 15-horsepower, 500-volt booster pump ceased operating and the chief electrician who lives nearby went to investigate. Before he arrived at the mine his grandson informed him that the headframe was on fire so he went to the headframe, which was only 100 yards away. At the same time the deckman smelled smoke but could not locate its origin; he phoned the cagetender but got no answer, so went to the hoist-room to notify the hoistman. The hoistman

sounded the fire siren at 3.15 P.M. while the deckman fought the fire, which was now flaming from the mill wall about 8 feet from the floor. The flames burst upon him suddenly, and he was forced to drop the fire hose and leave the headframe.

During the time the deckman was notifying the hoistman, the chief electrician looked for the fire, could not find it, and disconnected all electric power to the headframe and mill. He was then called to the booster pump, which was needed for the water supply.

The fuses in the Canadian General Electric combination starter for the booster pump had the top brass ferrules melted and splashed on to the cover, but the pump and wiring were undamaged. The chief electrician bridged the fuses and got the pump operating by 3.25 P.M. During this pump's output, water was available, but at a reduced pressure. No fuses were blown nor circuit breakers tripped, except the booster pump which was supplied by a different circuit than the mill and underground.

When the fire broke out, eleven men were working underground on mucking and maintenance jobs. No one was working in the mill. The deckman stated that the fire appeared to originate in the mill above the decking level of the headframe.

The men underground were notified by phone and proceeded up No. 20 shaft, which served as an escape manway. At the same time, Castle-Trethewey was notified, and the ventilation fan on their 800-foot level was reversed so as to prevent smoke entering their workings. In the meantime an attempt was made to extinguish the fire at the collar of the main shaft. The headframe, mill, and machine shop, however, were burned to the ground in less than an hour.

The fire extended down the shaft probably because of burning debris falling down the shaft.

The Cobalt mine-rescue station was notified and S. Sullivan acting as reliefman, arrived the morning of July 30. By this time an attempt was being made to smother the fire by sealing off the openings to surface. Sullivan and mine-rescue men from Siscoe went down No. 20 shaft at 1.30 P.M. wearing type N all-service masks and carrying a flame-safety lamp and Hoolamite CO detector. No smoke, carbon monoxide, or oxygen were encountered until they arrived at a ventilation door 1,000 feet from No. 20 shaft on the 350-foot level. Smoke was observed behind the door, and a test gave 0.15 percent carbon monoxide. They returned to surface at 2.30 P.M. At 3.00 P.M. the seal was removed from the surface openings since there were too many underground workings to effectively smother the fire.

At 6.00 P.M. a second trip was made underground, this time by means of an escapeway about 150 feet from the main shaft, which extended to the 60-foot level. No carbon monoxide or oxygen deficiency were noted, but an old stope adjacent to the main shaft and below the 60-foot level was on fire, and the ventilation was downcast.

At 8.00 P.M. a third trip was made underground using No. 20 shaft. The smoke had receded towards the main shaft. The 350-foot level was checked to within 150 feet of the main shaft.

On the morning of July 31, No. 20 shaft was used to check on the 350-foot level. The level was checked over to the main shaft, and no fire was observed. No carbon monoxide or oxygen deficiency were noticed all morning. It was observed that considerable burned timber had fallen down the shaft.

In the afternoon men worked down from the 60-foot level spraying water on the stope below. By the morning of August 2 they had reached the 240-foot level. This work was carried on using the escapeway south of the main shaft. Fires in stopes adjacent to the shaft were extinguished above the 90-foot level and

above the 140-foot level. All fires were extinguished the morning of August 2. The shaft timber was completely burned out down to the 140-foot level and partly burned to the 240-foot level. At 1.00 p.m., August 2, the Castle-Trethewey fan was started and reversed, clearing out the Siscoe mine. Carbon monoxide tests were taken at the Siscoe main shaft, but none was encountered.

After the fire, men worked down the main shaft installing ladders and stagings as they went. The intention is to abandon main shaft and to raise No. 6 winze from the 350-foot level to surface before resuming mining.

The damage to the booster pump fuses appears to have been caused by a surge. A surge could have been caused by a short-circuit in the mill electric system, which burned itself clear causing a fire but not tripping the breaker. Since the mill was down, the circuit breaker could carry a heavy-fault current momentarily without tripping. It appears that the short-circuit caused the fire rather than a fire of other origin burning the cables, since the first smoke appeared less than 5 minutes before the pump outage, and the deckman identified the smell of a sample of burning insulation.

The underground 550-volt pumps, starters, and the cables in the unburned section of the shaft were undamaged and could not have caused the fire.

McIntyre Porcupine Mines, Limited

No. 322

A fire started in the brake blocks of the No. 14 shaft sinking hoist located on the 3,500-foot level of McIntyre Porcupine Mines, Limited, on October 9.

H. Calverley, master mechanic, was called to the hoist-room in question, and arrived there at 8.50 A.M.

The hoistman had used about a quart of fluid from a 2-quart carbon-tetrachloride extinguisher, subduing the fire. Wood wearings or dust between the bottom and centre wooden blocks of the north front brake shoe had ignited and smouldered. It was necessary to remove the clips holding the block ends in order to completely extinguish the blaze.

The brake settings were checked and found to be in order. On testing they did not hold very well. The brake was then washed and treated with an abrasive and tested to 200 amperes, single clutched, with the conveyance $\frac{1}{2}$ down the shaft and power on the down position. This particular brake had given similar trouble before. The difficulty lies in the fact that the brake drum is oval shaped, being about $\frac{1}{8}$ -inch off true. As a result, good brake setting is made quite difficult.

An air hose is to be so located that dust can periodically be cleaned from between the wood brake blocks.

The hoist had not been operated unclutched at the time of the fire.

Jerome Gold Mines, Limited

No. 323

A fire was started by lightning sometime between 5.00 and 6.30 p.m. on October 6 at the Jerome mine completely destroying the following: headframe; primary crusher; shaft house; crusher building; mill; warehouse; oil house; lime shed; fuse house; dry house; steel shop; steel storage shed; machine shop; plant boiler-house; elevated conveyer between mill and crusher; and conveyer between headframe and crusher.

The mine has been closed down since 1945.

Cobalt Consolidated Mining Corporation, Limited

No. 324

No. 1 concentrator of the Cobalt Consolidated Mining Corporation, Limited, was completely destroyed by fire early in the morning of October 15. This mill was built in 1906 at mileage 104 on the Temiskaming and Northern Ontario railway. It is known locally as the "104" mill.

The fire started in the crusher-house but quickly spread up the inclined conveyer gallery from the crusher to the mill.

The crushing plant had been shut down at 4.00 P.M. when the three-man crew went home. Two operators were left in the mill.

At 6.00 A.M. a man who lived close to the mill noticed smoke coming from the crusher-house. He dressed, ran to the mill, and warned the two operators. By this time the crusher-house was burning, and flames were climbing the conveyer gallery.

The brick boiler-house and a small office building were not burned. The crusher-house, carpenter and machine shops, compressor house, blacksmith shop, scale house, and mill with all equipment were lost. The wooden water-supply tank on a hill behind the mill also burned. The ruins were still burning on October 18.

The origin of the fire is not known.

Stanrock Uranium Mines, Limited

No. 325

A fire on October 4, burned down a dry at Stanrock Uranium Mines, Limited, in the Blind River area owned by Patrick Harrison and Company.

It is not certain how this fire started. The crew came up, had lunch in the dry at 4.30 A.M., and went back down around 5.00 A.M. The compressor operator checks the dry after lunch periods but was a few minutes late in doing so. Upon entering the dry he found it to be on fire near the stove. He grabbed the fire extinguisher and almost succeeded in extinguishing the blaze, when the extinguisher went dry. He ran to the shop for another and on return found the fire had caught on the oilers, etc., and he was unable to do more except bring the crew up and guard other buildings.

A new dry is being built, and there will be no stove in this one; it will have steam heating and will be built away from all other buildings.

All surface employees have been warned that the dry must be checked at once after all lunch periods to avoid any re-occurrence of the above incident.

Maybrun Mines, Limited

No. 326

On November 8 the dry at Maybrun Mines, Limited, at Atikwa Lake caught fire and was completely destroyed.

The fire was noticed at 11.20 A.M., and efforts were made to extinguish the blaze. By 12.30 P.M. the building had collapsed and the fire was out.

No one was injured in the fire, and the cause is believed to be electrical wiring.

Active underground operations were suspended during October so the dry was not used steadily. There was no one working in the dry at the time.

A small amount of underground clothing plus about 30 underground lamps and 2 lamp chargers were lost in the fire.

Delnite Mines, Limited

No. 327

At about 8.00 A.M. on March 27, W. Lawson, shaft captain at the Delnite mine, on arriving at the 4,375-foot level noticed smoke. As electrical apparatus on

the level seemed in good order, he felt it might be coming from the electrical circuits feeding the light or the blasting circuit.

On going down the shaft, a small flame was seen in the manway below the loading pocket, upon which Lawson returned to the 4,375-foot level and disconnected the power to the light circuit. Two men climbed down the manway and extinguished the fire, which had burned part of the connector and about 2 inches of the cable insulation on the upside from the connector.

The cable was held in place by being wrapped around a rung of the ladder, and this rung was charred to a small degree and had a small flame when the men arrived.

After the fire was extinguished it was noted that a few inches of cable and the plug connector were destroyed.

A short-circuit was probably caused by moisture, and the 25-ampere fuse was too heavy to open the circuit. Fuses are now 15 amperes and the cable is spliced, thus eliminating the connector.

Falconbridge Nickel Mines, Limited

No. 328

At about 5.00 A.M. on August 28 there was a fire in the concentrate storage building of the Falconbridge Nickel mine. The fire was confined to the exterior of the building. The plant fire department was called, and they, together with the sprinkler system, extinguished the blaze. Damage was limited to loss of the paper covering and severe charring of the wood wall on the south side of the building. There was no serious damage to the equipment in the building.

This building was of wood and steel construction and 2-inch tongue and groove sheeting installed vertically and faced with tar felt and 60-pound rock-faced roofing. Since the fire, they have removed all the wood sheeting on all four walls and replaced it with an asbestos siding.

As far as can be determined, the fire originated from spontaneous heating of concentrate in a small steel bin adjacent to the building. When concentrate was drawn out of the bottom of this bin, the draft created a chimney effect, which carried heat and flame to the superstructure over the steel bin and thus to the exterior of the concentrate storage bin.

Metro Asbestos Processors, Limited

No. 329

At about 8.00 A.M. on December 25, a fire destroyed the watchman's house on the Metro Asbestos property. No other building on the property was damaged by the fire. The estimated cost of the building was \$2,000.

The cause of the fire was the chimney pipes. No one was injured by the fire.

Norcanda Construction Services, Limited

No. 330

At about 6.00 A.M. on December 10 an explosion and fire occurred in balance room No. 1 in the laboratory section adjoining the new mill building at Faraday Uranium Mines, Limited.

No one was injured. Damage was confined to the partition containing the door of the room, the adjoining partition between the room and the hallway, and several sections of Roselite window panels, which were blown out. The explosion was caused by a propane salamander, which had been used from time to time to warm crack-filling material.

The sound of the explosion was heard by an employee in the other end of the mill who was keeping watch on some hot shots and salamanders around a freshly poured floor. When he arrived a small fire was burning, probably from packing around some laboratory furniture. He was able to turn off the propane cylinder. The watchman heard the explosion as he was coming down the hill from the hoist-room. He and the other employee and the boiler man soon put out the fire. The fire whistle was blown, and several Norcanda and Faraday personnel were soon on the scene. Total damage is probably under \$300. Repair work is now under way.

PROSECUTIONS

Regina vs. Wilbert Carter

A charge was laid against Wilbert Carter, a labourer, at Bicroft Uranium Mines, Limited, as follows:

That Wilbert Carter, on or about (a certain date) unlawfully did have in his possession an explosive subject known as blasting caps, under such circumstances as to give rise to a reasonable suspicion that it was not in his possession for a lawful purpose, contrary to Section 80 (a) Criminal Code of Canada.

Carter pleaded guilty before Magistrate R. I. Moore at Lindsay on November 12. A fine of \$25.00 plus costs of \$34.50 was paid.

Regina vs. E. D'Addario

A charge was laid against E. D'Addario, a cagetender at Jardun Mines, Limited, as follows:

That E. D'Addario at the Township of Jarvis at the Jardun Mines in the District of Algoma, on or about the 13th day of June, A.D. 1956, did leave the shaft gate open at the deck when the conveyance was not at the level, contrary to Subsection 99(a) of Section 162 of the Mining Act of Ontario.

D'Addario pleaded guilty before Magistrate W. O. Langdon at Sault Ste. Marie on July 19. A fine of \$25.00 and costs or 25 days in jail was imposed. The fine, and costs totalling \$44.75, were paid.

Regina vs. Charles Dell

A charge was laid against Charles Dell, employee of Young Davidson Mines, Limited, as follows:

That Charles Dell at the Township of Matachewan in the District of Temiskaming, on or about the 12th day of November, 1955, being a cagetender employed by Young Davidson Mine, did unlawfully travel in a cage at a time other than during shaft inspection with the doors of the same not securely closed, contrary to Section 162, subsection 141, paragraph (a) of the Mining Act of Ontario.

The case was heard before Magistrate E. W. Kenrick on April 5, 1956, at Kirkland Lake. Dell pleaded guilty and was fined \$50.00 and costs, amounting to \$18.60, or 14 days. The total amount of \$68.60 was paid.

Regina vs. J. D. Foster

A charge was laid against J. D. Foster, superintendent of Temiskaming-Inspiration at Fecunis Lake Mine, Falconbridge Nickel Mines, Limited, as follows:

That J. D. Foster, being the Manager of a working mine, namely, number one shaft of Fecunis Lake Mine of the Falconbridge Nickel Mines Limited, and responsible for the construction, management and direction of the said mine, did not take all necessary and reasonable measures to enforce the requirements of the rules set forth in Section 162 of the Mining Act of Ontario,

particularly, subsection 144 in that an employee was permitted to be lowered or hoisted in a cage or skip which did not meet the requirements of Rules 231 and 233 in violation of subsection 144(b) of Section 162 and contrary to Section 161 of the said Act.

Foster pleaded not guilty before Magistrate P. J. McAndrew at Sudbury on September 27.

The Court would not accept the interpretation that this occurrence was a violation of this section of the Act, and the case was dismissed.

Regina vs. E. Gannon

A charge was laid against E. Gannon, a hoistman employed by Aer Nickel Corporation, Limited, as follows:

That E. Gannon at the Aer Nickel Corporation, Limited, mine at the township of Denison in the District of Sudbury on or about the 29th day of March A.D. 1956, did move the hoisting conveyance in the said mine without first receiving the proper signal for such movement contrary to Section 162, subsection 155 of the Mining Act of Ontario.

Gannon pleaded guilty before P. J. McAndrew at Sudbury on April 23. A fine of \$100.00 and costs or 30 days was imposed. The fine was paid.

Regina vs. Jim Gillis

A charge was laid against Jim Gillis, employed by the MacIsaac Mining and Tunnelling Company at Panel Consolidated Uranium mine No. 2 shaft, as follows:

That Jim Gillis at Township 144 in the District of Algoma on or about the 31st day of July A.D. 1956 in No. 2 shaft of the Panel Consolidated Uranium Mine did allow himself to be hoisted in a bucket that was loaded with broken rock contrary to Section 162, subsection 144(c) of the Mining Act of Ontario.

Gillis pleaded guilty before Magistrate H. D. Peterson at Blind River on August 13. A fine of \$10.00 and costs was imposed. The fine was paid.

Regina vs. John Hjartanson

A charge was laid against John Hjartanson, a chute-puller at Madsen Red Lake Gold Mines, Limited, as follows:

That John Hjartanson of the hamlet of Madsen in the District of Kenora, did unlawfully carry liquor underground at Madsen Red Lake Gold Mines, Limited, on January 10, contrary to subsection 411, of Section 162, Part VIII of the Mining Act of Ontario.

He pleaded guilty before Magistrate Cox at Red Lake on January 12. A fine of \$25.00 and costs or 30 days was imposed. The fine was not paid.

Regina vs. Sverre Kleven

A charge was laid against Sverre Kleven, foreman for Evert Ross, contractor, as follows:

That Sverre Kleven did, between November 4, 1955 and December 29, 1955 fail to comply with a written order issued in accordance with Section 170 of the Mining Act of Ontario and contrary to the Mining Act of Ontario, Section 172.

The written order was that during sinking operations in No. 14 shaft of McIntyre Porcupine Mines, Limited, "Men must ride in the bucket and not on the rim of it." Kleven had not enforced the rule among the men working under him nor observed it personally.

The case was heard before Magistrate W. S. Gardner in the Timmins Court House on January 24, 1956. Kleven pleaded guilty as charged. The magistrate imposed a fine of \$50.00 and costs of \$3.00 with an alternative of 20 days in jail. The fine was paid.

Regina vs. C. Kilby and E. Huykman

Arising from an accident in which an employee of Norcanda Construction, Limited, was fatally injured in the Bicroft Uranium Mines, Limited, shaft-house, the following charge was laid against C. Kilby, concrete foreman, and E. Huykman, rigger foreman, for Norcanda:

That E. Huykman, rigger foreman, and C. Kilby, concrete foreman, for Norcanda Construction, Limited in the Township of Cardiff in Haliburton County on July 7th, 1956 did unlawfully permit workmen to be employed in a location, to wit, a head frame at Bicroft Uranium Mines Limited where workmen were working overhead without taking such measures for protection as the nature of the work did permit, contrary to sub-section 96 of Section 162 of the Ontario Mining Act.

Huykman pleaded guilty. Kilby pleaded not guilty and appeared before Magistrate R. I. Moore on October 4th, 1956, at Lindsay, Ontario. Kilby was represented by Mr. C. Fitzgibbons, solicitor, Port Hope, Ontario, and the Crown was represented by Mr. L. W. Jordan, crown attorney, Lindsay, Ontario. Magistrate Moore found both men guilty and imposed fines of \$50.00 and costs of \$73.90, or 30 days in jail. The fines were paid.

Regina vs. Donald MacDonell

A charge was laid against Donald MacDonell, shift leader for MacIsaac Mining and Tunnelling Company, Limited, shaft-sinking contractors at Lake Nordic mine, as follows:

That Donald MacDonell did at Number 1 shaft of the Lake Nordic Mine in Township 149 in the District of Algoma on or about the 18th day of December, 1956, did give a signal to a hoistman when a bucket was at a level in the said shaft other than that from which the signal was given contrary to the Mining Act, Section 162 (156) R.S.O. 1950, Chapter 236 and amendments thereto.

MacDonell pleaded not guilty before Magistrate H. D. Peterson at Blind River on March 20, 1957. The charge was dismissed.

Regina vs. Donald MacDonell

A charge was laid against Donald MacDonell, shift leader for MacIsaac Mining and Tunnelling Company, Limited, shaft-sinking contractors at Lake Nordic mine, as follows:

That Donald MacDonell did at Number 1 shaft of the Lake Nordic Mine in Township 149 in the District of Algoma on or about the 18th day of December, 1956, permit a person, namely Paul Morin, to travel in a bucket operated by a hoist which was being simultaneously used for the hoisting of material contrary to Section 162 (143) of the Mining Act. R.S.O., Chapter 236 and amendments thereto.

MacDonell pleaded guilty before Magistrate H. D. Peterson at Blind River on March 20, 1957. A fine of \$20.00 and court costs were imposed. The fine and court costs were paid.

Regina vs. Joseph McIntyre

A charge was laid against Joseph McIntyre, shaft captain for MacIsaac Mining and Tunnelling Company, Limited, shaft-sinking contractors at Lake Nordic Mine, as follows:

That Joseph McIntyre did at Number 1 shaft of the Lake Nordic Mine in Township 149 in the District of Algoma on or about the 18th day of December, 1956, without proper authority render useless a brake provided in the said mine in compliance with the Mining Act, contrary to Section 162 (410) of the Mining Act, R.S.O. 1950, Chapter 236 and amendments thereto.

McIntyre pleaded guilty before Magistrate H. D. Peterson at Blind River on March 20, 1957. A fine of \$150.00 and court costs were imposed. The fine and costs were paid.

Regina vs. Marcel Parent

A charge was laid against Marcel Parent, a shaft leader employed by Patrick Harrison and Company, Limited, at the Crean Hill mine of the International Nickel Company of Canada, Limited, as follows:

That Marcel Parent, shaft leader with Patrick Harrison & Co. Ltd., did travel on May 9, 1956, at 1.50 P.M. at Crean Hill Mine from the shaft bottom to the surface on a bucket simultaneously being used for hoisting shaft muck, contrary to Section 162, subsection 143 of the Mining Act of Ontario.

Parent pleaded guilty before Magistrate W. F. Woodliffe at Sudbury on May 29. A fine of \$25.00 and costs or 30 days was imposed. The fine and costs amounting to \$32.00 was paid.

Regina vs. J. Sparrow and A. Joseph

J. Sparrow, manager, and A. Joseph, mine captain, at Young Davidson Mines, Limited, were jointly charged as follows:

That at the Township of Matachewan in the District of Temiskaming, on or about the 12th day of November, 1955, Jack Sparrow, being the Manager of Young Davidson Mine, and Alcide Joseph, being the Mine Captain of Young Davidson Mine, did unlawfully permit a person to travel in a cage at a time other than during shaft inspection with the doors of the same not securely closed, contrary to Section 162, subsection 141, paragraph (a) of the Mining Act of Ontario.

The case was heard before Magistrate E. W. Kenrick at Kirkland Lake. Sparrow and Joseph pleaded not guilty. The case was dismissed.

Regina vs. Thomas Trivieri

A charge was laid against Thomas Trivieri employed by Algom Uranium Mines, Limited, at the Algom Quirke mine as follows:

That Thomas Trivieri did drill within five feet of a hole containing explosive contrary to section 162, Subsection 73(c) of the Mining Act on October 18th, A.D. 1956 at the Algom Quirke Mine.

That Thomas Trivieri before drilling was commenced failed to carefully examine the face for misfires giving special attention to old bottoms contrary to Section 162 Subsection 73(a) of the Mining Act.

Trivieri pleaded guilty before Magistrate H. D. Peterson at Blind River on October 31. A fine of \$20.00 on each charge and court costs were imposed. The fines were paid.

MINE RESCUE STATIONS

Mine rescue stations, with a resident Mine Rescue Station Superintendent in charge, are maintained in six of the major mining areas of the province, namely, Sudbury, Timmins, Kirkland Lake, Geraldton, Red Lake, and Cobalt. The Inspector of Mine Rescue Training, stationed in Toronto, is responsible for co-ordinating training and standardizing equipment used in mine rescue work throughout the Province.

A new rescue station, combined with a miner's chest examining station is under construction at Elliot Lake and is expected to be in operation in the spring of 1957. This rescue station will serve the immediate Blind River area as well as the substations located at the Helen mine at Wawa, and at the Renabie Gold mine. New substations have been opened and equipped at the Geco mine in the Manitouwadge area and the Bicroft mine in the Bancroft area. Training has already been started at these two places. There are thirteen additional substations located throughout the province at which sufficient rescue equipment is stored to enable crews to begin operations without waiting for apparatus to be brought long distances from the main stations. As new mining areas are opened up arrangements are made to conduct rescue training and to provide additional equipment.

Following is a table showing the location of all mine rescue stations, giving the number of pieces of breathing apparatus maintained and the number of men taking training.

Rescue Stations and Substations	Superintendent	Pieces of Apparatus ¹	Trainees				Total
			Active	Trained Supervisors	Apparatus Men ²	Reserve ³	
Sudbury.....	H. G. Moorhouse. J. A. Peacock.....	38	185	80	.....	32	297
Levack.....	.....	12	.....	.....	.....	.....	.....
Falconbridge.....	.....	12	.....	.....	.....	.....	.....
Kirkland Lake.....	G. E. Wilson.....	19	65	38	30	.....	133
Kerr-Addison.....	.....	6	.....	.....	.....	.....	.....
Porcupine.....	A. K. Graham.....	17	85	32	16	65	198
Dome.....	.....	6	.....	.....	.....	.....	.....
Hallnor.....	.....	6	.....	.....	.....	.....	.....
Geraldton.....	J. W. Armstrong.....	14	46	12	.....	.....	58
Steep Rock.....	.....	14	.....	.....	.....	.....	.....
Geco.....	.....	13	.....	.....	.....	.....	.....
Leitch.....	.....	6	.....	.....	.....	.....	.....
Red Lake.....	C. S. Culbert.....	20	40	5	.....	.....	45
McKenzie Is. ....	.....	6	.....	.....	.....	.....	.....
Pickle Lake.....	.....	14	.....	.....	.....	.....	.....
Cobalt.....	R. Eveson.....	13	35	.....	.....	.....	35
Gowganda.....	.....	6	.....	.....	.....	.....	.....
Blind River.....	R. Eveson.....	.....	35	10	.....	.....	45
Pronto.....	.....	13	.....	.....	.....	.....	.....
Helen.....	.....	11	.....	.....	.....	.....	.....
Renabie.....	.....	6	.....	.....	.....	.....	.....
Bancroft.....	G. G. McPhail.....	.....	.....	.....	.....	.....	.....
Bicroft.....	.....	12	12	4	.....	.....	16
Total.....	.....	254	503	181	46	97	827

¹Includes McCaa oxygen breathing apparatus, Scott Air Paks, and Chemox apparatus.

²Specialists, e.g., hoistmen, mechanics, electricians, etc., trained only in wearing apparatus.

³Those who have completed a course of training and are used to fill in for absentees at training classes. Available also for emergencies.

The number of mine rescue trainees who passed the required examinations during the year, and who were granted their Certificates and Approval Seals are shown in the following table. It is obvious from these figures that there has been a decrease in the number of trainees writing the various examinations. This is a healthy condition as it indicates less turnover of personnel, and that a greater number of full trained men are being retained on the teams.

Rescue Station	Basic Certificate	Standard Seal	Advanced Seal	Supervisory Seal
Sudbury.....	36	26	25	.....
Kirkland Lake.....	28	21	2	.....
Porcupine.....	20	14	6	16
Geraldton ¹	16	9	1	.....
Red Lake ²	24	11	1	.....
Blind River ³	24	.....	6	4
Cobalt.....	18	3	.....	.....
Bancroft.....	11	.....	.....	.....
Total.....	177	84	41	20

¹Geraldton figures include those of Steep Rock and Geco substations.

²Red Lake figures include those of Pickle Lake substation.

³Blind River figures include those of Helen and Renabie substations

ONTARIO GOVERNMENT CABLE-TESTING LABORATORIES

SUMMARY OF ROPE TESTS, 1956

Classification	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Tests for Ontario mines.....	57	49	57	55	68	63	41	48	45	57	71	53	664
Special informative tests.....							14				16	9	39
Tests for wire-rope manufac- turers.....	44	67	61	55	63	42	55	33	40	61	43	34	598
Tests for mines outside Ontario.....	64	47	32	50	61	48	61	38	37	44	56	31	569
Tests for industries other than mining.....	1							2	1	3	2		9
Other tests.....													
Total.....	166	163	150	160	192	153	171	121	123	165	188	127	1,879

