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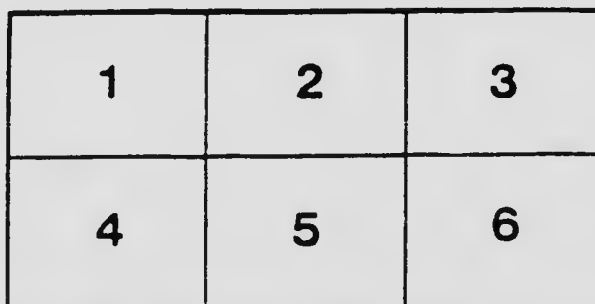
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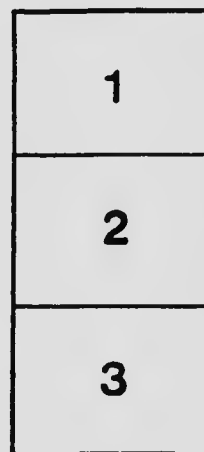
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O. H. M. S.

*W. J. Gerald*  
DEPUTY MINISTER.

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LABORATORY  
OF THE  
INLAND REVENUE DEPARTMENT  
OTTAWA, CANADA  
BULLETIN No. 110  
TINCTURE OF GINGER

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LABORATORY  
OF THE  
INLAND REVENUE DEPARTMENT  
OTTAWA, CANADA

BULLETIN No. 110

TINCTURE OF GINGER

OTTAWA, October 18, 1905.

W. J. GERALD, Esq.,

Deputy Minister of Inland Revenue Department.

SIR,—I beg to submit herewith a report by Mr. McGill on alcoholic preparations of ginger which were obtained by the Food Inspectors according to your instructions, in the months of August and September, 1905. I beg to recommend its publication as Bulletin No. 110.

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

THOMAS MACFARLANE,  
*Chief Analyst.*

LABORATORY OF THE INLAND REVENUE DEPARTMENT,  
317 QUEEN STREET.

OTTAWA, Ont., October 13, 1905.

THOMAS GERALD, Esq.,

Chief Analyst.

DEAR SIR,—I beg to hand you a report upon 108 samples of alcoholic preparations of ginger. The report comprises four tabular statements, as follows:—

Table	I.	—Data furnished by Inspectors.
"	II.	—Analytical Data for Tinctures.
"	III.	— " Essences.
"	IV.	— " Extracts.

This examination has had special reference to the alcoholic strength of the samples in question; but other features have also been kept in view.

I have to acknowledge valued assistance from Miss Wright and Messrs. Valin and Lemoine in this investigation.

Yours truly,

(Signed) A. MCGILL,  
*Assistant to the Chief Analyst.*

TABLE I.—INSPECTION OF ALCOHOLIC PREPARATIONS OF GINGER—AUGUST, 1905.

Date of Collection.	Nature of Sample.	Serial Number.	Collector's Number.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by Vendor.	Inspector's Report.
					Quantity.	Value.		
1905				<i>District of Nova Scotia—R. J. Waugh, Inspector.</i>		\$ cts.		
Aug. 15	Essence ginger.	1	27060	G. C. McLaughlin, Kentville	6	0 75	Park Davis, Walkersville, Ont.	
"	"	2	27061	J. D. Clark, Kentville	6	0 75	J. D. Clark, Kentville, N.S.	
"	Tincture	3	27073	A. E. Wilson, Windsor	6	0 60	A. E. Wilson, Windsor, N.S.	
"	Essence	4	27088	E. S. Blackie, Halifax	6	0 50	E. S. Blackie, Halifax.	
"	Tincture	5	27089	Hattie & Mylius	6	0 75	Hattie & Mylius, Halifax	
"	"	6	27090	G. A. Burbridge	6	0 50	Brown & Webb, Halifax	
"	"	7	27091	C. Barnstead	6	0 60	Kerny Watson, Montreal.	
"	"	8	27092	J. R. Hawley	6	0 50	Lyman & Sons	Sold as mild.
"	"	9	27093	Brown Bros.	6	0 75	Brown Bros., Halifax.	
"	"	10	27097	C. E. Huggins	6	0 60	C. E. Huggins, Halifax.	
Aug.				<i>District of New Brunswick—J. C. Ferguson, Inspector.</i>				
16	Essence ginger.	1	24060	A. Chipman, Smith & Co., 41 Charlotte St., St. John, N.B.	3	0 75	A. Chipman, Smith & Co., 41 Charlotte St., St. John, N.B.	
"	Tincture	2	24035	The Canadian Drug Co., Ltd., 27 and 29 Mill St., St. John, N.B.	3	0 70	The Canadian Drug Co., Ltd., St. John, N.B.	
"	Extract	3	24068	J. S. Armstrong & Machum, 32 Charlotte St., St. John, N.B.	3	0 75	Pure Gold Manufacturing Co., Toronto.	
"	"	4	24070	R. E. White, cor. Wall and Paradise Sts., St. John, N.B.	3	0 30	Robinson Manufacturing Co., Toronto.	Vendor would not guar- antee as to purity.
"	Tincture	5	24062	Geo. A. Moore, cor. Brussels and Richmond Sts., St. John, N.B.	3	0 75	Geo. A. Moore, 105 Brussels St., St. John, N.B.	
"	Extract	6	24066	Puddington & Merritt, 55 Charlotte St., St. John, N.B.	3	0 75	McLarens, Hamilton, Ont.	
"	Essence	7	24068	Fairweather Bros., Main St., Moncton, N.B.	3	0 75	Fairweather Bros., Moncton, N.B.	
Sept. 2	Tincture	8	24109	Thomas J. Durick, 403 Main St., N.E., St. John, N.B.	3	0 60	Thomas J. Durick, 403 Main St., N.E., St. John, N.B.	
"	Essence	9	24107	George E. Price, 127 Queen St., St. John, N.B.	3	0 75	George E. Price, 127 Queen St., St. John, N.B.	
"	Extract	10	24108	E. Clinton Brown, cor. Waterloo and Union Sts., St. John, N.B.	3	0 75	E. Clinton Brown, cor. Waterloo and Union Sts., St. John, N.B.	

1 Extract " " 10 21108 E. Clinton Brown, cor. Waterloo and Union Sts., St. John, N.B.

0 75 E. Clinton Brown, cor. Waterloo and Union Sts., St. John, N.B.

*District of Prince Edward Island  
T. Moore, Inspector.*

Aug. 12	Essence-ginger	1	24500	J. G. Jamieson, Charlottetown	6 ozs.	0 60	J. G. Jamieson, Charlottetown
" 12	"	2	26201	A. W. Reddin	6 "	0 60	A. W. Reddin
" 12	"	3	26205	G. E. Hughes	6 "	0 60	G. E. Hughes
" 15	"	4	26208	Johnson & Johnson	6 "	0 50	Hattie & Mylius, Halifax
" 15	"	5	26210	McDonald & McKinnon	8 "	0 50	Ferry, Watson & Co., Montreal
" 16	"	6	26212	John Knight, Georgetown	8 "	0 65	Canadian Drug Co., St. John, N.B.
" 16	Extract	7	26216	A. McLean & Co.	8 "	0 65	The T. Millburn Co., Ltd., Toronto
" 16	"	8	26220	H. F. Feehan, St. John	7 "	0 45	Millburn & Co., Toronto
" 17	"	9	26224	J. A. Hynes, Kensington	6 "	0 45	Beaurell Chemical Co., Toronto
" 18	"	10	26232	A. W. P. Goudie, Summerside	8 "	0 60	J. A. Goudie, Summerside

*District of Quebec—C. E. Roy, Inspector.*

Sept. 11	Tincture ginger	1	29004	Ed. Morin & Co., Mountain Hill	doz.	0 21	Vendor
" 14	Extract	2	29016	P. L. Turgeon, Finby Market	"	0 45	Imperial Extract Co., Toronto
" 14	"	3	29019	Drouin et freres, 37 St. Andre	"	0 50	Ed. Morin et freres, Quebec
" 20	"	4	29028	A. Leclere et Cie, Quebec	"	0 30	A. Leclere et Cie, Quebec
" 20	"	5	29029	W. Brunet et Cie, Quebec	"	0 30	W. Brunet et Cie, Quebec
" 21	Essence	6	29031	Victor Giroux, Quebec	"	0 45	Victor Giroux, Quebec
" 21	Extract	7	29034	Turcotte et freres, Quebec	"	0 20	Imperial Extract Co., Toronto
" 22	"	8	29036	O'Carrian et fils, Three Rivers	"	0 50	Not known
" 29	Essence	9	29041	Henry Willis, Quebec	"	0 75	Henry Willis, Quebec
" 29	Tincture	10	29042	J. E. Livernois, Quebec	"	0 39	Chandler & Massey, Toronto

*District of St. Hyacinthe—J. C. Rouleau, Inspector.*

Aug. 22	Tincture-ginger	1	24778	Esato James Fortune, Huntingdon	6 ozs.	0 50	Vendor
" 23	"	2	24779	Dr. J. T. A. Gauthier, Valleyfield	6 "	0 66	Lynnan, Son & Co., Montreal
" 24	Extract	3	24780	Dr. Wallace, Buckingham	3 lbs.	0 25	"
" 29	Tincture	4	24781	Pharmacie, St. Jerome	3 "	0 45	Kerry Watson, Montreal
" 29	Essence	5	24782	Gilbert, St. Jerome	3 "	0 75	Vendor
" 30	Tincture	6	24783	Joliette	3 "	0 50	Lynnan, Knox, Montreal
" 31	"	7	24784	Bruneau & Sylvestre, Sorel	3 "	0 60	Evans & Co.
Sept. 1	Essence	8	24785	Smith & Smith, Nicolet	3 "	0 60	Vendor
" 6	"	9	24786	Pharmacie Oatigny, St. Hyacinthe	6 ozs.	0 40	"

*District of Montreal—J. J. Coudign, Inspector.*

Aug. 17	Tincture-ginger	1	26831	Mrs. E. Robert, 1 St. Lawrence St.	8 ozs.	0 50	Firm name Pharmacie Robert
" 17	"	2	26832	E. Giroux, 216 St. Lawrence St.	8 "	0 75	Lynnan, Sons & Co., Montreal
" 17	Essence	3	26833	L. A. Bernard, 1892 St. Catherine St.	8 "	0 75	Not known
" 17	Tincture	4	26834	A. Goyette, 1825 St. Catherine St.	8 "	0 75	"
" 18	"	5	26835	Dr. Lalonde, 3154 Notre Dame, St. Cune- gonde, P.Q.	8 "	0 65	"

Bought from Chas. F. Frost & Co., Montreal

Labelled 'Jamaica Gin-  
ger.'



TABLE I—INSPECTION OF ALCOHOLIC PREPARATIONS OF GINGER AUGUST, 1905—Continued.

Date of Collection.	Nature of Sample.	Zettel Number.	Collector's Number.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher, as given by Vendor.	Inspector's Report.
					Quantity.	Value.		
1905								
Aug. 18	Tincture ginger.	6	28836	District of Montreal—Con. Dr. Leonard, 3196 Notre Dame, St. Cmc- gonds, P.Q.	8 ozs.	0 75	Not known.	
" 18	" "	7	28837	Dr. H. Campeau, 3201 Notre Dame, St. Cheneville, P.Q.	8 "	0 50	Lyman, Knox & Co., Montreal	
" 18	" "	8	28838	F. L. Wooley, 2543 Notre Dame, Montreal	8 "	0 65	Davis, Lawrence Co. "	
" 18	" "	9	28839	J. H. Nault, 2449 " "	8 "	0 70	Not known.	
" 18	" "	10	28840	Hercule Guerin, 2399 " "	8 "	0 60	" "	
District of Kingston—J. Hopewell and A. E. Southam, Inspectors.								
" 17	" "	1	28407	H. F. McCarthy, Wellington St., Ottawa.	6 "	0 40	Vendor	Manufactured under B. P. rules.
" 17	" "	2	28408	E. D. Storey, Bank St., Ottawa.	6 "	0 35	Not known.	Sold as ordinary Tincture of Ginger.
" 21	" "	3	28510	W. W. Gibson, King St., Kingston	6 "	0 25	" "	
" 21	Essence	4	28512	A. Hoag, Princess St., Kingston	6 "	0 40	A. Hoag, Princess St., Kingston	
" 21	Extract	5	28515	James McLeod, Princess St., Kingston.	6 "	0 30	James McLeod, Princess St., Kingston	
" 21	Essence	6	28517	H. Wade, King St., Kingston.	6 "	0 30	H. Wade, King St., Kingston	
" 22	Tincture	7	28519	H. Skinner, Princess St., Kingston	6 "	0 40	H. Skinner, Princess St., Kingston.	
" 22	" "	8	28521	A. Chown " "	6 "	0 50	A. Chown " "	
" 22	Essence	9	28523	G. W. Mahood " "	6 "	0 60	G. W. Mahood " "	
" 22	Tincture	10	28524	T. L. Best " "	6 "	0 60	T. L. Best " "	
District of Toronto—A. E. Southam, Inspector.								
Aug. 24	Tincture ginger.	1	28414	R. W. Boyle, 351 Yonge St., Toronto	6 ozs.	0 60	Lyman Bros., Toronto.	
" 25	" "	2	28417	V. E. Kain, 132 Victoria St., Toronto	6 "	0 30	Lyman, Knox & Clarkson, Montreal	
" 25	" "	3	28420	M. D. Hall, 100 Queen St. "	6 "	0 53	Lyman Bros., Toronto	
" 25	Essence	4	28424	H. N. Winter, 1196 Yonge St., N., To- ronto.	6 "	0 50	Lyman, Knox & Clarkson, Montreal	
" 26	Tincture	5	28430	J. R. Byers, Oakville.	6 "	0 50	Vendor	
" 26	" "	6	28432	Dr. J. Uryhart, Oakville.	6 "	0 75	Not known.	
" 28	" "	7	28433	John Mack, 1 James St., N., Hamilton	6 "	0 50	Dominion Drug Co., Hamilton	
" 28	" "	8	28438	Park & Park, 17 Market St.	6 "	0 45	Vendors	

25	28441	R. E. Reynolds, cor. James and Cannon Sts., Hamilton.	0	0 50	D. F.
28	28446	H. W. Ralph, Dundas.	6	0 40	Vendin
<i>District of London—T. Kidd, Inspector.</i>					
Aug. 22	22403	S. A. Hicks, Goderich.	3	0 75	S. A. Hicks, Goderich.
" 17	22317	Jury & Gregory, Collingwood.	3	0 40	Jury & Gregory, Collingwood.
" 24	22415	Kerry, Watson & Co., London.	3	0 35	Kerry, Watson & Co., London.
" 24	22411	W. J. Stanberg	2	0 20	Canada Spice and Grocery Co., London.
" 24	22412	A. R. Rowet & Co.	3	0 25	Imperial Extract Co., Toronto.
" 24	22413	Cairness & Lawrence.	3	0 75	Cairness & Lawrence, London.
" 15	22378	W. F. Vanstone, Wingham.	3	0 25	Not known.
" 14	22386	Priest Sprague, Owen Sound.	3	0 30	J. A. & W. Sheriff, Toronto.
" 16	22381	James A. Laycock, Meaford.	3	0 30	Lutes, Steal & Bristol, Hamilton.
" 24	22408	J. C. Treblecock, Dundas st., London.	3	0 25	F. F. Dally & Co., Hamilton.
<i>District of Manitoba—W. M. Conklin, Inspector.</i>					
Aug. 23	25554	Young & Co., Neepawa.	8	0 60	Young & Co., Neepawa.
" 23	25555	W. M. Hamilton	8	0 60	W. M. Hamilton
" 23	25557	R. T. Buechart, Minnedosa.	4	0 65	R. T. Buechart, Minnedosa
" 23	25558	S. L. Taylor	6	0 50	S. L. Taylor
" 24	25560	R. T. Rutherford, Strathclair.	8	0 75	Martin Bole, Wynne Co., Winnipeg
" 25	25563	The Shoal Lake Pharmacy, Shoal Lake.	8	0 75	The Shoal Lake Pharmacy, Shoal Lake.
" 25	25564	Gladstone Drug Co., Gladstone.	8	0 75	Gladstone Drug Co., Gladstone.
" 26	25566	Red Cross Pharmacy	8	0 60	Red Cross Pharmacy
" 26	25567	S. B. Cowan, Portage la Prairie.	8	0 60	S. B. Cowan, Portage la Prairie.
" 26	25568	B. M. Canniff	8	0 75	B. M. Canniff
<i>District of British Columbia—E. H. Parkinson, Inspector.</i>					
Aug. 16	26693	D. E. Campbell, Victoria.	9	0 60	D. E. Campbell, Victoria.
" 16	26694	Terry & Marrett	9	0 75	Terry & Marrett
" 17	26698	T. Muir, New Westminster.	9	1 00	T. Muir, New Westminster.
" 16	26697	Hall & Co., Victoria.	9	0 75	Hall & Co., Victoria.
" 17	27000	McLellan, Atkins, Watson Co., Vancouver.	9	1 00	McLellan, Atkins, Watson Co., Vancouver.
" 17	28001	W. M. Harrison & Co., Vancouver.	9	0 75	W. M. Harrison Vancouver.
" 17	28002	Nelson, Macpherson, Sutherland, Vancouver.	9	0 75	Evans & Sons, Liverpool, Eng.
" 17	28003	John Reed, Vancouver.	9	1 00	John Reed, Vancouver.
" 17	28005	D. S. Curtis, New Westminster.	9	1 00	D. S. Curtis, New Westminster.

TABLE II.—INSPECTION OF TINCTURE OF GINGER.  
RESULT OF ANALYSIS.

District.	Serial Number.	Collector's Number	Specific Gravity of Sample.	Specific Gravity of Distillate.	Difference.	Alcohol p.c. by Weight.	Alcohol p.c. by Volume.	Opinion.
Nova Scotia	3	27073	8416	8345	0071	85.46	89.84	Genuine.
	5	27089	8298	8291	0007	87.54	91.43	"
	6	27090	8351	8304	0047	87.04	91.05	"
	7	27091	8393	8377	0016	84.20	88.86	"
	8	27092	8247	8194	0053	91.21	94.15	"
	9	27093	8295	8239	0056	89.58	92.97	"
New Brunswick	10	27097	8347	8160	0187	92.44	95.03	"
	2	24055	8312	8308	0004	86.88	90.93	"
	5	24062	8306	8279	0027	88.00	91.78	"
P.E. Island.	8	24109	8357	8304	0053	87.04	91.05	"
	1	29004	8414	8325	0089	86.23	90.43	"
Quebec	10	29042	9013	8882	0131	63.17	90.69	"
St. Hyacinthe	1	24778	9141	8935	0206	60.88	68.52	Below strength in alcohol; adulterated.
	2	24779	8459	8449	0010	81.40	86.64	Genuine.
	4	24781	8752	8692	0060	71.17	77.93	Below strength in alcohol; adulterated.
	6	24783	8080	8059	0021	59.87	67.57	"
	7	24784	8697	8582	0025	75.95	82.12	Slightly below strength; doubtful.
	1	26831	8314	8308	0006	86.88	90.93	Genuine.
	2	26832	8487	8481	0006	80.08	85.56	"
Montreal	4	26834	8281	8255	0026	88.96	92.51	"
	5	26835	8509	8460	0049	80.96	86.28	"
	6	26836	8330	8266	0064	88.52	92.18	"
	7	26837	8853	8826	0027	65.58	72.92	Below strength in alcohol; adulterated.
	8	26838	8794	8781	0013	67.50	74.67	"
	9	26839	8342	8340	0002	85.65	89.99	Genuine.
	10	26840	8649	8629	0020	73.83	80.26	Below strength in alcohol; adulterated.
	1	28407	8466	8420	0046	82.54	87.55	Genuine.
	2	28408	8410	8377	0033	84.20	88.86	"
	3	28510	8695	8628	0067	73.88	80.30	Below strength in alcohol; adulterated.
Kingston	7	28519	8331	8301	0030	87.15	91.14	Genuine.
	8	28521	8302	8267	0035	88.48	92.15	"
	10	28524	8463	8414	0049	82.77	87.73	"
	1	28414	8517	8422	0095	82.46	87.49	"
	2	28417	9576	9572	0004	30.33	36.57	Below strength in alcohol; adulterated.
	3	28420	8036	8900	0036	62.36	69.92	"
	5	28430	8301	8275	0026	88.16	91.90	Genuine.
	6	28432	8914	8797	0117	66.83	74.05	Below strength in alcohol; adulterated.
Toronto	7	28433	8280	8259	0021	88.80	92.39	Genuine.
	8	28439	8371	8317	0054	86.54	90.67	"
	9	28441	8335	8308	0027	86.88	90.93	"
	10	28446	8303	8275	0028	88.16	91.90	"
	2	22397	8585	8544	0041	77.54	83.46	Slightly below strength; doubtful.
	3	22415	8691	8684	0007	71.50	78.22	Below strength in alcohol; adulterated.
	6	22413	8285	8251	0034	89.12	92.63	Genuine.
	1	25554	8075	8058	0017	59.91	67.61	Below strength in alcohol; adulterated.
	3	25555	8263	8251	0012	89.12	92.63	Genuine.
	4	25557	8285	8194	0091	91.21	94.15	"
London	4	25558	8504	8491	0013	79.68	85.23	"
	5	25560	8913	8878	0035	63.35	70.85	Below strength in alcohol; adulterated.
	5	25560	8913	8878	0035	63.35	70.85	Below strength in alcohol; adulterated.
Manitoba	3	25555	8263	8251	0012	89.12	92.63	Genuine.
	4	25557	8285	8194	0091	91.21	94.15	"

TABLE II.—INSPECTION OF TINCTURE OF GINGER—*Concluded.*RESULT OF ANALYSIS—*Concluded.*

District.	Serial Number.	Collector's Number	Specific Gravity of Sample.	Specific Gravity of Distillate.	Difference.	Alcohol p.c. by Weight.	Alcohol p.c. by Volume.	Opinion.
Manitoba— <i>Con.</i>	6	25563	·8462	·8393	·0069	83·58	88·37	Genuine.
	7	25564	·9521	·9414	·0107	39·10	46·37	Below strength in alcohol; adulterated.
	8	25566	·8311	·8283	·0028	87·85	91·66	Genuine.
	9	25567	·8321	·8308	·0013	86·88	90·93	"
	10	25568	·8222	·8128	·0094	93·63	96·87	"
Calgary								
British Columbia.	2	26993	·8476	·8468	·0008	80·63	86·01	"
	3	26994	·8285	·8255	·0030	88·96	92·51	"
	4	28008	·8338	·8312	·0026	86·73	90·82	"
	5	26997	·8304	·8251	·0053	89·12	92·63	"
	6	27000	·8268	·8202	·0066	90·93	93·95	"
	7	28001	·8282	·8207	·0075	90·75	93·82	"
	8	28002	·8461	·8427	·0034	82·27	87·34	"
	10	28005	·8385	·8358	·0027	84·96	89·46	"

TABLE III.—INSPECTION OF ESSENCE OF GINGER.

## RESULT OF ANALYSIS.

District.	Serial Number.	Collector's Number	Specific Gravity of Sample.	Specific Gravity of Distillate	Difference.	Alcohol p.c. by Weight.	Alcohol p.c. by Volume.	Opinion.
Nova Scotia	1	27060	8313	8282	0031	45.46	53.15	Equivalent alcoholic strength to the tincture.
	2	27061	8404	8358	0046	84.96	89.46	
New Brunswick...	4	27088	8250	8173	0077	91.96	94.69	" "
	1	24060	8747	8692	0055	71.17	77.93	Equivalent to tincture.
	7	24088	8219	8190	0029	91.36	94.26	
P. E. Island	9	24107	8311	8267	0044	87.31	91.25	" "
	1	24500	8291	8267	0024	88.48	92.15	" "
	2	28201	8291	8240	0051	89.54	92.94	" "
	3	28205	8320	8308	0012	86.88	90.93	" "
	4	28208	9414	9388	0026	40.40	47.78	" "
Quebec...	6	28210	9683	9621	0062	27.14	32.90	" "
	6	28212	8341	8329	0012	86.08	90.32	
	6	28031	9272	9220	0052	48.27	56.07	
St. Hyacinthe...	9	28041	8262	8255	0007	88.96	92.51	" "
	5	24782	8354	8325	0029	86.23	90.43	
	8	24785	8696	8596	0100	75.32	81.56	
Montreal.....	9	24786	8262	8255	0007	88.96	92.51	" "
	3	26833	8745	8629	0116	73.83	80.26	
Kingston.....	4	28512	8401	8337	0064	85.77	90.08	" "
	6	28517	8372	8304	0068	87.04	91.05	
	9	28523	8524	8481	0043	80.08	85.56	
Toronto.....	4	28424	8551	8531	0020	78.08	83.91	Nearly equivalent to tincture.
London.....								
Manitoba.....								
Calgary.....								
British Columbia..	9	28003	8412	8382	0030	84.00	88.70	Equivalent to tincture.



## MEMORANDA REGARDING THE FOREGOING.

## ALCOHOLIC PREPARATIONS OF GINGER.

Alcoholic preparations of ginger appear under three distinct names in the Canadian market, viz:—

Tincture of Ginger.  
Essence of Ginger.  
Extract of Ginger.

The first of these is the only one which has an official and legal status. It is the Tinctura Zingiberis of the British Pharmacopœia.

The latest (1898) edition of the Pharmacopœia defines Tincture Zingiberis as follows:—

Ginger, in No. 40 powder, 2 ounces.  
Alcohol (90 per cent), a sufficient quantity.

Moisten the powder with two fluid ounces of the alcohol, and complete the percolation process. The resulting tincture should measure one pint.

This gives a solution of 1 in 10.

Earlier editions of the B.P. prescribed the use of Rectified Spirit, instead of 90 per cent alcohol; and 12.5 parts ginger to 100 volumes of tincture; being a solution of 1 in 8. Rectified Spirit, as now defined by the Pharmacopœia, is 90 per cent alcohol. The older editions defined it as 88.76 per cent alcohol.

	Specific Gravity.	Alcohol p.c.
Rectified Spirit of 1898.....	0.834	90.00
“ “ Older Editions....	0.838	88.76

This slight difference in strength makes no important change in the character of the tincture. The decreased weight of ginger employed since 1898, will naturally reduce the amount of oleo-resin in solution.

According to *Siggins* (The National Dispensary) the amounts of oleo-resins dissolved by alcohol, from different varieties of ginger to 1 in 10 solution, are as follows:

Jamaica Ginger (unbleached).....	0.48
“ “ (bleached).....	0.50
East India Ginger.....	0.66
African “.....	0.62 to 0.70

(parts by weight of oleo-resin in 100 volumes of the tincture).

C. G. Moor (Suggested Standards, etc., p. 140) quotes many authorities on this point, who find numbers varying from 0.29 to 0.68 per cent. *T. Barclay* (Pharm. Journal, Dec. 1898) proposes 0.40 per cent as a standard.

In six samples of tincture of ginger reported in Bulletin 34 (1893) of this laboratory, the following solids per cent were found:—

Tincture	11859	gave	1.17	per cent	residue.
“	11872	“	0.82	“	“
“	11864	“	0.467	“	“
“	11880	“	0.48	“	“
“	11871	“	0.58	“	“
F. W. Fletcher &c.	“	“	0.40	“	“

It is natural that the amount of resins in solution should vary with the character of the ginger rhizome used, as well as with the strength of the alcohol, and the time during which the solvent is permitted to act upon the ginger. In order to study the influence of time, in this regard, I made nine tinctures, after the directions of the British Pharmacopœia, allowing the solvent to act during periods of 20, 44, and 68

hours; and employing three different samples of ginger (known in the table as I, II and III) obtained from dealers in Ottawa, and ground in the laboratory.

In the fifth column of the subjoined table I have entered a number which is the difference between the specific gravity of the tincture, and that of the alcohol distilled from the tincture. One would expect this difference to bear some definite relation to the quantity of oleo-resin in solution. It is, however, apparent that errors of experiment, introduce variations which greatly militate against the employment of this number as an index to quantity of resin in solution.

Description of Samples.	Time of Maceration. Hours.	Specific Gravity of Tincture.	Specific Gravity of Distillate. .8337	Difference.	Dry Residue per cent.	Alcohol per cent by weight. 85.77	Alcohol per cent by volume. 90.08	Loss of Alcohol per cent by volume.
I.....	20	.8356	.8341	.0015	0.260	85.62	89.96	0.12
II.....	20	.8368	.8349	.0019	0.423	85.31	89.72	0.36
III.....	20	.8362	.8342	.0020	0.337	85.58	89.53	0
I.....	44	.8372	.8354	.0018	0.328	85.12	89.58	0.50
II.....	44	.8377	.8365	.0012	0.499	84.68	89.24	0.84
III.....	44	.8371	.8358	.0013	0.319	84.96	89.46	0.62
I.....	68	.8377	.8358	.0019	0.284	84.96	89.46	0.62
II.....	68	.8380	.8373	.0007	0.460	84.36	88.98	1.10
III.....	68	.8381	.8362	.0019	0.420	84.80	89.33	0.75

An examination of this table shows the following: -

1. Ninety per cent alcohol dissolves from 0.3 to 0.4 parts by weight of resin per 100 measures of tincture, in about three days, at ordinary temperature.
2. The amount dissolved after the first period of 24 hours is very small.

Sample	Dissolved in 20 hours.	Dissolved in 68 hours.	Difference.
I.....	0.260	0.328	.068
" II.....	0.423	0.499	.076
" III.....	0.337	0.420	.083

3. Difference in gravity between tincture and distillate gave no satisfactory indication of the amount of resin dissolved.

4. The specific gravity of a good tincture should be about 0.835 to 0.838. Moor (loc. cit.) quotes the gravity as 0.835 to 0.840.

5. The loss of alcohol in making the tincture need not exceed 1 per cent.

In interpreting the numbers entered in table II, I have allowed for a possible loss of 5 per cent of alcohol, due to manufacture and to keeping the prepared tincture. With ordinary precaution it would seem quite possible to prevent a loss of more than 2 or 3 per cent. With loss of alcohol, due to evaporation or dilution, resins are thrown out of solution, and the strength of the tincture is correspondingly reduced. The tincture becomes cloudy and turbid; and I learn that it is usual to filter the tincture in order to render it clear. This, of course, means the removal of the resins in excess of the quantity soluble in the weaker alcohol.



*Essence of Ginger* (see Table III) is not recognized by the British Pharmacopoeia of 1898. In earlier editions a *Tinctura Zingiberis Fortior*, ordinarily called essence of ginger, was defined as 'Ginger percolated with alcohol, to form 1 in 2.' This strong solution of the oleo-resin of ginger could be employed, by dilution with alcohol, to prepare the ordinary tincture.

*Extract of Ginger* (see Table IV) has no official recognition. Its character, as found on the Canadian market, will appear from the recorded analyses in Table IV. While *Essence of Ginger* is quite frequently up to the strength of the official tincture, (70 per cent of the samples now reported reaching this standard) the extract of ginger is usually very weak in alcohol: (only 31 per cent of the samples now reported reach the standard of official tincture).

Of 62 samples of tincture of ginger reported in table II, I find:—

Genuine .....	16 samples	= 74.2 per cent
Doubtful .....	2 "	= 3.2 "
Adulterated .....	14 "	= 22.6 "
Total .....	62	

The term 'adulterated' has reference to the alcoholic strength only.

