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LABORATORY  
OF THE  
INLAND REVENUE DEPARTMENT  
OTTAWA, CANADA

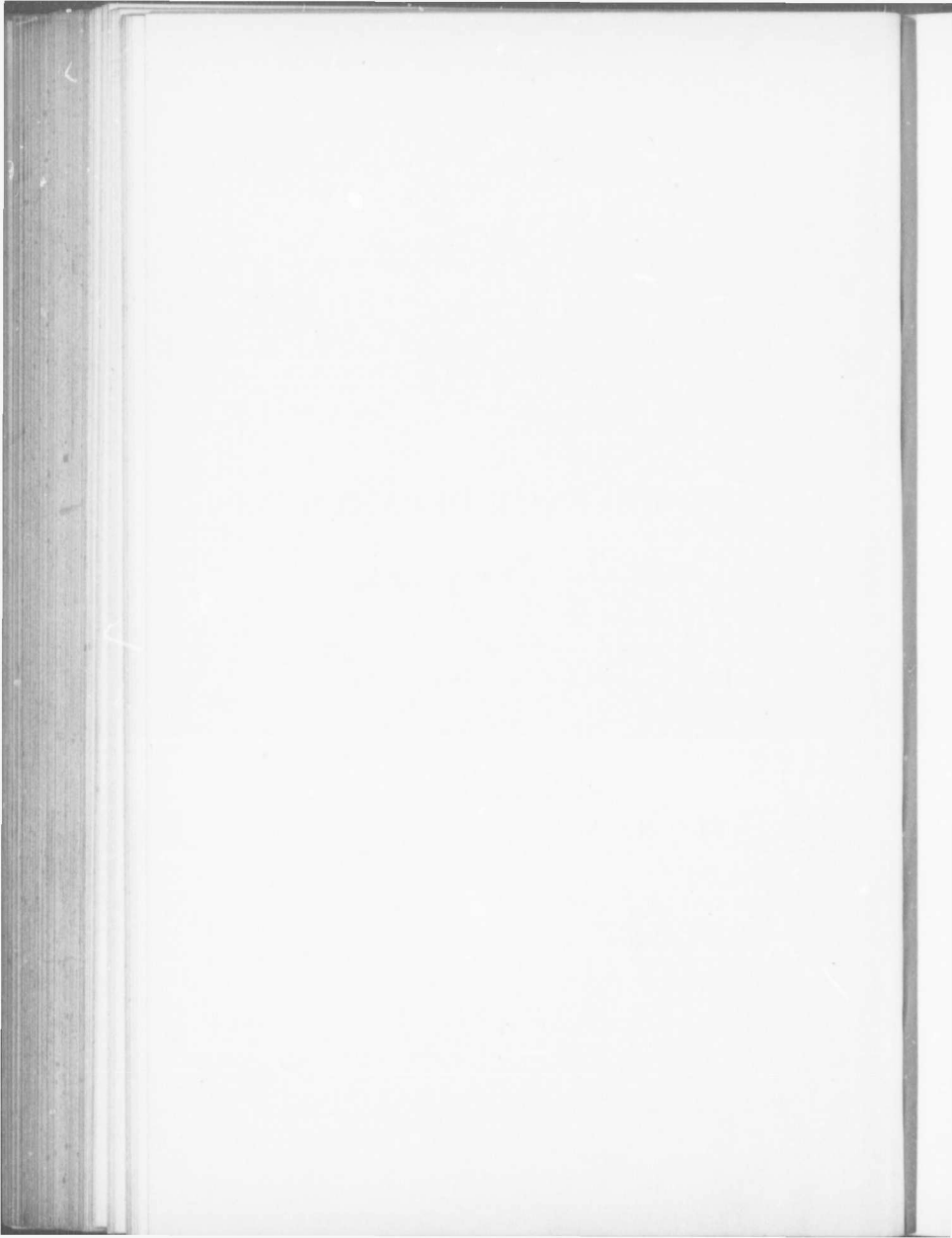
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BULLETIN No. 271

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MUSTARD

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OF THE  
INLAND REVENUE DEPARTMENT  
OTTAWA CANADA

BULLETIN No. 271

MUSTARD

OTTAWA, November 11, 1913.

WM. HIMS WORTH, Esq.,  
Deputy Minister,  
Inland Revenue.

SIR,—I have the honour to hand you a report upon 167 samples of mustard purchased throughout Canada in February, March and April of this year.

It has not yet been found possible to establish standards for this article. Our last systematic inspection was made in 1909, and the results are published as Bulletin No. 176.

From the preface to this Bulletin, I quote the following:—

'In Bulletin No. 19, the late Chief Analyst directs attention to the need of definite standards for mustard; and suggests the adoption of a minimum limit of 30 per cent fixed oil for genuine mustard, and of 22 per cent for compound mustard.

'The importance of legalizing a definition of mustards is undeniable, and until this is done, I find it quite impossible to declare adulteration in any of the extremely variable samples, sold under this name.

'That such definition should depend mainly upon a percentage of fixed oil in the article, is not so clear. The fixed oil of mustard is present in mustard seeds (both black and white) to the extent of about 25 per cent; and the sifted farina of mustard contains this oil to about 35 per cent or slightly higher. (Piesse and Stansell; The Analyst, 1880, p. 161.)

'But the value of mustard as a condiment does not depend upon the content of fixed oil. White mustard, which *per se*, has little condimental value, contains as much fixed oil as black mustard. Nor did the late Chief Analyst suggest the determination of fixed oil in mustard as being itself directly an element of value in the condiment, but rather as a means of ascertaining the amount of foreign material present in admixtures. This added material is usually starch or turmeric, and is practically fat free.

Since the fixed oil in mustard seed is fairly constant, the suggestion to make the percentage of fixed oil in mustard flour a basis for calculating the amount of foreign matter added is a reasonable one, provide! that mustard seed is always ground in its natural state, i.e., without removal of any portion of the fixed oil. This, however, is not the case. The oil greatly interferes with the pulverizing of the seed, and over 75 per cent of it may be removed by pressure before grinding, so that estimation of the fixed oil in the finished product, affords no trustworthy basis for calculation as to foreign matter added. The fixed oil of mustard is a bland oil, applicable to various dietetic purposes, but quite devoid of such condimental properties as are valued in mustard.

The characteristic pungency of mustard is due to a volatile oil, only traces of which exist in the dry mustard, but which is developed, by the action of a ferment (myrosin) upon potassium myronate, in the presence of water. It is only upon mixing mustard with water that the pungent flavour is developed. Potassium myronate is present to the extent of about 1.5 per cent in black mustard seed, and is practically absent from white mustard. This latter contains only traces of volatile oil as such, while about half of one per cent is present in the black seed. It follows, from what has been said, that the better way of valuing mustard, would be by direct estimation of its volatile oil, after a treatment converting potassium myronate into this last.

It is found in practice, that although the white mustard seed contains no potassium myronate, its presence in admixture with the black seed assists in the generation of volatile oil from the latter; and for this reason the two varieties are ground together. This is due to the fact that a ferment (myrosin) whose presence determines the conversion of potassium myronate into volatile oil of mustard, is more largely present in white than in black mustard, although the glucoside (*sinigrin*) upon which it acts, to develop the volatile oil is practically absent from white mustard. A glucoside (Sinalbin) exists in white mustard, which, when acted upon by water in presence of myrosin, yields an oil (Sinalbin mustard oil) which has the pungent, burning taste, and vesicating properties of the volatile oil of black mustard; but this oil is only slightly volatilized with steam, and its presence does not materially interfere with the estimation of volatile mustard oil. (Allyl-isothiocyanate.)

From the work of Piesse and Stansell already quoted, F. Sutton (Allen's Commercial Organic Analysis; vol. III, part 3, p. 116); Schlicht (Zeits. Anal. Chem. XXX, 661), and others, I am of opinion that the determination of volatile oil of mustard is practicable as a means of assaying commercial mustard; and I hope to investigate this matter more fully at an early date.

The following definition of mustard has been adopted by the United States Department of Agriculture (Circular No. 13, Dec. 20, 1904, p. 11):—

“Ground Mustard is a powder made from mustard seed, with or without the removal of the hulls and a portion of the fixed oil, and contains not more than two and five-tenths (2.5) per cent of starch and not more than eight (8) per cent of total ash.”

This definition leaves much to be desired, as it makes no reference to the component (volatile oil) upon which the real value of ground mustard depends, whether considered as a condiment, or as a vesicant.

It will be seen on looking through the tables in this report, that very few samples of mustard found on the Canadian Market are free from starch and turmeric. Nor is it to be understood that the addition of starch and turmeric is made for purposes of fraud. Certain brands of this condiment, which have been on the world's markets for generations, and have received recognition and honours at International Exhibitions, are avowedly mixtures of mustard farina with other materials. The public have approved of these compounds; and other manufactures have, on this account, been led to imitate them. It may be, as alleged by some makers, that the presence of starchy matters is necessary, to give better keeping quality to the article, which without starch, tends to become lumpy and sticky; that turmeric is desirable to give a pleasing colour

to mustard, especially when mixed with water for the table; that the removal of a large percentage of the fixed oil is necessary to permit of satisfactory grinding and sifting. On the other hand, it is claimed that the seeds of white mustard although not possessed of the pungent properties essential to mustard as a condiment, contain the finer and distinctive flavours of mustard, and are as necessary to the production of a desirable condiment as the black mustard. And further that even the same variety of seeds exhibits so great differences in crops of different years that it is impossible to make satisfactory blends except under the guidance of an expert, who is guided rather by the cultivated senses of taste, and smell, than by varietal differences in the seeds themselves. However this may be, it is certain that mustard should be sold for what it is; and that the presence of added matters should be announced on the label.

The question of the amount of added matters which may be permitted is serious, from the point of view of the use of mustard as a domestic remedy, in blisters, poultices, emetics, &c. The mustard of the pharmacopœias permits of no admixture. Mustard as a condiment is another matter, and the public should learn to recognize the distinction between the two. Condimental mustard may be regarded as a substitute, in emergency, for the pharmacopœal mustard, but by no means to be confused with this last.

But even as a condiment, there is a degree of dilution which amounts to fraud. The fixing of limits defining mustard for condimental purposes is under consideration. The problem is not a simple one, and I am not yet in a position to submit a formal solution.

I do not find it possible to add anything of importance to the above, which states very fairly the position of our knowledge regarding mustard.

The analytical results presented in the accompanying report are of value as furnishing additional data for the defining of standards for commercial or condimental mustard.

An effort will be made to have such standards prepared without delay, and meanwhile I would respectfully advise the publication of this report as Bulletin No. 271.

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

A. MCGILL,  
*Chief Analyst.*

Date of Collection	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by the Vendor.	
				Quantity.	Cents.	Manufacturer.	Furnisher.

## DISTRICT OF NOVA SCOTIA—

1913.								
Mar. 6	Mustard.	46926	National Drug Co., Halifax, N.S.	¼	lb.	30	J. & J. Coleman, London, Eng.	Manufacturers .....
" 10	"	36927	A. J. Baker, Halifax, N.S.	¼	"	30	Gorman & Eckert, London, Ont.	" .....
" 10	"	46928	T. J. Brown, Halifax, N.S.	¼	"	23	Unknown .....	Morrison & Williams, Halifax, N.S.
" 10	"	46929	W. J. Hopgood & Son, Halifax, N.S.	¼	"	30	J. & J. Coleman, London, Eng.	John Tobin & Co., Halifax, N.S.
" 11	"	46930	E. W. Grease & Son, Halifax, N.S.	¼	"	25	Keens, London, Eng.	Manufacturers agent
" 12	"	46931	Morrison & Williams, Halifax, N.S.	¼	"	15	E. E. Durkee & Co., New York,	Manufacturers .....
" 19	"	46932	De Wolf & Lanont, Kentville, N.S.	¼	"	38	Keens, London, Eng.	R. B. Section, Halif- fax, N.S.
" 24	"	46933	Black & Co., Truro, N.S.	¼	"	33	J. & J. Coleman, London, Eng.	Manufacturers .....
" 27	"	46924	C. McNab & Co., Dart- mouth, N.S.	¼	"	22	J. P. Mott, Halifax, N.S.	Manufacturer .....
" 27	"	46935	G. A. Orman, Dart- mouth, N.S.	¼	"	23	Unknown .....	Bauld Bros., Ltd., Halifax, N.S.

## DISTRICT OF PRINCE EDWARD ISLAND—

Feb. 27	Mustard.	46379	L. A. Haszard, Char- lottetown, P.E.I.	¼	lb.	27	Colman's, London, Eng.	.....
" 28	"	46380	A. Gates & Co., Char- lottetown, P.E.I.	¼	"	45	J. & J. Coleman, London, Eng.	.....
Mar. 3	"	46381	Redlin Bros., Charlotte- town, P.E.I.	¼	"	30	Keens, London, Eng.	Lyman Sons & Co., Ltd., Montreal.
" 5	"	46382	S. Beaton, Bonshaw, P. E.I.	¼	"	30	Scott's Extract Co., St. John, N.B.	.....
" 5	"	46383	Lord Co., Cape Tra- verse, P.E.I.	¼	"	24	Unknown .....	.....
" 6	"	46384	R. H. Cameron, Cra- paud, P.E.I.	¼	"	30	G. E. Barbour & Co., St. John, N.B.	.....
" 6	"	46385	P. D. Hagan, Tyrone, P.E.I.	¼	"	30	.....	Carvell Bros., Char- lottetown, P.E.I.
April 25	"	46386	Sinclair & Stewart, Sum- merside, P.E.I.	¼	"	30	Swartz & Sous, Halif- fax, N.S.	.....

## DISTRICT OF NEW BRUNSWICK—

Feb. 25	Mustard.	50555	H. W. Cole, Ltd., St. John, N.B.	3	tins.	45	J. & J. Calman, Ltd., London, Eng.	.....
" 25	"	50556	Dearborn & Co., Ltd., St. John, N.B.*	¼	lb.	21	Vendors .....	.....
" 27	"	50557	Baird & Peters, St. John, N.B.	¼	"	12	Colburn, Philadel- phia, Pa.	.....
" 27	"	50558	Puddington, Wetmore, Morrison, Ltd., St. John, N.B.	¼	"	25	G. S. Dunn & Co., Hamilton, Ont.	.....

## MUSTARD.

Inspector's Report. (Is not an expression of opinion.)	Results of Analysis.			No. of Sample.	Remarks and Opinion of the Chief Analyst.
	Total Ash.	Starch (by Acid Inversion.)	Microscopical Examination.		

## R. J. WAUGH, INSPECTOR.

	p. c.			
.....	4.1	Traces	.....	46926
.....	3.4	28.1	Wheat starch	46927
.....	4.7	11.7	Traces wheat starch	46928
.....	3.8	6.8	" "	46929
.....	4.0	8.1	" "	46930
.....	5.1	13.7	Turmeric	46931
.....	4.0	6.8	Traces wheat starch	46932
.....	4.1	11.8	A small amount wheat starch	46933
.....	2.2	50.6	Wheat starch, turmeric	46934
.....	4.1	22.5	" "	46935

## WM. A. WEEKS, INSPECTOR.

.....	4.6	Traces	.....	46379
.....	3.8	5.0	Traces wheat starch	46380
.....	2.7	22.4	Wheat starch	46381
.....	4.3	5.6	Traces wheat starch	46382
.....	2.1	34.6	Wheat starch, turmeric	46383
.....	4.3	5.0	.....	46384
.....	1.8	22.4	Wheat starch, traces turmeric	46385
.....	2.9	51.8	Wheat starch	46386

## J. C. FERGUSON, INSPECTOR.

Double Superfine	3.7	6.8	Traces wheat starch	50555
.....	4.0	15.6	" turmeric	50556
Sold as Compound, Eng- lish Brand	2.3	48.7	" "	50557
.....	4.8	21.2	" "	50558



Date of Collection	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by the Vendor.	
				Quantity.	Cents.	Manufacturer.	Furnisher.

## DISTRICT OF NEW BRUNSWICK—

1913.							
Mar. 7	Mustard..	50559	W. A. Simonds, St. John, N.B.	$\frac{3}{4}$ lb.	45	J. Farrow & Co., Peterborough, Eng.	
" 10	" ..	50560	M. E. Grass, St. John, N.B.	$\frac{3}{4}$ "	30	Unknown.....	Unknown .....
Apr. 7	" ..	50561	G. E. Barbour & Co., Ltd., St. John, N.B.	$\frac{3}{4}$ "	21	Vendors.....	
" 18	" ..	50562	H. N. Dickinson, Perth, N.B.	$\frac{3}{4}$ "	30	G. E. Barbour & Co., Ltd., St. John, N.B.	
" 23	" ..	50563	J. A. Davidson, Sussex, N.B.	$\frac{3}{4}$ "	25	Scotts Extract Co., St. John, N.B.	
" 24	" ..	50594	H. T. Brewster, Moncton, N.B.	$\frac{3}{4}$ "	27		Reed & Co., Ltd., Moncton, N.B.

## DISTRICT OF QUEBEC—

Feb. 24	Mustard..	37138	Benjamin Crepeault, 68 Rue Cremaise, Montcalmville.	$\frac{3}{4}$ "	18	J. & J. Coleman, London, Eng.	J. B. Reneaud & Cie., Quebec.
" 25	" ..	37139	F. Racine, 66 Rue Cremaise, Montcalmville.	$\frac{3}{4}$ "	24	" " ..	N. Turcot & Cie., Quebec.
" 26	" ..	37140	Jos. Brulot, 11 Chemin, St. Foie.	$\frac{3}{4}$ "	30	" " ..	Boivin & Grenier, Quebec.
" 27	" ..	37141	Jos. Bedard, 113 2me Rue Stadacona, Quebec.	$\frac{3}{4}$ "	30	" " ..	Unknown .....
" 27	" ..	37142	Francois Cliche, 4 2m. Rue 111 Stadacona, Quebec.	$\frac{3}{4}$ "	22	" " ..	Quebec Preserving Co., Quebec.
Mar. 3	" ..	37143	F. Grenier, 53 Rue Scott, Quebec.	$\frac{3}{4}$ "	21	" " ..	Turcot & frere, Quebec.
" 3	" ..	37144	F. Delisle, 60 Rue Scott, Quebec.	$\frac{3}{4}$ "	18	" " ..	Langlois & Paradis, Quebec.
" 3	" ..	37145	Jos. F. Goslin, 50 Rue D'Orchester, Quebec.	$\frac{3}{4}$ "	45	" " ..	Joseph & Co., Quebec.
" 4	" ..	37146	Charles Martel, 49 Rue D'Antigny, Quebec.	$\frac{3}{4}$ "	20	" " ..	J. B. Reneaud & Cie., Quebec.
" 4	" ..	37147	A. Roy, 112 $\frac{1}{2}$ Rue Scott, Quebec.	$\frac{3}{4}$ "	21	" " ..	Turcot & frere, Quebec.

## DISTRICT OF THREE RIVERS—

Mar. 17	Mustard..	57215	G. H. Read, St. Felix de Valois.	$\frac{3}{4}$ lb.	45	Keens, London, Eng.	
" 17	" ..	57218	Thermas Guibord, St. Felix de Valois.	$\frac{3}{4}$ "	30	" " ..	
" 17	" ..	57221	Louis Enos, St. Felix de Valois.	$\frac{3}{4}$ "	15		Jos. Dufresne, Joliette, Que.
" 17	" ..	57224	Jos. Mosseau, St. Felix de Valois.	3 pkgs.	30	Keens, London, Eng.	

## MUSTARD.

Inspector's Report. (Is not an expression of opinion)	Results of Analysis.			No. of Sample.	Remarks and Opinion of the Chief Analyst.
	Total Ash.	Starch (by Acid inversion.)	Microscopical Examination.		

*Concluded.*

	p. c.			
Farrows A. 1. Double Superfine.....	4.1	11.2	Traces wheat starch, turmeric..	50559
.....	3.9	26.8	" " .....	50560
.....	3.9	Traces..	.....	50561
Acorn Brand.....	4.1	" ..	.....	50562
.....	4.5	6.7	.....	50563
.....	4.9	7.2	.....	50564

## F. X. W. E. BELAND, INSPECTOR.

.....	3.6	17.5	Wheat starch, turmeric.....	37138
.....	3.6	15.6	" " .....	37139
.....	3.6	18.1	" " .....	37140
.....	3.8	10.6	Small amount wheat starch....	37141
.....	3.5	20.2	Wheat starch, turmeric.....	37142
.....	3.5	20.2	" " .....	37143
.....	3.5	16.8	" " .....	37144
.....	3.8	12.5	Small amount wheat starch....	37145
.....	4.0	13.1	Small amount wheat starch, traces turmeric.	37146
.....	1.8	17.5	Wheat starch, turmeric.....	37147

## DR. V. P. LAVALLEE, INSPECTOR.

.....	3.1	45.1	Wheat starch, turmeric.....	57215
.....	4.1	6.2	Traces wheat starch.....	57218
.....	2.9	30.6	Wheat starch, turmeric . . .	57221
.....	4.1	11.2	Traces wheat starch, turmeric..	57224

Date of Collection	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by the Vendor.	
				Quantity.	Cents.	Manufacturer.	Furnisher.

## DISTRICT OF THREE RIVERS—

1913.							
Mar. 18	Mustard..	57228	Ernest Asselin, St. Felix de Valois.	½ lb.	30	Keens, London, Eng.	.....
" 19	" ..	57232	Edras Asselin, St. Felix de Valois.	½ "	25	.....	Jos. Dufresne, Joliette, Que.
" 19	" ..	57235	Louis Bellerose, St. Felix de Valois.	½ "	24	Keens, London, Eng.	.....
" 22	" ..	57237	Arthur Guibeault, Joliette.	½ "	45	" "	.....
" 22	" ..	57240	C. Barrette, Joliette.	½ "	42	" "	.....
" 22	" ..	57244	Magnan Frères, Joliette.	½ "	45	" "	.....

## DISTRICT OF EASTERN TOWNSHIPS—

Mar. 10	Mustard..	1513	P. Thibault, Victoriaville.	3 pkgs	39	Marratte, Leblanc & Cie, Montreal.	.....
" 10	" ..	1514	E. Lambert, Victoriaville.	3 "	45	.....	.....
" 12	" ..	1515	F. X. Thivierge, Beaucouville.	½ lb.	18	.....	Unknown.
" 13	" ..	1516	Ferd. Pepin, Ste. Marie.	½ "	15	.....	"
" 17	" ..	1517	Aug. Provencher, Windsor Mills.	½ "	19	Pure Gold Mfg. Co., Toronto.	.....
" 18	" ..	1518	J. O. Bertrand, Coaticook.	½ "	28	.....	Unknown.
" 19	" ..	1519	Bernard & Cie, Sherbrooke.	½ "	30	.....	"
" 19	" ..	1520	H. Chamberlain, Magog.	½ "	23	.....	Forbes Bros., Montreal.
April 15	" ..	1521	Mag. Martel, Acton vale.	½ "	19	.....	.....
" 17	" ..	1522	L. E. Thibaudeau, Plessisville.	½ "	18	The F. F. Dalley Co., Ltd., Hamilton.	.....

## DISTRICT OF MONTREAL—

Mar. 11	Mustard..	51256	E. Tessier, 982 St. Catharine E., Montreal.	½ lb.	28	.....	F. G. Payette, Montreal.
" 11	" ..	51257	L. Mauer, 180 Dorchester west, Montreal.	½ "	30	W. G. Dunn & Co., Hamilton Ont.	.....
" 11	" ..	51258	Dr. Drustein, 100 St. Catharine west, Montreal.	½ "	23	.....	.....
" 12	" ..	51239	E. Martin, 203 Laurier Ave. west, Montreal.	½ "	25	.....	.....
" 12	" ..	51260	F. Gaudy, 31 Laurier Ave. west, Montreal.	½ "	25	.....	.....

## MUSTARD.

Inspector's Report. (Is not an expression of opinion.)	Results of Analysis.			No. of Sample.	Remarks and Opinion of the Chief Analyst.
	Total Ash.	Starch (by Acid inversion.)	Microscopical Examination.		

*Concluded.*

	p. c.			
.....	3.0	28.1	Wheat starch, turmeric.....	57228
.....	2.9	31.8	" ".....	57232
.....	2.8	31.8	" ".....	57235
.....	4.0	11.2	Traces wheat starch.....	57237
.....	3.8	11.8	" ".....	57240
.....	4.0	8.7	" ".....	57244

## J. C. ROULEAU, INSPECTOR.

.....	4.4	30.6	Wheat starch, turmeric.....	1513
.....	4.0	Traces.	Traces wheat starch.....	1514
.....	3.5	15.6	Wheat starch, traces turmeric..	1515
.....	3.5	17.5	" ".....	1516
.....	2.8	43.2	" ".....	1517
.....	1.6	52.5	" ".....	1518
.....	0.4	8.1	Traces wheat starch, turmeric..	1519
.....	3.2	48.1	Wheat starch, turmeric.....	1520
.....	4.5	30.6	" ".....	1521
.....	2.6	44.3	" ".....	1522

## J. J. COSTIGAN, INSPECTOR.

.....	3.2	49.9	Wheat Starch, turmeric.....	51256
.....	3.1	36.8	" ".....	51257
.....	2.4	48.7	" ".....	51258
.....	2.8	30.0	" ".....	51259
Labeled Fine Mustard Compound.	2.3	33.7	" ".....	51260

## BULLETIN No. 271—

Date of Collection	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Finisher as given by the Vendor.	
				Quantity.	Cents.	Manufacturer.	Furnisher.

## DISTRICT OF MONTREAL—

1913.							
" 12	Mustard..	51261	O. Sansregret, 2011 Clark St., Montreal.	$\frac{1}{4}$ lb.	30		
" 12	" ..	51262	J. A. Carriere, 91 Laurier Ave. east, Montreal.	$\frac{1}{4}$ " ..	30		Hudon, Hebert & Cie, Montreal.
" 12	" ..	51263	J. M. Lefebvre, 166 Laurier Ave., Montreal.	$\frac{1}{4}$ " ..	30		
" 12	" ..	51264	Pelletier et frere, 1030 Henri Julian Ave., Montreal.	$\frac{1}{4}$ " ..	25		
" 12	" ..	51265	L. P. Deslieres, 1750 Cadieux St., Montreal.	$\frac{1}{4}$ " ..	25		

## DISTRICT OF VALLEYFIELD—

Mar. 13	Mustard..	51336	W. Beaudry, Valleyfield, P.Q.	$\frac{1}{4}$ lb.	27		
" 13	" ..	51337	J. Z. Daoust, Valleyfield, P.Q.	$\frac{1}{4}$ " ..	30		
" 19	" ..	51338	E. Z. Labrosse, Vankleek Hill, Ont.	$\frac{1}{4}$ " ..	29		
" 19	" ..	51339	P. T. McLaurin, Vankleek Hill, Ont.	$\frac{1}{4}$ " ..	18		
" 19	" ..	51340	John Wilson, Vankleek Hill, Ont.	$\frac{1}{4}$ " ..	20		
" 20	" ..	51341	L. P. Pattee, Hawkesbury.	$\frac{1}{4}$ " ..	25	J. V. Boudrais, Montreal.	
" 20	" ..	51342	A. M. Steele, Hawkesbury.	$\frac{1}{4}$ " ..	27	J. Barron, Laclute, P.Q.	
" 20	" ..	51343	F. X. Bertrand, Hawkesbury.	$\frac{1}{4}$ " ..	19		
" 24	" ..	51344	A. Markson, Alexandria, Ont.	$\frac{1}{4}$ " ..	20		

## DISTRICT OF OTTAWA—

Feb. 22	Mustard..	51713	Thos. Stevens, Carleton Place.	$\frac{1}{4}$ lb.	25	Pure Gold Mfg. Co., Toronto.	Manufacturers ..
" 22	" ..	51714	Alex. Sibbitt, Carleton Place.	$\frac{1}{4}$ " ..	26	" ..	" ..
" 22	" ..	51715	Bowland & McRostie, Carleton Place.	$\frac{1}{4}$ " ..	30	Unknown ..	Robertson Nicole, Kingston.
" 24	" ..	51716	Jas. MacPherson, Arnprior.	$\frac{1}{4}$ " ..	20	Pure Gold Mfg. Co., Toronto.	Manufacturers ..
" 25	" ..	51717	J. McDermid, Finch...	$\frac{1}{4}$ " ..	22	Unknown ..	Stedman Bros., Brantford, Ont.
" 25	" ..	51718	J. E. Cook, Winchester.	$\frac{1}{4}$ " ..	35	" ..	Unknown ..

## MUSTARD.

Inspector's Report. (Is not an expression of opinion.)	Results of Analysis.			No. of Sample.	Remarks and Opinion of the Chief Analyst.
	Total Ash.	Starch (by Acid inversion.)	Microscopical Examination.		

*Concluded.*

	p. c.			
.....	4.5	22.5	Wheat Starch, turmeric.....	51261
.....	4.0	31.8	" " .....	51262
.....	4.6	11.2	Traces Wheat Starch, turmeric	51263
.....	3.3	31.8	" " " ..	51264
Sold as Best Compound Mustard.	3.1	41.2	" " " ..	51265

J. J. COSTIGAN, ACTING INSPECTOR.

.....	2.8	31.8	Wheat Starch, turmeric.....	51336
.....	1.7	54.3	" " .....	51337
.....	2.8	32.4	" " .....	51338
Sold as Durham Com- pound.	3.1	48.7	" " .....	51339
Sold as Condiment Mus- tard.	2.6	48.7	" " .....	51340
.....	2.8	48.7	" " .....	51341
.....	1.1	57.4	" " .....	51342
.....	2.9	31.2	" " .....	51343
.....	3.4	36.8	" " .....	51344

J. A. RICKEY—INSPECTOR.

Superfine.....	6.2	40.6	Wheat starch, turmeric.....	51713
Durham.....	6.1	40.6	" " .....	51714
.....	3.8	55.6	" " .....	51715
.....	5.4	48.7	" " .....	51716
.....	5.5	5.5	Small amount wheat starch, turmeric.	51717
.....	5.5	48.3	Wheat starch, turmeric.....	51718

Date of Collection	Nature of Sample.	No. of Samples	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by the Vendor.	
				Quantity.	Conts.	Manufacturer.	Furnisher.

## DISTRICT OF OTTAWA—

1913.							
Feb. 25	Mustard..	51719	A. Sweet & Co., Winchester.	½ lb.	23	.....	White Swan S. & C. Co., Toronto.
" 27	" ..	51720	E. Ackland, Creighton St., Ottawa.	½ "	23	.....	Provost & Allard, Ottawa.
" 27	" ..	51766	Motard & Cie., St. Patrick St., Ottawa.	½ "	15	.....	H. N. Bate & Sons, Ottawa.
" 27	" ..	51767	S. Dignard, St. Patrick St., Ottawa.	½ "	20	.....	S. J. Major, Ltd., Ottawa.

## DISTRICT OF KINGSTON—

Mar. 10	Mustard..	45768	J. Paisley, Napanee ..	3 tins	45	Keens, London, Eng.	.....
" 10	" ..	45769	H. W. Kelly, Napanee.	½ lb.	24	Todhunter & Mitchell, Toronto.	.....
" 10	" ..	45770	Newman Livingston, Napanee.	½ "	30	.....	F. Newman, Picton.
" 10	" ..	45771	G. W. Boyes, Napanee.	3 tins	25	J. M. Lowes Co., Toronto.	.....
Feb. 20	" ..	53052	W. J. Lee, Kingston...	3 "	45	Keens, London, Eng.	.....
" 20	" ..	53053	W. J. Arniel, Kingston.	½ lb.	24	.....	W. G. Craig, Kingston.
" 20	" ..	53054	W. J. Nesbitt, Kingston.	½ "	20	J. M. Lowes Co., Ltd., Toronto.	.....
" 21	" ..	53055	Jno. Gordon, Kingston.	3 tins	45	Keens, London, Eng.	.....
" 21	" ..	53056	W. E. Hopkinson & Bro., Kingston.	½ lb.	30	White Swan Co., Toronto.	.....
" 25	" ..	53060	W. D. Stephens, Port Hope.	3 tins	45	Keens, London, Eng.	.....

## DISTRICT OF TORONTO—

Feb. 27	Mustard..	57011	J. Everingham, 185 Wilton Ave., Toronto.	½ lb.	10	White Swan Mills, Toronto.	.....
" 28	" ..	57012	R. C. Soules, 234 De Grasse St., Toronto.	½ "	8	.....	Dalton Bros., Toronto.
" 28	" ..	57013	A. Devlin, 76 Ossington Ave., Toronto.	½ "	8	.....	Unknown .....
Mar. 4	" ..	57014	P. Conlin, 493 Parliament St., Toronto.	½ "	10	.....	Todhunter, Mitchell & Co., Toronto.
" 4	" ..	57015	J. Whitelaw & Son, 874 Bathurst St., Toronto.	½ "	10	.....	Unknown .....
" 5	" ..	57016	E. Broad, 468 Pape Ave., Toronto.	½ "	8	Dalton Bros., Toronto.	.....
" 5	" ..	57017	H. Kelly, 1232 College St., Toronto.	½ "	6	Pure Gold Mfg. Co., Ltd., Toronto.	.....
" 6	" ..	57018	G. W. Blanchard, 2014 Queen St. east, Toronto.	½ "	7	.....	The J. M. Lowes Co., Ltd., Toronto.

## MUSTARD.

Inspector's Report, (Is not an expression of opinion.)	Results of Analysis.			No. of Sample,	Remarks and Opinion of the Chief Analyst.
	Total Ash.	Starch (by Acid Inversion.)	Microscopical Examination.		

*Concluded.*

	p. c.			
.....	4.9	8.0	Small amount wheat starch, turmeric.	51719
.....	3.3	60.0	Wheat starch, turmeric . . . . .	51720
.....	4.7	51.8	" "	51766
.....	5.1	56.2	" "	51767

## JAS. HOGAN, INSPECTOR.

.....	4.0	5.9	.....	45768
.....	3.0	35.5	Wheat starch, traces turmeric . . . . .	45769
.....	2.7	23.0	Wheat starch . . . . .	45770
.....	2.2	22.5	Wheat starch, turmeric . . . . .	45771
.....	4.1	6.2	Traces wheat starch . . . . .	53052
.....	5.0	50.0	Wheat starch, turmeric . . . . .	53053
.....	4.7	51.8	" "	53054
.....	4.1	8.1	Traces wheat starch, turmeric . . . . .	53055
.....	3.6	53.1	Wheat starch, turmeric . . . . .	53056
.....	4.2	8.3	Traces wheat starch . . . . .	53060

## H. J. DAGER, INSPECTOR.

Sold as pure .....	4.7	33.7	Wheat Starch, turmeric . . . . .	57011
.....	2.7	33.1	" "	57012
.....	2.7	25.0	" "	57013
.....	2.3	36.8	" "	57014
.....	1.9	43.1	" "	57015
.....	2.6	35.5	" "	57016
.....	1.5	48.7	" "	57017
.....	1.7	46.2	" "	57018



Date of Collection	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by the Vendor.	
				Quantity.	Cents.	Manufacturer.	Furnisher.
DISTRICT OF TORONTO—							
1913.							
Mar. 7	Mustard	57019	W. J. Cooper, 234 Royce Ave., Toronto.	1 lb.	7	.....	T. Kinnear, Toronto.
" 7	"	57029	Baker & Linton, 1980 Dundas St. west, Toronto.	1 "	7	.....	White Swan Mills, Toronto.
DISTRICT OF HAMILTON—							
April 9	Mustard	57111	James Bros., 431 Colborne St., Brantford.	1 lb.	8	F. F. Dalley Co., Hamilton.	.....
" 9	"	57112	J. E. Church, 44 Mary St., Brantford.	1 "	8	.....	Unknown
" 10	"	57113	John Walter, Paris, Ont.	1 "	8	.....	White Swan Cereal Co., Toronto.
" 10	"	57114	Rehder & Co., Paris, Ont.	1 "	10	.....	Unknown
" 14	"	57115	Jno. P. Brown, Dunnville, Ont.	1 "	10	.....	Balfour, Smye & Co., Hamilton.
" 14	"	57116	J. A. Bicknell, Dunnville, Ont.	1 "	8	.....	Unknown
" 17	"	57117	James Foley, 21 King St., St. Catharines.	1 "	8	Unknown	.....
" 17	"	57118	Bradley, Nickolls, Ellis & St. Clair, Niagara Falls.	1 "	10	.....	Unknown
" 18	"	57119	A. Hess, Hess and Market Sts., Hamilton.	1 "	19	.....	.....
" 19	"	57120	D. J. Donovan, Hunter and Walnut Sts., Hamilton.	1 "	10	F. F. Dalley Co., Ltd., Hamilton.	.....
DISTRICT OF WINDSOR—							
Mar. 3	Mustard	47948	Bradley & Son, Chatham, Ont.	3 pkgs	30	I. X. L. Spice Mills, London, Ont.	.....
" 3	"	47949	Alfred Deloge, Chatham, Ont.	3 lb.	20	.....	Dalley Co., Hamilton.
" 3	"	47951	Jos. Paul, Chatham, Ont.	3 pkgs	45	Keens, London, Eng.	.....
" 3	"	47952	J. D. Stark, Chatham, Ont.	3 lb.	30	.....	F. F. Dalley Co., Hamilton.
" 4	"	47954	Wm. Anderson, Chatham, Ont.	3 pkgs	45	Keens, London, Eng.	.....
" 4	"	47956	H. A. Andrew, Chatham, Ont.	3 lb.	.....	.....	Pure Gold Mfg. Co., Toronto.
" 5	"	47971	Wm. Burnie, Windsor, Ont.	3 "	25	Unknown	.....
" 5	"	47975	A. St. Denis, Windsor, Ont.	3 "	30	Gorman Eckert Co., London, Ont.	.....
" 6	"	47981	Laing & Moore, Essex.	3 pkgs	30	Keens, London, Eng.	.....
" 6	"	47982	A. Raines, Essex.	3 lb.	22	Unknown	.....

## MUSTARD.

Inspector's Report. (Is not an expression of opinion.)	Results of Analysis.			No. of Sample.	Remarks and Opinion of the Chief Analyst.
	Total Ash.	Starch (by Acid Inversion.)	Microscopical Examination.		

*Concluded.*

	p. c.			
.....	2.6	42.5	Wheat Starch, turmeric.....	57019
.....	4.8	11.2	" " .....	57020

## H. J. DAGER, ACTING INSPECTOR.

.....	2.6	36.8	Wheat Starch.....	57111
.....	5.1	Traces.	..... turmeric.....	57112
.....	2.7	45.6	Wheat Starch. " .....	57113
Sample from a tin label- led Pure Mustard.	1.9	46.8	" " .....	57114
"Feather" quality.....	4.8	42.5	" " .....	57115
.....	2.0	48.7	" " .....	57116
.....	2.3	45.0	" " .....	57117
Labelled Pure Mustard.	1.6	53.7	" " .....	57118
In stock purchased from previous owner.	4.7	Traces.	.....	57119
.....	1.0	" ..	Wheat Starch, turmeric.....	57120

## JNO. TALBOT, INSPECTOR.

"Sweetheart" Brand ..	2.8	34.9	Wheat starch, turmeric.....	47948
Durham Mustard.....	2.8	37.5	Wheat starch, traces turmeric..	47949
.....	4.1	11.8	Small amount wheat starch....	47951
Labelled Dalley's Pure Mustard.	4.6	10.0	Small amount wheat starch, turmeric.	47952
.....	3.9	11.8	Small amount wheat starch....	47954
.....	1.7	49.3	Wheat starch, turmeric .. ...	47956
.....	3.2	33.1	" " .....	47971
.....	2.6	46.8	" " .....	47975
.....	4.0	15.0	Wheat starch .....	47981
.....	2.7	51.8	Wheat starch, turmeric.....	47982

Date of Collection	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by the Vendor.	
				Quantity.	Cents.	Manufacturer.	Furnisher.

## DISTRICT OF MANITOBA—

1913.							
Feb. 24	Mustard..	48845	Blue Ribbon Ltd., Winnipeg.	$\frac{1}{2}$ lb.	31	Vendors.....	.....
" 24	" ..	48846	Campbell Bros. & Wilson, Winnipeg.	$\frac{1}{2}$ "	.....	Unknown.....	Unknown.....
" 25	" ..	48847	The Dyson Co., Winnipeg.	$\frac{1}{2}$ "	.....	G. S. Dunn & Co., Hamilton.	Manufacturers.....
" 25	" ..	48848	The White Star Mfg. Co., Winnipeg.	3 pkgs	45	Vendors.....	.....
" 26	" ..	48850	The Gold Standard Mfg. Co., Winnipeg.	3 "	.....	" .....	.....
Mar. 4	" ..	48851	Moffett & Douglas Selkirk Ave., Winnipeg.	3 "	45	.....	.....
" 4	" ..	48852	S. Elliott & Co., Main St. N., Winnipeg.	3 "	45	.....	.....
" 4	" ..	48853	D. Campbell, Main St. N., Winnipeg.	3 "	45	.....	.....
" 11	" ..	48854	T. J. Acheson & Son, Morden.	3 "	45	.....	.....
" 13	" ..	48865	J. B. Coyle, Winnipeg.	3 "	45	.....	.....

## DISTRICT OF ROCKY MOUNTAINS—

Mar. 4	Mustard..	49832	Star Grocery, Nelson, B.C.	$\frac{1}{2}$ lb.	40	J. & J. Coleman, London, Eng.	.....
" 4	" ..	49833	" ..	$\frac{1}{2}$ "	40	Chimax Mfg. Co., Vancouver, B.C.	.....
" 4	" ..	49837	Hudson's Bay Co., Nelson, B.C.	$\frac{1}{2}$ "	25	J. & J. Coleman, London, Eng.	.....
" 4	" ..	49838	Christie & Benson, Nelson, B.C.	3 tins.	40	Empress Mfg. Co., Vancouver, B.C.	.....
" 4	" ..	49842	J. A. Irving & Co., Nelson, B.C.	$\frac{1}{2}$ lb.	30	" ..	.....
" 7	" ..	49843	Morrin, Thompson & Co., Phoenix, B.C.	$\frac{1}{2}$ "	30	Kelly, Douglas & Co., Vancouver, B.C.	.....
" 7	" ..	49844	" ..	3 tins.	60	J. & J. Coleman, London, Eng.	.....
" 17	" ..	49861	J. McIntyre & Son, Revelstoke, B.C.	$\frac{1}{2}$ lb.	30	Kelly, Douglas & Co., Vancouver, B.C.	.....
" 17	" ..	49866	L. C. Masson, Revelstoke, B.C.	3 tins..	45	Oriental Mills, Vancouver, B.C.	.....
April 7	" ..	49872	Polson Mercantile Co., Enderby, B.C.	$\frac{1}{2}$ lb.	30	Empress Mfg. Co., Vancouver, B.C.	.....

## DISTRICT OF VANCOUVER—

Mar. 11	Mustard..	53366	H. A. Edgett & Co., Vancouver, B.C.	$\frac{1}{2}$ lb..	30	Keens, London, Eng.	.....
" 12	" ..	53467	Gruchy & Carlaw, 5th Ave. and Granville, Vancouver, B.C.	$\frac{1}{2}$ "	30	" ..	.....
" 13	" ..	53468	T. Russell, 444 Pender St., Vancouver, B.C.	3 tins.	45	Coleman's Ltd., London, Eng.	.....

## MUSTARD.

Inspector's Report. (Is not an expression of opinion.)	Results of Analysis.		No. of Sample.	Remarks and Opinion of the Chief Analyst.
	Total Ash.	Starch (by Acid Inversion.)		

## A. C. LARIVIERE.

	p. c.			
.....	3.6	11.2	Small amount wheat starch, turmeric.	48845
.....	1.7	43.1	Wheat starch, turmeric.....	48846
.....	5.5	Traces	Traces wheat starch, turmeric..	48847
"White Star.".....	3.9	10.0	Traces wheat starch, traces turmeric.	48848
"Gold Standard." .....	4.4	Traces	.....	48850
"Keens.".....	4.1	9.3	Traces wheat starch.....	48851
" .....	4.1	8.7	" .....	48852
" .....	4.0	15.0	Small amount wheat starch...	48853
" .....	4.0	16.8	" .....	48854
" .....	3.9	13.1	" .....	48855

## THOS. PARKER, INSPECTOR.

.....	3.9	11.8	Wheat Starch. Turmeric. ....	49832
.....	3.3	27.5	" .....	49833
Keens Mustard, 2nd quality.	2.9	26.8	" .....	49837
.....	4.9	Traces	.....	49838
.....	4.2	"	.....	49842
"Columbia".....	5.7	41.2	Wheat Starch. Turmeric.....	49843
.....	4.0	15.0	" .....	49844
"Nabob".....	5.0	46.2	" .....	49861
"Oriental" <sup>®</sup> .....	3.8	37.5	" .....	49866
.....	3.9	13.4	" .....	49872

## J. F. POWER, INSPECTOR.

2nd quality .....	2.7	29.3	Wheat Starch. Turmeric.....	53466
" .....	2.6	45.6	" .....	53467
.....	3.9	8.7	Small amount Wheat Starch...	53468

Date of Collection	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by the Vendor.	
				Quantity.	Cents.	Manufacturer.	Furnisher.
DISTRICT OF VANCOUVER—							
1913.							
Mar. 13	Mustard..	53469	G. F. Cowley, 544 Georgia St., Vancouver, B.C.	1 lb..	30	Keens, London, Eng.	.....
" 14	" ..	53470	Kelly's Grocery, 2333 Main St., Vancouver, B.C.	2 "	30	Unknown	.....
" 14	" ..	53471	Mills & McAdam, Kit-silano, Vancouver, B.C.	2 "	30	Keens Ltd., London, Eng.	.....
" 22	" ..	53472	David Spencer, Ltd., Vancouver, B.C.	2 "	30	" "	.....
" 22	" ..	53473	Dominion Grocery, Abbott St., Vancouver, B.C.	2 "	30	" "	.....
" 22	" ..	53474	F. Filion, Carrall St., Vancouver, B.C.	1 1/2 "	30	Empress Mfr. Co., Vancouver, B.C.	.....
" 28	" ..	53475	C. A. Welsh, New Westminster, B.C.	3 tins.	40	Keens Ltd., London, Eng.	.....
DISTRICT OF VICTORIA—							
Mar. 14	Mustard..	53546	Acton Bros., 1317 Douglas St., Victoria, B.C.	2 1/2 lb.	45	J. J. Colman, London, Eng.	.....
" 14	" ..	53548	Fenerty Bros., Oak Bay Junction, Victoria, B.C.	2 "	45	" "	.....
" 14	" ..	53550	Wm. Marshall, Stanley Ave. and Fort St., Victoria, B.C.	2 "	45	" "	.....
" 18	" ..	53552	Copas & Young, 631 Fort St., Victoria, B.C.	2 "	45	Keen Robertson Co., Ltd., London, Eng.	.....
" 18	" ..	53554	Harrison & McDonald, 1218 Douglas St., Victoria, B.C.	2 "	30	" "	.....
" 18	" ..	53557	Dixi H. Ross Co., 1317 Govt. St., Victoria, B.C.	2 "	45	.....	.....
" 18	" ..	53558	H. & K. Grocery, 1425 Douglas St., Victoria, B.C.	1 1/2 "	30	McLaren Cheese Co., Ltd., Toronto.	.....
" 18	" ..	53559	H. O. Kirkham, 741 Fort St., Victoria, B.C.	1 1/2 "	75	Unknown	.....
" 19	" ..	53561	W. A. Jameson Coffee Co., 75 Broughton St., Victoria, B.C.	1 1/2 "	30	G. S. Dunn & Co., Hamilton.	.....
" 19	" ..	53563	Pioneer Coffee and Spice Mills, 641 Pembroke St., Victoria, B.C.	1 1/2 "	20	" "	.....

## MUSTARD.

Inspector's Report. (Is not an expression of opinion.)	Results of Analysis.			No. of Sample.	Remarks and Opinion of the Chief Analyst.
	Total Ash.	Starch (by Acid inversion.)	Microscopical Examination.		

*Concluded.*

	p. c.			
2nd quality .....	2.7	33.7	Wheat Starch .....	53469
"Coleman's" brand ....	4.1	44.3	" .....	53470
2nd quality .....	2.9	31.2	" .....	53471
" .....	2.8	28.1	" .....	53472
" .....	3.0	43.7	" .....	53473
.....	2.8	33.7	" .....	53474
This is an admixture in which no injurious in- gredient is used.	4.1	13.7	" .....	53475

## D. O'SULLIVAN, INSPECTOR.

Colman's .....	4.0	Traces ..	Traces wheat starch, no tur- meric.	53546
" .....	4.0	11.2	Small amount wheat starch, turmeric.	53548
.....	4.0	12.5	Small amount wheat starch....	53550
.....	4.3	Traces ..	.....	53552
Keens .....	2.8	34.3	Wheat starch, turmeric.....	53554
Farrow's A. I. ....	4.1	6.8	" ..	53557
.....	3.2	8.0	Turmeric .....	53558
Durham .....	1.7	56.2	Wheat starch, turmeric....	53559
.....	4.9	14.3	Traces wheat starch, turmeric..	53561
.....	1.4	60.0	Wheat starch, turmeric.....	53563