

**CIHM
Microfiche
Series
(Monographs)**

**ICMH
Collection de
microfiches
(monographies)**



Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques

© 1998

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming are checked below.

- Coloured covers / Couverture de couleur
- Covers damaged / Couverture endommagée
- Covers restored and/or laminated / Couverture restaurée et/ou pelliculée
- Cover title missing / Le titre de couverture manque
- Coloured maps / Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black) / Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations / Planches et/ou illustrations en couleur
- Bound with other material / Relié avec d'autres documents
- Only edition available / Seule édition disponible
- Tight binding may cause shadows or distortion along interior margin / La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure.
- Blank leaves added during restorations may appear within the text. Whenever possible, these have been omitted from filming / Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.
- Additional comments / Commentaires supplémentaires:

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- Coloured pages / Pages de couleur
- Pages damaged / Pages endommagées
- Pages restored and/or laminated / Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed / Pages décolorées, tachetées ou piquées
- Pages detached / Pages détachées
- Showthrough / Transparence
- Quality of print varies / Qualité inégale de l'impression
- Includes supplementary material / Comprend du matériel supplémentaire
- Pages wholly or partially obscured by errata slips, tissues, etc., have been refilmed to ensure the best possible image / Les pages totalement ou partiellement obscurcies par un feuillet d'errata, une pelure, etc., ont été filmées à nouveau de façon à obtenir la meilleure image possible.
- Opposing pages with varying colouration or discolourations are filmed twice to ensure the best possible image / Les pages s'opposant ayant des colorations variables ou des décolorations sont filmées deux fois afin d'obtenir la meilleure image possible.

This item is filmed at the reduction ratio checked below /
Ce document est filmé au taux de réduction indiqué ci-dessous.

10x			14x				18x				22x			26x			30x		
		12x			16x			20x			24x			28x			32x		

The copy filmed here has been reproduced thanks to the generosity of:

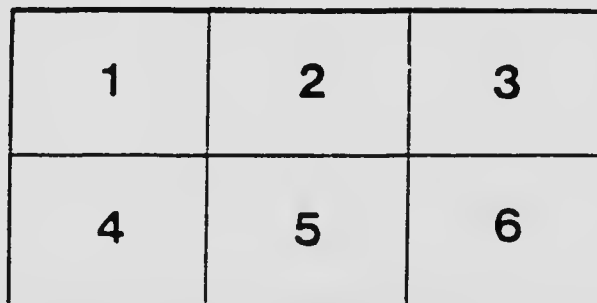
National Library of Canada

The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications.

Original copies in printed paper covers are filmed beginning with the front cover and ending on the last page with a printed or illustrated impression, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impression, and ending on the last page with a printed or illustrated impression.

The last recorded frame on each microfiche shall contain the symbol \rightarrow (meaning "CONTINUED"), or the symbol ∇ (meaning "END"), whichever applies.

Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method:



L'exemplaire filmé fut reproduit grâce à la générosité de:

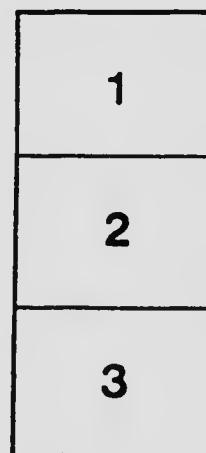
Bibliothèque nationale du Canada

Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon le cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminant par la dernière page qui comporte une telle empreinte.

Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole \rightarrow signifie "A SUIVRE", le symbole ∇ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents. Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.



=

-

]

A

-

f

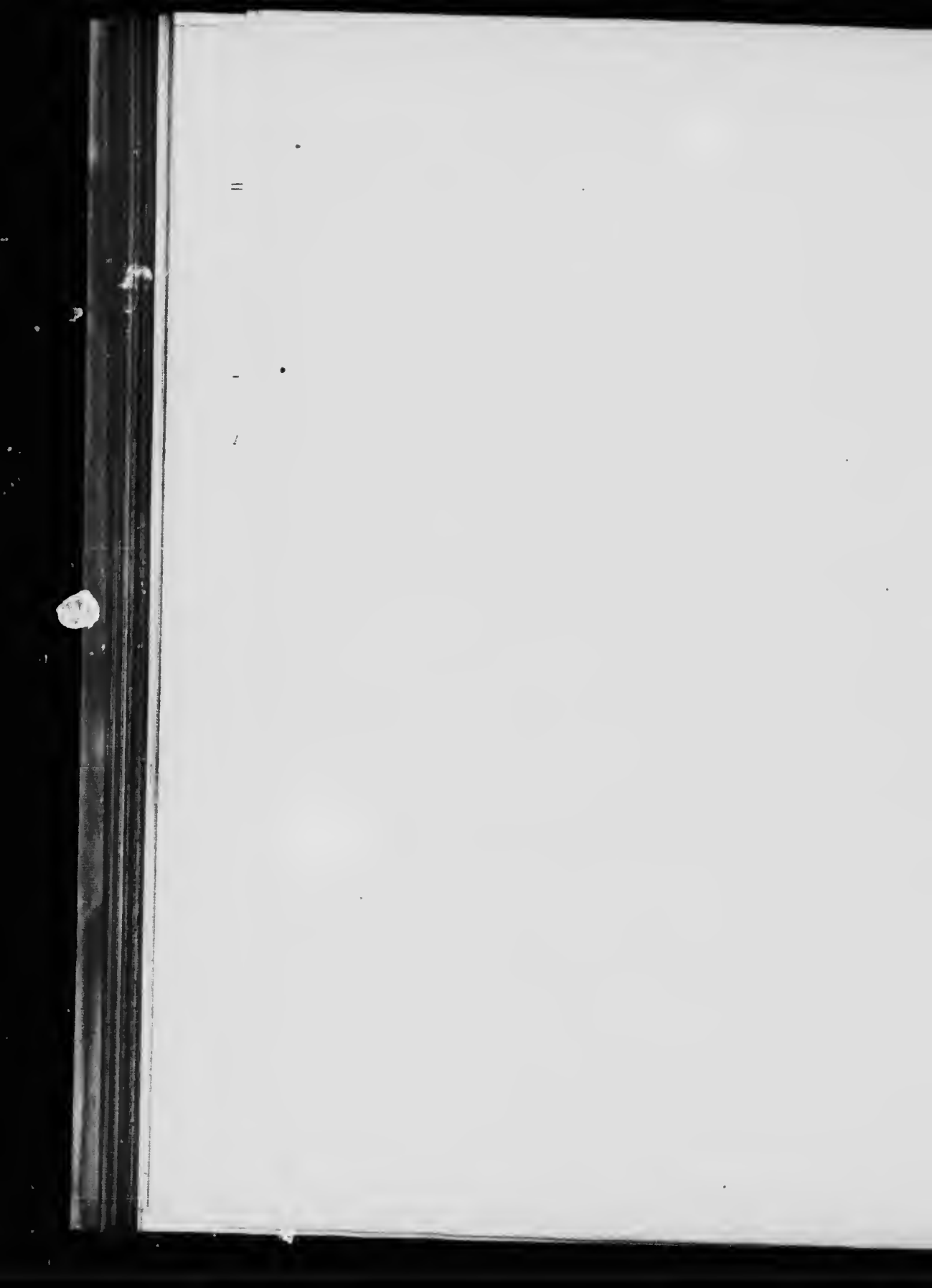
O. H. M. S.

W. J. Gerald
Deputy Minister.

LABORATORY
OF THE
INLAND REVENUE DEPARTMENT
OTTAWA, CANADA

BULLETIN No. 115

BLUESTONE AND FORMALIN



LABORATORY
OF THE
INLAND REVENUE DEPARTMENT
OTTAWA, CANADA

BULLETIN No. 115

BLUESTONE AND FORMALIN.

OTTAWA, March 6, 1906.

W. J. GERALD, Esq.,
Deputy Minister of Inland Revenue.

SIR,--I beg to submit the following report on the inspection of samples of Blue Stone and Formalin, the collection of which was authorized in your letters of January 5 and February 23 last.

In correspondence with the Department concerning bluestone the necessity of this inspection was urged by the Manitoba Grain Growers Association on the ground that a very large proportion of the wheat crop of 1905 had been damaged by smut in districts where great care had been taken to properly treat the seed with solution of sulphate of copper previous to sowing. This request was forwarded through the Department of Agriculture, and similar representations from private parties were received through the Deputy Minister of Trade and Commerce. A later communication, dated February 13, was received by this branch from Mr. C. A. Clark, Seed Commissioner of the Dominion Department of Agriculture, in which the necessity was explained for having the results of the inspection published among the farmers of the North-west at the earliest possible date and mentioning formalin as another germicide requiring the attention of the Department.

Accompanying this report you will find, in Table I, all the information we possess regarding the origin of 23 samples of bluestone, obtained for the most part in the North-west. The collection was ordered of a much larger number in the province of Manitoba, but the inspector was unable to obtain more, without simply duplicating brands of the same origin. The table also contains the result of testing these samples, which work was performed by Mr. A. Valin. Pure bluestone consists simply of one molecule of cupric sulphate and five of water of crystallization. Its percentage composition is as follows:—

Cupric Oxide	31.86	per cent.
Sulphuric Anhydride	32.06	"
Water of Crystallization	36.08	"
	100.00	"

It ought therefore to contain at least 30 per cent of cupric oxide, and be free from iron oxide and alumina. It is defined in the British Pharmacopœia, which exacts that it should yield 'no characteristic reaction with the test for lead, arsenium, zinc or aluminium, and not more than the slightest reactions with the tests for iron.' From the table it will be seen that some of the samples contain as much as 34.37 per cent of cupric oxide, which high percentage is probably owing to loss of some of the water of crystallization. Six out of the 23 samples contain less than 30 per cent of cupric oxide and the lowest shows 28.62. In only one case does the quantity of alumina and ferric oxide exceed 1.0 per cent and this I have marked as 'adulterated.' The result of the inspection is therefore in percentages as follows:

Genuine.....	73.9 per cent.
Of inferior quality.....	21.7 "
Adulterated.....	4.4 "
	100.0 "

Under the circumstances, the opinion which seems now to exist in the North-west, to the effect that the prevalence of smut in the crop of last year was owing to the inferior quality of the bluestone sold to the farmers, does not appear to be well founded.

Table II, also attached to this report, gives the results of inspecting formalin. This article is not mentioned in the British Pharmacopœia, but in Merck's Index it is defined as a 40 per cent solution of Formaldehyde. According to Leach, the common preservatives on the market known as 'Preservaline,' 'Freezine,' 'Ice-line,' &c., are produced from diluting the 40 per cent solution known as formalin, which has therefore a recognized strength. The ten samples described in the table, although bought from different vendors, represent for the most part, the article manufactured by the Perth Amboy Chemical Co., of Perth Amboy, New Jersey. These vary, according to the assays of Mr. A. Valin, in the quantities they contain of formaldehyde, from 37 to 39.4 per cent, and in the absence of any standard 'limits of variability' cannot very well be characterized otherwise than as 'genuine.' One sample has been found to contain only 25.6 per cent and is considered to be adulterated.

I have the honour to be, sir,

Your obedient servant,

THOMAS MACFARLANE,
Chief Analyst.

be free
with exact
zinc or
From
cent of
water of
ferrous
oxide
and ferric
t of the

orth-west,
g to the
founded.
lin. This
dex it is
common
are pro-
erfore a
different
n Amboy
assays of
per cent,
e charac-
only 25-6

lyst.

TABLE I.—INSPECTION OF 23 SAMPLES OF BLUESTONE (SULPHATE OF COPPER).

Date of Collection.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher.	Results of Analysis.		Remarks by Chief Analyst.
			Quantity.	Value.		Cupric oxide.	Alumina and ferric oxide.	
District of Ontario—A. E. Strathmore Inspector.								
1906.				\$ cts.		P. C.		
Jan. 25	29297	Bates & Co., Montreal Basin,	½ lb.	0 05	Imported by W. & F. P. Currie, Montreal	29.26		Inferior in quality.
"	29298	Ottawa	½ "	0 05	"	33.01	9.24	Genuine.
"	29299	Ottawa, wholesale,	½ "	0 05	Copeland Co., Montreal.	34.37	0 06	"
"	29300	Ottawa, wholesale,	½ "	0 05	Evans & Sons, Montreal.	34.37	0 16	"
Jan. 6	29212	J. L. Wood, Ltd., cor Bank and Sparks Sts., Ottawa, druggists.	½ "	0 08	Lyman Sons & Co., Montreal.	32.12	0 08	"
District of Winnipeg, W. M. Condit, Inspector.								
"	25718	The Hunter, Smith Hardware Co., Brandon	3 lbs.	0 25	Miller, Morse Co., Winnipeg	31.81	0 48	Genuine.
"	25719	Johnson & Co., Brandon	3 "	0 25	The Ashdown Hardware Co., Winnipeg	30.77	0 60	"
"	25720	Smith & Barton, Brandon	3 "	0 25	Brown & Mitchell, Brandon.	31.81	0 56	"
"	25721	The Manitoba Hardware and Lumber Co., Virden.	3 "	0 25	The Ashdown Hardware Co., Winnipeg.	30.43	0 20	"
"	25722	A. S. Smith, Moosomin.	2½ "	0 10	"	31.41	0 70	"
"	25723	Smith & Ferguson, Regina	3 "	0 25	The Laird Forwarding Co., Regina	31.18	0 28	"
"	25724	Western Hardware Co., Regina	3 "	0 25	Geo. D. Wood & Co., Winnipeg.	31.18	0 30	"
"	25725	R. H. Williams & Son, Regina	3 "	0 25	The Laird Forwarding Co., Regina	28.85	0 35	Inferior in quality.
"	25726	Foley, Lock & Larson, Winnipeg	2½ "	0 25	The American Smelting Co., Omaha	30.43	0 40	Genuine.
"	25727	The Ashdown Hardware Co., Winnipeg	2½ "	0 25	"	28.95	0 46	Inferior in quality.
"	25728	The Ashdown Hardware Co., Winnipeg	3 "	0 20	The Sharland Co., London, Eng.	28.95	0 04	"
"	25729	W. W. Lauder, Man.	3 "	0 20	"	31.18	0 60	Genuine.
District of Calgary, W. Fletcher, Inspector.								
Feb. 19	29621	S. H. Caswell & Co., McLean, A. S.	1 lb.	0 25	Marshall, Wells & Co., Winnipeg	34.37	0 64	Genuine.
"	29622	C. A. Wallace, Calgary, Alta.	1 "	0 25	Bole Drug Co., Winnipeg.	28.67	1.16	Adulterated.
"	29623	W. Maclean	1 "	0 25	"	31.18	0 60	Genuine.
"	29624	Jas. Findlay	1 "	0 25	Marshall, Wells & Co., Winnipeg.	30.43	0 22	"
"	29625	Curry & Cope	1 "	0 25	"	28.85	0 76	Inferior in quality.
"	29626	Bole Drug Co.	1 "	0 25	Bole Drug Co., Winnipeg.	30.43	0 10	Genuine.

TABLE II.—INSPECTION OF 11 SAMPLES OF FORMALIN.

Date of Collection.	No. of Sample.	Name and Address of Vendor.		COST.		RESULTS OF ANALYSIS. Formaldehyde.	Remarks by Chief Analyst.
		Quantity.	Value.	Oz.	¢ cts.		
<i>District of Winnipeg—W. M. Conklin, Inspector.</i>							
Feb. 21	25728	F. A. Wilson, Morden ..	24	0 75	Martin, Bole, Wynne Co., Winnipeg	38 4	Genuine.
"	25729	A. P. Brown ..	24	0 60	Not known ..	35 6	Adulterated.
"	25730	W. J. Carson, Killarney ..	18	0 40	Park, Davin & Co., Walkerville, Ont.	38 8	"
"	25731	Killarney Drug Co., Killarney ..	18	0 60	Not known ..	38 6	"
"	25732	Central Drug Hall, Boissevain ..	18	0 60	Martin, Bole, Wynne Co., Winnipeg.	38 6	"
"	25733	W. J. Hilton, Boissevain ..	18	0 60	"	38 2	"
"	25734	The Bole Drug Co., Winnipeg ..	24	0 40	Perth Amboy Chemical Co., Perth Amboy, New Jersey.	38 6	"
"	25735	The Martin, Bole, Wynne Co., Winnipeg ..	24	0 40	"	38 4	"
"	25737	A. L. Hill, Portage la Prairie ..	18	0 65	The Martin, Bole, Wynne Co., Winnipeg.	37 0	"
"	25738	W. A. Voorman, Portage la Prairie ..	18	0 60	The Bole Drug Co., Winnipeg.	37 6	"
"	25739	S. B. Cowan, Portage la Prairie ..	18	0 60	The Martin, Bole, Wynne Co., Winnipeg.	37 8	"

