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VOL. IV.....No. 37.

ORIGINAL AND SELECTED PAPERS.

ON FLUID EXTRACTS AND THEIR MENSTRUA.*

BY EDWARD R. SQUIBB, M. D.

To the American Pharmaceutical Association.

In continuation of the subject of Percolation and Economy of Alcohol, annually presented to the Association for some year's past, the writer offers an abstract of the results of his last year's experience, premising that he has neither the time nor inclination—as time becomes more valuable—to defend his notions, judgment, or accuracy, or even to point out many of the deductions that might be drawn from the statements made as facts.

It is not uncommon to hear observant physicians say that they do not obtain results from the fluid extracts corresponding in the proportion of minim for grain to the drug which they represent; and pharmacists who use the officinal formulas must be aware that the drugs are not entirely exhausted by the processes given. A critical inquiry into this subject, in this direction, is the chief object of this paper.

A practical way to measure the rate and extent of exhaustion by percolation has long been needed, and the want of some simple and easy plan has, perhaps more than any other obstacle, stood in the way of accurate knowledge and progress in the art of percolation. After many trials, some of which were described in previous papers, the method by specific gravity has thus far proved the most satisfactory and successful. But when applied by the hydrometer, or by the ordinary specific gravity bottle, with the necessary calculations, it is too abstruse and complicated for common usage.

It is to a more plain and simple application of the principle of specific gravity that attention is now to be directed, and the formula may be stated as follows:—In percolation the density of the percolate will vary from the density of the menstruum in proportion to the extent and rate of the exhaustion. It follows from this proposition that to measure the extent and rate of exhaustion, it is only necessary to measure the extent and rate at which the percolate varies from the menstruum at the beginning of a percolation and approaches to it at the end, absolute exhaustion being indicated by equal density—or equal weight of the same volume at the same temperature—of the menstruum and percolate. This measuring is usefully accomplished with sufficient accuracy by separating the percolate as it passes into successive portions of a pint each and weighing them. By subtracting from this the weight of a pint of the menstruum at the same temperature, a series of differences will be obtained expressing the extent and rate of exhaustion. When the exhaustion is practically completed,—it is never absolutely accomplished,—the residue is dried and weighed, and its weight subtracted from the weight of the substance as originally taken for percolation. The difference or loss in weight indicates the total amount of solid matter dissolved and removed by the menstruum. Then, as the sum of the differences in weight between equal volumes of the menstruum and percolate at the same temperature, is to the total-amount of solid matter or extract dissolved out by the menstruum, so is each separate difference to the weight of solid extract in the portion of percolate which that difference represents. That is to say, the total weight or amount of solid extract being ascertained, the ratio of the differences in density is applied to it to obtain a ratio of the rate of exhaustion, and to ascertain the distribution of the total extract throughout the percolate.

This method, applied to nearly all the fluid extracts which are at present officinal, and to some others, has convinced the writer,

First. That the present officinal processes do not sufficiently exhaust the drugs to which they are applied; and,

Second. That these processes do not take the best way to attain the object. That the supposed advantage of using coarse powders is a delusion. That maceration is useless at the commencement of the process of percolation, but useful after the substance has been partially exhausted. That the menstrua are not always the best that could be selected, either for extracting the useful portions of the drug or for excluding the useless portions. That glycerin is preferable to sugar, where either gives any positive advantage, but that anything like a general use of glycerin in fluid extracts is to be deprecated, as the advantages are more in appearance than reality.

The foregoing table, embracing the substances of nine officinal fluid extracts, and one other, is limited in extent by the size of the page, but is large enough to illustrate these points. These percolations, excepting ergot and lupulin, were all made with fine powders, moistened with more menstruum than is directed by the Pharmacopœia, and the moistened powder put through a sieve of about twelve meshes to the inch before the packing. The packing and percolating was then done with all the care and skill which the writer's experience could suggest, so that the results are considered to be much better than an average practice would give. Each pint of percolate was weighed in a flask marked in the narrow part of the neck, and the menstruum at the same temperature was weighed in the same flask, and the difference in weight set down in the column under that heading. The same powder, managed in the same way, was percolated at once; and another portion, after macerating four days, with no practical difference in result; whilst a maceration of twenty-four hours after the third or fourth pint of percolate had passed, would always increase the difference somewhat, and would often increase them much. Changes of temperature, also, by changing the solvent power of the menstruum, caused the differences to rise and fall somewhat, coincident with changes of weather. A simple inspection of the proportion of the extract contained in the first pint of each percolate will probably expose the fallacy that any amount of expert skill and management could ever make that pint represent the whole efficacy of the drug. In percolating the powder of good aconite root by a very slow and careful percolation, the characteristic numbing impression upon the tongue was distinctly though faintly perceptible by the application of a few drops from the thirteenth pint. The bitterness of cinchona was perceptible in the seventeenth pint; but neither the taste nor odor of wild cherry bark were perceptible in the sixteenth pint, though the amount of extract contained was large. Ergot was necessarily percolated in coarse powder (No. 60), and was easily and rapidly exhausted; but the dried residue powdered finer gave a notable proportion of extract, which, for want of time, was not determined. Not so with lupulin, however, which, percolated in its natural condition of coarse powder, left a light residue, from which no ordinary management could extract anything more. The percolation of lupulin was very regular and uniform, and maceration at any stage of the process had no perceptible effect. Effective percolations of dandelion root are very slow, and therefore very perfect; and like those of sarsaparilla, often became slower as they approach completion.

The great difference in the rate of exhaustion in the examples given in the table indicates that no general rule of limit can be adopted, but that each substance must be studied by itself. From results given in a previous paper, the solid extract obtained by percolation from some drugs, and probably from all, is not of uniform medicinal value as found in different parts of the percolate, but becomes weaker toward the end. When this ceases to be of practical value, or, in other words, where the percolation should terminate, was not determined. Among the examples given it will be seen that if the Pharmacopœia used fine powder and slow percolation, it would, in the case of dandelion, obtain 86 per cent. of the total extract; and it is probable that this is somewhat near or beyond the limit of practical utility. If so, it might be directed that fluid extracts as a class of preparations should not contain less than 80 per cent. of the total solid extract which the drugs were capable of yielding to the given menstruum; and the limit of percolation necessary to obtain this is shown by one of the lines of the table. But where this 80 per cent. of the solid extract has been obtained, it is not within the compass of a pint, but is contained in a number of pints, never less than 2½ nor more than 11.

To get these various large quantities within the measure of a pint each without the use of heat, and with the least loss of menstruum, is the next and great requisite, without which they are not fluid extracts.

To accomplish this, there appears to be no choice of means. There is one way, and only one way, known to the writer by which it may be done, and that is by repercolation, or percolating fresh portions of the drug with percolate from previous portions, until the normal difference in weight between equal volumes of the menstruum and percolate is attained.

* From the Proceedings of the American Pharmaceutical Association.

TABLE OF PERCOLATIONS.

	Portion of the Percolate.	Aconite Root.		Buchu Leaf.		Cinchona Bark.		Ergot.		Lupulin.		Wild Cherry Bark.		Sarsaparilla Root.		Senna Leaf.		Dandelion Root.		Uva Ursi Leaf.	
		Grains.		Grains.		Grains.		Grains.		Grains.		Grains.		Grains.		Grains.		Grains.		Grains.	
	Pints.	Difference.	Extract.	Difference.	Extract.	Difference.	Extract.	Difference.	Extract.	Difference.	Extract.	Difference.	Extract.	Difference.	Extract.	Difference.	Extract.	Difference.	Extract.	Difference.	Extract.
	1	288	512	305	789	398	514	304	748	705	2275	287	344	325	829	563	1166	808	1927	633	1344
	2	193	343	124	321	155	200	135	332	480	1549	117	140	137	349	286	593	374	892	213	452
	3	118	210	67	173	70	90	49	121	187	604	73	87	53	135	103	213	169	403	173	367
	4	77	137	44	114	48	62	26	64	133	429	66	79	40	102	46	95	119	4	73	155
	5	57	101	27	70	53	68	21	52	77	249	60	72	40	102	47	98	53	126	73	155
	6	50	89	20	52	26	34	16	39	64	207	60	72	40	102	36	75	31	74	35	74
	7	36	64	20	52	28	35	13	32	39	126	54	65	40	102	34	71	8	19	36	77
	8	41	73	19	45	65	84	17	42	26	84	62	74	40	102	33	68	7	17	27	58
	9	44	78	18	47	95	123	14	34	23	74	55	66	31	87	31	64			20	42
	10	34	61	18	47	71	92	9	22	13	42	53	63	20	51	18	37			16	34
	11	31	55	12	31	31	40	8	19	13	42	53	63	12	31	23	48				
	12	37	66	9	22	30	39	10	25			68	81			2	4				
	13	29	52	1	3	26	34	10	25			57	68			4	8				
	14	27	48			14	18					52	62								
	15	22	39			32	41					49	59								
	16	20	36			25	32					41	50								
	17					38	49														
Sum Total.....		1104	1964	684	1770	1205	1555	632	1555	1760	5681	1207	1445	781	1992	1226	2540	1569	3742	1299	2758
Quantity of powder percolated.....		7652		7680		7680		7680		7680		7680		7680		7680		7680		7680	
Dried residue from percolation.....		5688		5910		6125		6125		1999		6235		5688		5140		3938		4922	
Loss by percolation (solid extract)		1964		1770		1555		1555		5681		1445		1992		2540		3742		2758	
Pharmacopœia percolates to.....		.....		2¾ pints.		4 pints.		3¾ pints.		2 pints.		3 pints.		4 pints.		3 pints.		3 pints.		3 pints.	
Maximum ext. obtained by Pharm.....		.....		1240		866		1249		3824		571		1415		1972		3222		2163	
Percentage of total " "		.....		70 p. c.		55 p. c.		80 p. c.		68 p. c.		40 p. c.		71 p. c.		78 p. c.		86 p. c.		78 p. c.	
Percolate required to get 80 per cent. of the total extract.....		8½ pints.		4½ pints.		9½ pints.		4 pints.		3½ pints.		11 pints.		6 pints.		4 pints.		2½ pints.		3½ pints.	
Extract in the pint when of 80 per cent.....		1571		1416		1244		1244		4544		1156		1593		2032		2993		2206	

TABLE OF REPERCOLATIONS.

Portion of Percolate.	YELLOW CINCHONA BARK. Grains.						DANDELION ROOT. Grains.						SENNA LEAF. Grains.					
	1st Portion.		2nd Portion.		3rd Portion.		1st Portion.		2nd Portion.		3rd Portion.		1st Portion.		2nd Portion.		3rd Portion.	
Pints.	Difference.	Extract.	Difference.	Extract.	Difference.	Extract.	Difference.	Extract.	Difference.	Extract.	Difference.	Extract.	Difference.	Extract.	Difference.	Extract.	Difference.	Extract.
1	398	514	587	757	765	988	808	1927	1484	3539	1624	3874	563	1166	841	1742	1098	2275
2	155	200	280	361	493	636	374	892	676	1612	1000	2385	286	593	485	1005	878	1819
3	70	90	230	297	321	414	169	403	298	711	704	1679	103	213	258	535	370	767
4	48	62	195	252	260	336	119	284	156	372	405	966	46	95	169	350	289	599
5	53	68	135	174	193	249	53	126	125	299	234	558	47	98	132	274	229	475
6	26	34	94	121	175	226	31	74	97	231	161	384	36	75	100	207	145	301
7	28	35	87	112	183	236	8	19	102	243	137	327	34	71	65	135	128	265
8	65	84	112	145	182	235	7	17	95	226	112	267	31	64	51	106	110	228
9	95	123	86	111	168	217			75	179	95	228	18	37	45	93	113	235
10	71	92	87	112	153	197			57	136	80	191	23	48	34	70	100	207
11	31	40	65	84	134	173					66	155	2	4	42	87	94	192
12	30	39	48	62	106	137					43	103	4	8	48	99	75	156
13	26	34	38	49	91	118									39	81	68	141
14	14	18	47	61	101	130									33	68	48	99
15	32	41	41	53	71	91												
16	25	32	45	58	83	107												
17	38	49	40	51	48	62												
	1205	1555	2217	2860	3527	4552	1569	3742	3165	7548	4661	11117	1226	2540	2342	4852	3745	7759

This process is somewhat complex and troublesome, and requires knowledge and skill; and, worse than all, requires that a stock of weak percolate of different densities be carried from one making to the next for each fluid extract. But, as it appears to be absolutely the only means of accomplishing the end well and properly, there is no choice between it and those means which give results too imperfect for the present state of pharmacy.

This process of repercolation has been described in previous papers, but it may be useful here to offer a table of examples, carried out to an exaggerated extent, to exhibit its scope and capacity; and yellow cinchona, dandelion, and senna are selected for illustration. All these drugs were taken in the very fine powders as met with in the markets. One Pharmacopœia portion of 7680 grains of each was taken for each percolation, and three percolations of each drug were made. The percolate from the first portion of each was taken to moisten and percolate the second, and the percolate from the second portion of each was taken to moisten and percolate the third.

The menstruum used for yellow cinchona was a mixture of one part, by weight, of glycerin, and three parts, by weight, of stronger alcohol. That used for the senna was diluted alcohol, and that used for the dandelion was a mixture of equal weights of stronger alcohol and water. The yellow cinchona and dandelion were each moistened with 8 fℨ, of menstruum and percolate, and the senna with 9 fℨ. All the moistened powders were passed through a sieve before packing, and were packed and managed alike, each pint as it came from one funnel being poured on top of the other.

It will be seen by reference to the first table that it is estimated that the Pharmacopœia *may* get in yellow cinchona 55 per cent. of the extract from the bark, or 866 grains in the two pints. By the last cinchona column of the table of repercolations, it will be seen that if the first four pints from the third portion be mixed together, each pint of the mixture will contain almost as much extract of cinchona as the officinal two pints, and the whole four pints will make, by adding the next four pints of the column, eight pints, having nearly the strength of the officinal preparation, and this from three portions of powder.

If the fluid extract of cinchona be changed in the new Pharmacopœia to double the present officinal strength, and the standard for percolation be unchanged, then this column would yield about 2½ pints of double the present officinal strength. But if the standard be increased so that the preparation shall contain 80 per cent. of the extract, or 1244 instead of 866 grains, then the first pint of the column is not strong enough, and another portion must be percolated with the percolate from the third portion. This portion may be larger or smaller than the others in proportion to the wants of the operator, and will yield accordingly, the larger portions being more economical.

In the case of dandelion (should not the Pharmacopœia change the English name to taraxacum?) the Pharmacopœia is estimated to get 86 per cent. or 3222 grains of the extract in its pint. This would make the first two pints of the last dandelion column nearly officinal. But if the standard be reduced to the 80 per cent. uniformity, or 2993 grains instead of 3222 to the pint, the column would yield nearly 2½ pints of that strength.

In the case of senna, the Pharmacopœia, as estimated, may get 78 per cent. or 1972 grains of the extract in its prescribed pint of fluid extract. The last senna column of the table would yield about 2½ pints of this strength. But if the standard be increased to 80 per cent., or 2032 grains of extract to the pint, the column would yield just 2 pints of this strength.

Of course the weaker percolates of these final columns of this table yield proportionately more when applied to other fresh portions of powder, but in some instances at least, if not in all, repercolation cannot be carried on indefinitely, because of the weak percolate becoming overloaded with extract—the 20 per cent. which is rejected and goes on accumulating—which is assumed here to be medicinally feeble. After a year or two of active practice, it becomes necessary to recover the alcohol from the weaker of the weak percolates, only carrying on the stronger ones. In no case need each separate portion of the residuary weak percolate be kept separate from one making to the next, but the different strengths may be grouped together so as to preserve the whole in three or four bottles for each substance.

From the above considerations it would follow that a fluid extract representing a drug minim for grain, might be defined or described as a solution containing 80 per cent. of the extract of that drug, which is soluble in a given prescribed menstruum. And fluid extract of senna, for example, would be powdered senna repercolated with diluted alcohol until equal volumes of the menstruum and percolate weighed at the same temperature, differ to the extent of 14·5 per cent. = 988 grains to the pint.

(To be continued.)

REVISION OF THE CHEMICAL NOMENCLATURE OF THE PHARMACOPŒIA.*

By J. Attfield, Ph. D.

The names of Pharmacopœial chemicals should fulfil certain functions or possess definite qualities, positive or negative, namely,—

1. The name should, as far as possible and practicable, indicate composition. This Lavoisierian principle is, as I have already shown, one of necessity as well as expediency.

2. One name should be associated with only one substance; but the converse I would by no means urge, namely, that one substance should be known by only one name, synonyms being useful both from a theoretical and a practical point of view.

3. A name, even if fallen out of use, should not be transferred to a substance having properties different from the original substance.

4. The name of an official chemical substance, that is, a name officially recognised in national pharmacopœias, should possess the minimum of instability. This quality is most important. Verbal changes almost of any kind are unpopular; changes in chemical nomenclature have done much to retard the progress of chemistry amongst the people; but changes in the names of pharmacopœial chemicals are objectionable in the interest of medical practitioners, their patients, and pharmacists.

The free employment of Latin and Greek numerals in a chemical name was strongly advocated by the late Professor Miller. But though highly useful in general chemical literature for indicating details of composition, the principle is too dependent on hypothesis respecting atomic values and weights, and too susceptible of disturbance caused by new discoveries to possess the element of permanence; hence it must be avoided in pharmaceutical chemistry.

5. A pharmacopœial name should admit of being either easily spoken or written, both in the full and in the contracted form, in modern languages and in Latin.

6. When close resemblance between two salts is indicated by identity in all but one of the syllables of their names, that syllable should be at the commencement of the names and not at the end, where it would be liable to be omitted by a prescriber. Indeed, such variations are often indicated with most usefulness by a separate word altogether, confusion and even mischief being thereby avoided. Thus, for calomel and corrosive sublimate the names *subchloride of mercury* and *perchloride of mercury* are greatly to be preferred to *mercurous chloride* and *mercuric chloride*; for a physician, in writing a prescription, should contract the former to *hydr. subchlor.* and *hydr. perchlor.*, which are still sufficiently distinctive, while the others would *both* be liable to be contracted to *hyd. chlor.*, and a patient perhaps be killed by corrosive sublimate instead of cured by calomel. So *green iodide of mercury* and *red iodide of mercury* are better than *mercurous iodide* and *mercuric iodide*, or *green sulphate of iron* and *persulphate of iron* to *ferrous sulphate* and *ferric sulphate;* any greater percision that may be desired being given by chemical formulæ.

7. A name should not be changed for mere purpose of euphony, real or fancied; thus, chlorhydric for hydrochloric.

8. Names of pharmacopœial chemicals should be consistent with each other.

9. The chemical names employed in pharmacy should be consistent with those used in other branches of applied chemistry, and with the language of scientific chemistry and general chemical literature. I say consistent, certainly not identical. *For I believe the time has come when, by making a few slight alterations in the terminations of a few of our chemical names, we shall have a system of pharmaceutical nomenclature which, while perfectly harmonious with, is quite independent of scientific chemical nomenclature, and which therefore contains greater elements of permanence than any yet adopted.* These alterations be it noted, are in the terminations of the names only; hence the contracted names almost universally used by physicians and pharmacists would in no way be interfered with,—an argument which, if somewhat left-handed, must be admitted to be one of great strength.

THE PROPOSED NAMES.

The following is a table of names of all the chemical substances in the British Pharmacopœia. Column I. contains the official names; Column II. the names now suggested for employment in pharmacy, medicine, and the next edition of the British Pharmacopœia; Column III. the unitary nomenclature of modern chemistry.

* Extract from a paper read before the Pharmaceutical Society of Great Britian, April, 5th 1871, and reported in the *Chemist and Druggist*, April, 15th.

Old Names.	Proposed Names.	Synonyms.
Acetate of ammonia.	Acetate of *ammonium*.	*Ammonium acetate.* / *Ammonic acetate.*
Acetate of copper.	Acetate of copper.	*Cupric acetate.*
Acetate of iron.	Acetate of iron.	*Ferric acetate.*
Acetate of lead.	Acetate of lead.	*Lead acetate.* / *Plumbic acetate.*
Acetate of morphia.	Acetate of morphia.	*Morphia acetate.*
Acetate of potash.	*Acetate of potassium*.	*Potassium acetate.* / *Potassic Acetate.*
Acetate of soda.	Acetate of *sodium*.	*Sodium Acetate.* / *Sodic acetate.*
Acetate of zinc.	Acetate of zinc.	*Zinc acetate.*
Acetic acid.	Acetic acid.	*Hydrogen acetate.* / Acetic acid.
Acid tartrate of potash.	Acid tartrate of *potassium*.	*Acid potassium tartrate.*
Aconitia.	Aconitia.	Aconitia, or *aconitine.*
Albumen.	Albumen.	Albumen.
Alcohol.	Alcohol.	*Ethel hydrate.* / Alcohol, *or ethel alcohol*
Alum.	Alum.	Alum.
Ammonia.	Ammonia. / *Hydrate of ammonium.* (syn.)	Ammonia. / *Ammonium hydrate.*
Ammoniated mercury.	Ammoniated mercury.	*Mercuric-ammonium chloride.*
Ammonia-nitrate of silver.	Ammonia nitrate of silver.	*Argent-ammonium nitrate.*
Ammonio-sulphate of copper.	Ammonio-sulphate of copper.	*Cupro-diamonium sulphate.*
Ammonio-sulphate of magnesia.	Ammonio-sulphate of magnesia.	*Ammonio-magnesia sulphate.*
Amylic alcohol.	Amylic alcohol.	*Amyl alcohol.*
Arseniate of iron.	Arseniate of iron.	*Ferrous arsenate.*
Arseniate of soda.	Arseniate of *sodium*.	*Sodium arsenate.*
Arsenious acid.	*White arsenic.*	*Arsenious oxide.*
Atropia.	Atropia.	Atropin, *or atropine.*
Benzoate of ammonia.	Benzoate of *ammonium*.	*Ammonium benzoate.*
Benzoic acid.	Benzoic acid.	*Hydrogen benzoate.* / Benzoic acid.
Benzol.	Benzol.	*Benzene.*
Bicarbonate of potash.	Bi-carbonate of *potassium*.	*Acid potassium carbonate.* / *Hydrogen potassium carbonate.* / *Mono-potassic carbonate*
Bi-carbonate of soda.	Bicarbonate of *sodium*.	*Acid sodium carbonate.* / *Hydrogen sodium carbonate.* / *Mono-sodiac carbonate.* / *Hydro-sodiac carbonate.*
Bichromate of potash.	*Red chromate of potassium.*	*Potassium anhydrochromate.* / *Potassium bichromate.*
Bismuth.	Bismuth.	Bismuth.
Black antimony.	Black *sulphide* of antimony.	*Antimonious sulphide.*
Black oxide of manganese.	Black oxide of manganese.	*Manganese dioxide, or peroxide.*
Boracic acid.	Boracic acid.	*Hydrogen borate.* / *Boric acid.* / Boracic acid.
Borax.	Borax.	*Sodium anhydroborate.* / Borax.
Bromide of ammonium.	Bromide of ammonium.	*Ammonium bromide.*
Bromide of potassium.	Bromide of potassium.	*Potassium bromide.*
Bromide.	Bromine.	Bromine.
Calomel (syn.)	Calomel (syn.)	*Mercurous chloride.* / Calomel.
Camphor.	Camphor.	Camphor.
Carbolic acid.	Carbolic acid.	*Hydrogen carbolate.* / Carbolic acid.
Carbonate of ammonia.	Carbonate of *ammonium*.	*Ammonium carbonate.*
Carbonate of bismuth.	*Oxycarbonate* of bismuth (syn)	*Bismuth oxycarbonate.*
Carbonate of iron.	Carbonate of iron.	*Ferrous carbonate.*
Carbonate of lead.	Carbonate of lead.	*Lead carbonate.* / (?) *Triplumbic dihydrate dicarbonate.*
Carbonate of lime.	Carbonate of *calcium*	*Calcium carbonate.*
Carbonate of lithia.	Carbonate of *lithium*.	*Lithium carbonate.*
Carbonate of magnesia.	Carbonate of *magnesium*.	*Magnesium carbonate.* / (?) *Tetrahydrous dihydric tetramagnesic tricarbonate.*
Carbonate of potash.	Carbonate of *potassium*	*Dipotassic carbonate.* / *Potassium carbonate.*
Carbonate of soda.	Carbonate of *sodium*.	*Disodic carbonate.* / *Sodium carbonate.*
Carbonate of zinc.	Carbonate of zinc.	*Zinc carbonate.*
Caustic potash.	Caustic potash. / *Hydrate of potassium* (syn.)	Caustic potash. / *Potassium hydrate.*
Caustic soda.	Caustic Soda. / *Hydrate of sodium* (syn.)	Caustic soda. / *Sodium hydrate.*
Chalk.	Chalk.	*Calcium carbonate.* / Chalk.
Chlorate of potash.	Chlorate of *potassium*.	*Potassium chlorate.*
Chloride of ammonium.	Chloride of ammonium.	*Ammonium chloride.*
Chloride of antimony.	*Chloride of antimony.*	*Antimony trichloride.* / *Antimonious chloride.*
Chloride of barium.	Chloride of barium.	*Barium chloride.* / *Baric chloride.*
Chloride of calcium.	Chloride of calcium.	*Calcium chloride.* / *Calcic chloride.*
Choloride of gold.	*Perchloride of gold.*	*Auric chloride.*
Chloride of sodium.	Chloride of sodium.	*Sodium chloride.*
Chloride of tin.	*Stannous chloride.*	*Stannous chloride.*
Chloride of zinc.	Chloride of zinc.	*Zinc chloride.*
Chlorinated lime.	Chlorinated lime.	*Chloride of lime.*
Chlorinated soda.	Chlorinated soda.	*Chloride of soda.*
Chlorine.	Chlorine.	Chlorine.
Chloroform.	Chloroform.	*Methenyl chloride.* / Chloroform.
Citrate of ammonia.	Citrate of *ammonium*.	*Ammonium citrate.*
Citrate of bismuth and ammonia.	Citrate of bismuth and *ammonium*.	*Bismuth ammonio-citrate.* / *Ammonium and bismuthous citrate.*
Citrate of iron and ammonia.	Citrate of iron and *ammonium*.	*Ferric ammonio-citrate* / *Ferric and ammonium citrate.*
Citrate of iron and quinia.	Citrate of iron and quinia.	*Ferric quinio citrate.* / *Quinia ferri-citrate.* / *Ferric and quinia citrate.*
Citrate of lithia.	Citrate of *lithium*.	*Lithium citrate.*
Citrate of potash.	Citrate of *potassium*.	*Potassium citrate.*
Citric acid.	Citric acid.	*Hydrogen citrate.* / Citric acid.
Citro-tartrate of soda.	Citro-tartrate of sodium.	*Sodium citro-tartrate.*
Conia.	Conia.	Conia, or *conine.*
Copper.	Copper.	Copper.
Corrosive sublimate (syn.]	Corrosive sublimate (syn)	*Mercuric chloride.* / Corrosive sublimate.
Digitalin.	Digitalin.	Digitalin.
Dried alum.	Dried alum.	Dried alum.
Dried carbonate of soda.	Dried carbonate of *sodium*.	Dried *sodium carbonate.*
Dried sulphate of iron.	Dried sulphate of iron.	Dried ferrous sulphate.
Ether.	Ether.	*Ethyl oxide.* / Ether.
Ferrocynanide of potassium (syn)	Ferrocyanide of potassium.	*Potassium ferrocyanide.*
Gallic acid.	Gallic acid.	*Hydrogen gallate.* / Gallic acid.
Gelatine.	Gelatine.	Gelatin.
Glycerine.	Glycerine.	*Propenyl alcohol.* / Glycerin.
Granulated sulphate of iron	Granulated sulphate of iron	Granulated *ferrous sulphate.*
Hydrated peroxide of iron	*Peroxhydrate of iron.*	*Ferric oxyhydrate.*
Hydrochlorate of morphia.	Hydrochlorate of morphia.	*Morphine hydrochlorate.*
Hydrochloric acid.	Hydrochloric acid.	*Hydrogen chloride.* / *Chlorhydric acid.* / Hydrochloric acid.
Hydrochloric sol. of arsenic.	Hydrochloric sol. of arsenic.	Hydrochloric sol of arsenic.
Hydrocyanic acid.	Hydrocyanic acid.	*Hydrogen cyanide.* / Hydrocyanic acid.
Hyposulphite of soda.	Hyposulphite of *sodium*.	*Sodium hyposulphite.*
Indigo.	Indigo.	Indigo.
Iodate of potash.	Iodate of *potassium*.	*Potassium iodate.*
Iodide of cadmium.	Iodide of cadmium.	*Cadmium iodide, or Cadmic iodide.*
Iodide of iron.	Iodide of iron.	*Ferrous iodide.*
Iodide of lead.	Iodide of lead.	*Lead iodide, or Plumbic iodide.*
Iodide of mercury, green.	Iodide of mercury, green.	*Mercurous iodide.*
Iodide of mercury, red.	Iodide of mercury, red.	*Mercuric iodide.*
Iodide of potassium.	Iodide of potassium.	*Potassium iodide*

Old Names.	Proposed Names.	Synonyms.
Iodide of sulphur.	Iodide of sulphur.	*Sulphur iodide.*
Iodoline.	Iodine.	Iodine.
Iron.	Iron.	Iron.
Lime.	Lime.	*Calcium monoxide.* / Lime.
Magnesia.	Magnesia.	*Magnesium oxide.* / Magnesia.
Magnetic oxide of iron.	Magnetic *oxyhydrate* of iron.	*Ferroso-ferric oxyhydrate.*
Mercury.	Mercury.	Mercury.
Mercury with chalk.	Mercury with chalk.	Mercury with chalk.
Moist peroxide of iron.	Moist *perhydrate* of iron.	*Ferric hydrate.*
Nitrate of lead,	Nitrate of lead.	*Lead nitrate.*
Nitrate of mercury.	*Pernitrate* of mercury.	*Mercuric nitrate.*
Nitrate of potash.	Nitrate of *potassium.*	*Potassium nitrate.*
Nitrate of silver.	Nitrate of silver.	*Argentic nitrate.* / *Silver nitrate.*
Nitrate of soda.	Nitrate of *sodium.*	*Sodium nitrate.*
Nitric acid.	Nitric acid.	*Hydrogen nitrate.* / Nitric acid.
Nitro-hydrochloric acid.	Nitro-hydrochloric acid.	Nitro-hydrochloric acid.
Nitrous ether, spirit of.	Nitrous ether, spirit of.	*Ethyl-nitrate, spirit of.* / Nitrous ether, spirit of.
Oxalate of ammonia.	Oxalate of *ammonium.*	*Ammonium oxalate.*
Oxalate of cerium.	Oxalate of cerium.	*Cerium oxalate.*
Oxalic acid.	Oxalic acid.	*Hydrogen oxalate.* / Oxalic acid.
Oxide of antimony.	Oxide of antimony.	*Antimony trioxide.* / *Antimonious oxide.*
Oxide of iron, magnetic.	*Oxyhydrate* of iron, magnetic.	*Ferroso-ferric oxhydrate.*
Oxide of lead.	Oxide of lead.	*Lead oxide, or Plumbic oxide.*
Oxide of mercury, red.	Oxide of mercury, red.	*Mercuric oxide.*
Oxide of silver.	Oxide of silver.	*Silver monoxide.* / *Argentic oxide.*
Oxide of zinc.	Oxide of zinc.	*Zinc oxide.*
Perchloride of iron.	Perchloride of iron.	*Ferric chloride.*
Perchloride of mercury.	Perchloride of mercury.	*Mercuric chloride.*
Perchloride of platinum.	Perchloride of platinum.	*Platinum tetrachloride.* / *Platinic chloride.*
Permanganate of potash.	Permanganate of *potassium.*	*Potassium permanganate.*
Pernitrate of iron.	Pernitrate of iron.	*Ferric nitrate.*
Peroxide of iron, hydrated.	*Peroxhydrate of iron.*	*Ferric oxhydrate.*
Peroxide of iron, moist.	*Perhydrate of iron, moist.*	*Ferric hydrate.*
Persulphate of iron.	Persulphate of iron.	*Ferric sulphate.*
Phenic acid (syn.)	Phenic acid (syn.)	*Hydrogen phenate.* / Phenic acid.
Phosphate of ammonia.	Phosphate of *ammonium.*	*Ammonia phosphate.*
Phosphate of iron.	Phosphate of iron.	*Ferrous phosphate.*
Phosphate of lime.	Phosphate of *calcium.*	*Calcium orthophosphate.*
Phosphate of soda.	Phosphate of *sodium.*	*Disodiohydric phosphate.*
Phosphoric acid.	Phosphoric acid.	*Hydrogen phenate.* / Phosphoric acid.
Phosphorous.	Phosphorous.	Phosphorous.
Platinum.	Platinum.	Platinum.
Potash, solution of.	Potash, solution of	Potash, solution of.
Prussiate of potash, red.	? Prussiate of *potassium,* red.	*? Red potassium prussiate.*
Prussiate of potash, yellow.	? Prussiate of *potassium,* yellow.	*? Yellow potassium prussiate.*
Reduced iron.	Reduced iron.	*Reduced iron.*
Santonin.	Santonin.	*Santonin.*
Slaked lime.	Slaked lime.	*Calcium hydrate.* / Slaked lime.
Soda, solution of.	Soda, solution of.	Soda, solution of
Starch.	Starch.	Starch.
Strycinia.	Strychnia.	Strychnine.
Subacetate of copper.	*Oxyacetate* of copper (syn)	*Cupric Oxyacetate.*
Subacetate of lead.	*Oxyacetate* of lead (syn.)	*Basic lead acetate.* / *Lead oxyacetate.*
Subchloride of mercury.	Subchloride of mercury.	*Mercurous chloride.*
Subnitrate of bismuth.	*Oxynitrate* of bismuth, (syn.)	*Basic bismuth nitrate.* / *Bismuth oxynitrate.*
Sugar.	Sugar.	Sugar.
Sulphate of atropia.	Sulphate of atropia.	*Atropine sulphate.*
Sulphate of beberia.	Sulphate of beberia.	*Beberine sulphate.*
Sulphate of copper.	Sulphate of copper.	*Cupric sulphate.*
Sulphate of indigo.	Sulphate of indigo.	*Sulphindigotic acid.*
Sulphate of iron.	Sulphate of iron.	*Ferrous sulphate.*
Sulphate of lime.	Sulphate of *calcium.*	*Calcium sulphate.*
Sulphate of magnesia.	Sulphate of *magnesium.*	*Magnesium sulphate.*
Sulphate of mercury.	*Per*sulphate of mercury.	*Mercuric sulphate.*
Sulphate of potash.	Sulphate of *potassium.*	*Potassium sulphate.*
Sulphate of quinia.	Sulphate of quinia.	*Quinine sulphate.*
Sulphate of soda.	Sulphate of *sodium.*	*Sodium sulphate.*
Sulphate of zinc.	Sulphate of zinc.	*Zinc sulphate.* / *Zincic sulphate.*
Sulphide of ammonium.	*Sulphhydrate* of ammonium.	*Ammonia sulphydrate.*
Sulphide of iron.	Sulphide of iron.	*Ferrous sulphide.*
Sulphur.	Sulphur.	Sulphur.
Sulphurated antimony.	Sulphurated antimony.	*Antimonious oxysulphide.*
Sulphurated potash.	Sulphurated potash.	Sulphurated potash.
Sulphuretted hydrogen.	Sulphuretted hydrogen.	Sulphuretted hydrogen.
Sulphuric acid.	Sulphuric acid.	Sulphuric acid. / *Hydrogen sulphate.*
Sulphurous acid.	Sulphurous acid.	Sulphurous acid. / *Hydrogen sulphite.*
Tannic acid.	*Tannin* (syn.)	*Tannin.*
Tartar emetic (syn.)	Tartar emetic (syn.)	Tartar emetic.
Tartarated antimony.	*Tartrate of antimony and potassium.*	*Potassio-antimonious tartrate.*
Tartarated iron.	*Tartrate of iron and potassium.*	*Potassio-ferric tartrate.*
Tartarated soda.	*Tartrate of sodium and potassium.*	*Potassio-sodium tartrate.*
Tartaric acid.	Tartaric acid.	Tartaric acid. / *Hydrogen tartrate.*
Tartrate of potash.	Tartrate of potassium.	*Potassium tartrate.* / *Dipotassic tartrate.*
Tin.	Tin.	Tin.
Valerianate of soda.	Valerianate of *sodium.*	*Sodium valerianate.*
Valerianate of zinc.	Valerianate of zinc.	*Zinc valerianate.*
Veratria.	Veratria.	Veratrine.
Verdigris.	Verdigris.	Verdigris.
Water.	Water.	Water.
Zinc.	Zinc.	Zinc.

Résumé.—The chief alterations in Pharmacopœial nomenclature now proposed amount to this, that the compounds of the alkali-metals and alkaline-earth-metals instead of being named as hereto on two distict systems, should follow but one:—that instead of salts of potassium and of potash we should have salts of potassium only; instead of sodium and soda compounds, sodium only; and so with preparations of ammonium, lithium, calcium, magnesium, and aluminium. This is a step in the direction of simplicity and permanency, and away from that of theory.

Synonyms.—Modern scientific chemical names, and the old dualistic names should, I think, be included as synonyms of the eading name in all Pharmacopœia. Many might be mentioned in addition to those in the third column; I have given a selection because the complete and consistant sets (for, unfortunately, there are more than one) would have occuped too much space.

Exceptional Alterations.—Constitutional objections to the name *acidum arseniosum* would be obviated by the old name *arsenicum album.* Some other bodies, apparently similar in constitution to white arsenic, are alluded to in the text of the British Pharmacopœia as *anhydrous acids*—a most ambiguous and self-contradictory term; for the bodies in question either are acids or they are not acids; whereas the term indicates that they are both—which is impossible. The not very satisfactory word "anhydride" is coming generally into use for these bodies, and this might be employed officially; but all objection would be avoided if the strength of the Pharmacopœial acids, which are mostly aqueous solutions of acids, were solely given in terms of real acid (the hydrogen salt.) The correlative of the word *anhydrous,* I would suggest, should be *hydrous,* never *hydrate;* especially as the latter word is now given to the members of a class of bodies derived from water, as *hydrate of potassium,* and not the bodies containing water. The compound from which *anhydrous sulphate of copper* is prepared is *hydrous sulphate of copper,* not *hydrated sulphate of copper.* In view of the peculiar composition of *bichromate of potassium* the first word of its name is most unsuitable, and would be advantageously replaced by *red chromate,* a name which would usefully distinguish the salt from *yellow chromate of potassium.* The names of the bismuth powders are not at present consistent with each other; if the one be termed *subnitrate* the other should be *subcarbonate,* not "*carbonate.*" But these preparations and the simple compounds of copper and lead are normal rather than "sub" salts, containing oxygen in the place of an exactly equivalent quantity of the acidulous radical of the neutral salts, and might well be termed respectively *oxycarbonate of bismuth, oxynitrate of bismuth, oxyacetate of copper, oxyacetate of lead;* at all events the latter names

would do good service as synonyms. Similar remarks apply to the *peroxyhydrates of iron*. The prefix "sub" is most usefully and indeed indispensably applied in the case of calomel, which is the "lower" or underchloride of mercury; it would be well if the meaning of the syllable could be always thus restricted to its etymological signification, and never again used in its old conventional sense. The names *tartarated antimony, tartarated iron, tartarated sodium*, I do not like at all. The sister terms *sulphurated antimony*, and *sulphurated potash* are most happy, their utter vagueness fairly representing the nondescript character of the preparations. But *tartrate (or oxytartrate) of antimony and potassium, tartrate of iron and potassium*, and *tartrate of sodium and potassium*, are at least as definite in composition as the citric trio which are already honoured with the definite names (or, rather, with the old forms of the names) *citrate of bismuth and ammonium, citrate of iron and ammonium* and *citrate of iron and quinia*. "Prussiates" might now, I think, be relegated to the synonymic category. Instead of *Liquor Sodæ Effervescens*, B. P., which might possibly be confounded with *Liquor Sodæ*, I would prefer *Aqua Sodæ Effervescens*, and so with *Potash Water*. These are the prominent exceptional alterations to which I would draw attention. Their acceptance is not insisted on, nor is the list exhaustive. Allusion is made to them in the hope that discussion may show which names, on the whole, possess the greatest number of advantages. The alterations I do urge are those considered in the main portion of this paper, those of which I have already given a *résumé*.

In conclusion, I would state that the Lavoisierian names now proposed for use in medicine and pharmacy have already been freely adopted by many authors, and used as the leading nomenclature of my own and some other Manuals of Chemistry. I commend them to the medical practitioners and pharmacists of Europe, America and the Colonies. * * * * * *

The President, expressing his sense of the important character of Prof. Attfield's paper, remarked that one point in it (leaving the discussion of its chemical value to such gentlemen as Professors Frankland and Odling, whom he saw present) was worthy of the best consideration of pharmacists, namely, the importance insisted on by the lecturer of having such a system of nomenclature as should admit of no error between the prescriber and dispenser.

Dr. Frankland expressed his coincidence, on the whole, with the views advanced by Dr. Attfield. He said the scientific chemist was frequently compelled to modify the nomenclature of chemical substances, in order to explain his processes and theories; but for a Pharmacopœia the most important point was that the names should individualise the substances. He noticed one or two inconsistencies in Dr. Attfield's list of proposed names; one that he proposed to leave the name sulphate of iron to distinguish the ferrous sulphate. To take, also, the first name on the list, acetate of ammonium. The termination here had been changed, but a little further down he found acetate of morphia, which was a corresponding salt. He asked if it would be possible to change this name to *morphium*. Or at least the indefinite termination *ine* might be maintained. Practically it was of but little moment, for physicians would doubtless continue to avoid the terminations, whatever they might be. He (Dr. Frankland) thought that with but very few changes Dr. Attfield's scheme was well calculated to harmonize the nomenclature of the Pharmacopœia with the present condition of science, and that it would make but a very inappreciable difference to those who had to employ the names in medicine.

Dr. Redwood remarked that in every new Pharmacopœia change of nomenclature had to be made, the object generally having been to assimilate the names to scientific theories. In the last Pharmacopœia some changes had been made with this object, and others with the view of rendering the names more specific. In a future Pharmacopœia he had little doubt that a still greater change of nomenclature would be required. But there was no immediate intention of producing a new Pharmacopœia, and the present one would probably last for another ten years. If a new one were now in preparation he (Dr. Redwood) would be an advocate for exactly such changes as Dr. Attfield had proposed. The changes were so simple, and yet so perfectly in accordance with modern chemistry, that it would be hardly possible for any Pharmacopœia committee to reject them. He also agreed with Dr. Frankland that the termination of the alkaloids should be *ine* instead of *ia*, as in the case of morphia, strychnia, and others. Dr. Frankland had mentioned that the terms sulphate of iron was not sufficiently distinct, there being two substances of that name. He (Dr. Redwood) considered that it was quite sufficient in such a case for the more unusual salt only to be distinguished, which was done at present. It would only be more troublesome to use the affix *proto* to the sulphate of iron, and would serve no purpose. He could not agree with Dr. Attfield's proposition to substitute white arsenic for arsenious acid. Dr. Attfield had proposed that the term *acid* should not be employed for substances which did not contain hydrogen. If this were the only instance, it might be allowed to pass. But there were other cases, as for instance, chromic acid. Ought we to change this for chromic anhydride? He was not prepared to advocate such a cumbrous nomenclature. He quite agreed that red chromate of potash would be a good substitute for the present name. For the sake of brevity he would advocate the retention of the name black antimony, not giving it the title which Dr. Attfield had suggested, namely, black sulphide of antimony. He would not care to see the name carbonate of bismuth altered to oxycarbonate of bismuth as now proposed. Carbonate of lead and other salts were just as objectionable, these being quite as certainly oxycarbonates. To change the names of the double salts now named tartarated iron, tartarated antimony, and tartarated soda, to the suggested names tartarate of iron and potassium, and so on, would not, he thought, be an advantage. He would like to see the names changed, but not to what was now suggested. Why not return to the old names of potassio-tartrate of iron, etc., and use also the old term ammonio-citrate of iron? With regard to the salt citrate of iron and quinine, he would suggest ferro-citrate of quinine as an expressive and simple title.

Dr. Odling thought Dr. Attfield's proposed scheme of great importance. He could hardly coincide with Dr. Redwood respecting the value of such a discussion. Presuming that ten years was, as Dr. Redwood had said, the average duration of life for a Pharmacopœia, and considering that the present one was of exceptional excellence, allowing it ten years from now, he could not think that it was any too early to commence the discussion of any changes in the nomenclature. He would have commented on Dr. Redwood's criticism of the proposed term *white arsenic*, but he thought that after the glowing eulogium which Dr. Redwood had himself passed on *black antimony* almost immediately afterwards, he (Dr. Odling) might leave the two to balance each other. He fully agreed that *names including the use of Latin and Greek numerals* should be avoided as much as possible. To distinguish substances by naming their colour was an excellent means of definition, for while it involved no theory, it possessed the strongest probability of being a description which might be expected to be permanent. He also concurred with Dr. Attfield's remarks concerning acids. It was not originally of much importance to which class of bodies the term acid should be applied, but as general consent had given it to those which were compounds of hydrogen, he thought it of some importance that it should be retained for them. Bodies similarly described should possess similarity of character. He (Dr. Odling) did not exactly agree with Dr. Attfield's sketch of the history of the origin of the binary nomenclature of salts. He was aware that the theory might be found in some of Lavoisier's writings, but he hardly thought it had been recognized by him. He instanced many terms used by Lavoisier, which seemed to indicate that he had not formed any such theory. And he believed that it was not until the time of Davy *that it was fully expressed*. *In a few cases* he thought Dr. Attfield had striven a little too earnestly to attain exact scientific accuracy, which he (Dr. Odling) could not think was required. He coincided with Dr. Redwood in many of his remarks on this point. He agreed that the name sulphate of iron was quite sufficiently distinctive. The same argument, however, would not apply with regard to calomel and corrosive sublimate. It was important that sub-chlor, and per-chlor, should be designated. He concluded with a few words on suffixes and prefixes. In a scientific sense he preferred the adoption of suffixes, but he could not but admit the force of the arguments advanced for distinguishing chemical substances used in medicine by prefixing the syllable. This was necessary as long as physicians would perversely adhere to their system of abbreviating words.

Dr. Quain being called upon by the President, said he had not come to speak but to learn; he had not been disappointed. He had come also as a conservative, to protest against any changes of the names of medicinal substances merely to meet the views of scientific chemists; but , scheme proposed, he was glad to find was the reverse of this. It was impossible for practical physicians to follow minutely the theories of scientific mists, and they had the strongest possible objection to any violent changes of nomenclature. He thought the present *Pharmacopœia so exceedingly good that he* anticipated for it a long existence.

Mr. T. B. Grover made one remark on the danger often arising from the similarity between the abbreviated forms of the names acid, hydrochloric, dil., and acid, hydrocyanic, dil., and suggested a return to the old name for the latter of acidum prussicum.

EDITORIAL.

Correspondence and general communications, of a character suited to the objects of this JOURNAL, are invited, and will always be welcome. The writer's name should accompany his communication, but not necessarily for publication.

Subscriptions will not be acknowledged by letter, as our sending the paper may be taken as sufficient evidence of the receipt of the money.

All communications connected with the paper to be addressed, post-paid,

"EDITOR CANADIAN PHARMACEUTICAL JOURNAL TORONTO."

OPIUM CULTURE.

The high price maintained by opium, during the last two or three years, has given a fresh impetus to the efforts of those who have been endeavouring to introduce the culture of the poppy in countries other than those from which our supply has been, heretofore, derived. In France and Germany—especially the former—the poppy has been extensively cultivated, for a length of time, for the sake of the oil contained in the seeds; but not until later years was any advantage taken of the opium, although it is said that both products might be collected from the same plants without injury to either. In 1855, M. M. Bérnard and Collas, the latter a pharmacien of Paris, bestowed considerable attention on the production of opium, and carried on extensive experiments in the department of La Somme, where about 30,000 acres were set apart for the cultivation of the poppy, for oil. It was found that the collection of opium could be carried on with considerable profit, and that the drug was, if anything, superior to that obtained from Turkey, often containing as much as 20 per cent. of morphia.

Opium culture in England, has proved anything but successful, although as early as the beginning of the present century it was shown that the enterprize might be carried on with results which were by no means discouraging From twelve acres of land 196 pounds of opium were collected, which, at that time, realized over thirteen hundred dollars, (*Edin. Phil. Jour.*) Whether every season would turn out as profitable is very questionable, for as stated by Prof. Bentley, at a recent meeting of the British Pharmaceutical Society, "the point is not whether a specimen of fair value can be produced, but whether, on the average of summers, there is such an amount of light and heat as will enable the cultivator to grow it to commercial advantage." The climate of England does not appear to favor the production of opium, or rather of morphia; and from experiments made in different quarters of the globe, it has been demonstrated that warm and dry weather is required for the development of the more valuable alkaloid; while a damp and cold atmosphere tends to the production of narcotine, and other less valuable principles, the quantity of morphia being proportionately diminished.

In the February number of the JOURNAL, will be found an interesting account of experiments, made by a Melbourne chemist, on the production of opium in Australia. To those interested, we refer this paper as containing many useful facts, in regard to the influence of soil, &c., on the yield of alkaloid. The poppy seems to thrive well in Australia, the plants attaining a height of five to seven feet. The amount of opium realized was from fifty to eighty four pounds per acre. Its morphia strength ranged from four to seven per cent. The subject is further alluded to in a paper which appeared in a recent number of the *Pharmaceutical Journal*, of London, The writer details the experiments made by a friend residing in the south-east portion of the colony of Victoria A quarter of an acre was sown, in rows two feet six inches apart, from which the plants were thinned out until about nine inches apart. The capsules were punctured, or nicked, and the liquid juice was collected as it dropped from the incisions. The yield was 14 pounds of opium, of the usual consistence, and on analysis gave 9 per cent. of morphia, 4 of narcotine, and 6 of meconic acid. It is much to be regretted that neither of these writers give any estimate of the amount of labor; as on this point the profits of the undertaking materially depend.

Turning to this side of the Atlantic we find that the Americans have been trying to turn the cultivation of the poppy to profitable account; with this, our readers, are probably, familiar, as most of the published accounts have from time to time, appeared in this JOURNAL. We need not recapitulate, but may say that the general result has been favorable to the view that opium, of good quality, can be produced on this continent, at an expenditure which allows a handsome margin, far exceeding that from the culture of any of our ordinary agricultural products.

Our intention in writing this article is to draw the attention of our readers to opium culture in Canada. There is no reason, why we should be dependent on other nations for for our supplies; or neglect a branch of trade which promises to be so profitable. If opium can be produced to advantage in the climate of the New England States, it appears reasonable that the same might be done here—at least in this Western Province. We are not aware that the attempt has been made, but hope that some of our readers who are fond of agricultural pursuits, will take up the subject and let us know the result of their experience. We shall be pleased to give any information in our power, in regard to the mode of cultivation, or any other details with which we may be acquainted.

LEGAL DECISION IN REGARD TO THE PHARMACY ACT.

AT a late meeting of the Society, a lengthy discussion took place on the powers of the Provisional Council named in the Act. Some members maintained that the official duties of that body commenced at the time of the passing of the Act, while others held that as the first meeting was to take place in July, the council were not vested with any power until thatperiod. In view of this difference of opinion, it was decided that the matter should be referred to legal authority; and, accordingly, a few questions, embodying the points at issue, were proposed by the meeting, and directed to be forwarded to Mr. J. G. Scott, of the Attorney General's office. The reply of that gentleman has been received, and the following extract handed to us for publication:

"In accordance with your request I give below answers to the following questions:—

1. Has the Provisional Council of the Ontario College of Pharmacy power to hold meetings before the 1st July, 1871?

Had it not been that I am informed that it is utterably impossible to carry out the provisions of the Act, respecting certificates, I would have considered that the first meeting of the Council, with rights of executing their functions as such body, could not have been held before this date, although, of course, there could have been no possible objections to meetings of the *members* of the Council for preliminary purposes. However, in view of the fact before mentioned, I should advise that the Council might be called together for the purpose of doing such acts as are absolutely necessary, for carrying their act of incorporation into effect. One of these would be the adoption of a corporate seal, with which the registrar would seal the certificates authorized—I would, however, advise that upon the meeting of 1st July, all previous acts be adopted and confirmed.

2. Has the Registrar power to grant certificates before the 1st July?

The Certificates are, I understand it to be, under the seal of the College. If so, the adoption of the seal is an act preliminary to the issue of such certificates. Immediately a seal is adopted the Registrar may issue certificates.

3. Does Section 30 come into effect upon the passing of the Act?

Yes."

In regard to this latter question, we may explain that section 30th, is that respecting the old law for the sale of poisons, and the point to be settled was whether the new law came into force February last, or is to do so next July. Mr. Scott confirms the opinion advanced, some time ago, in the JOURNAL, that the old law was abolished at the time of the passing of the Act.

The corresponding secretary desires us to say that in case any member has not been notified of the amount in arrears, and in consequence, his name does not appear in the published list of members, the mistake can be rectified by communicating at once with W. Brydon, Corresponding Sec. O. C. P., Toronto.

Mr. J. B. Dale, of Wyoming, has consented to furnish us with a monthly report of the petroleum market, which will, doubtless, prove valuable to our readers.

Discovery of Bismuth in Texas.

A. R. Rosseler, in the *Journal of Applied Chemistry*, calls attention to the investigations instituted under the U. S. Land Office into the mineral products of the several States, and the discovery of bismuth in Archer county, Texas. A railroad line is being run through the new region, which, heretofore, has been little known, from the hostile bands of Indians which infest the place. We are not told in what quantity the metal exists, but it is said to be abundant, and is easily reduced by a heat of 500°.

Preservation of the Oils of Lemon and Orange.

Mr. Carl Frugh, communicates to the *American Journal of Pharmacy*, the following plan for the above purpose: To every pound of oil 1 oz. of alcohol is to be added, and well mixed; then 1 oz. of water is put with it, which again withdraws the alcohol from the oil, and collects at the bottom of the bottle as dilute alcohol.

The oil I have treated in this manner was in a large quart bottle, hardly more than half full, and is to-day as nice as when first purchased.

In trying to explain to myself the theory of this action, the oil was closely observed and a resinous film was found floating on the surface of the dilute alcohol. Whether the separation of this resinous film preserves the fragrance of the oil, or whether the presence of water has so good a result, I have not yet determined, but am certain that the general theory of deterioration by contact with air does not hold good in this case. Precisely the same effect was observed with oil of orange, and it was an agreeable surprise to find the experiment work so well with both oils.

I would like to add, that the resinous film observed seemed to be in much larger quantity in the oil of orange, and for that reason I think this is the true cause of its spoiling more rapidly than the oil of lemon.

Glycerole of Iodine.

This preparation, recommended for loss of voice, is composed of a solution of sixteen grains of iodine in one ounce of inodorous glycerine.—*Med. Record.*

STUDENTS' DEPARTMENT.

QUESTIONS.

I.—What weight of red iodide of mercury should be obtained from the quantities ordered in the B. P.?

II.—What quantity of soda carb. exsiccat. may be obtained from 8 ounces of the crystallized salt?

III.—What is the excess of iron over that required by the iodine in the formula of the B. P.?

IV.—How many minims of tincture of opium are equivalent to 1 grain of dry opium?

V.—Classify the simple tinctures in groups, in the order of their strength. Thus, *Aconiti*, 1 in 8.

ANSWERS.

Mr. W. A. Card, of Orono, sends the following answers to questions in last number.

I.—Sulphuric acid—when mixed with a little powdered charcoal, and heat applied, is decomposed, effervescence taking place from the evolution of gas. In the reaction, two atoms of carbon unite with four atoms of oxygen, porducing two molecules of carbonic acid gas; and also forming four molecules of water, while sulphurous acid gas escapes, as shown by the equation:

$$4H_2SO_4 + C_2 = 2CO_2 + 4H_2O + 4SO_2.$$

If this sulphurous anhydride (SO_2) becomes moist or is passed into water, heat is evolved, and true acid sulphurosum (H_2SO_3) is formed, thus:—

$$SO_2 + H_2O = H_2SO_3.$$

12 parts of C decompose 196 parts of H_2SO_4, liberating 128 parts of SO_2, which, combining with 36 parts of H_2O, will form two molecules of acid sulphurosum ($2H_2SO_3 = 164$.) The amount of H_2SO_4 required to produce 1 lb. of H_2SO_3 is found by proportion: 164: 1:: 196: 1·19; this is equivalent to 1·22 lbs. *Acid. Sulphuric. B. P* As 196 parts of H_2SO_4 are decomposed by 12 parts of C.; 1·19 lbs. may be decomposed by ·072 of a lb. of C. (charcoal.)

II.—*Spirit. Ammon. Aromat.* B. P., is a spirituous solution of hydrate of ammonium (AmHO), neutral carbonate of ammonium ($(CO_3 2NH_4)$), and the oils of nutmeg and lemon. In preparing seven imp. pints of the above spirit, four fluidounces of strong solution of ammonia (Sp. gr. ·891) are employed, containing 32·5 per cent., by weight, of gaseous ammonia. One fluid oz. of a solution whose sp. gr. is ·891 will weigh 389·81 grs, and the four ozs. 1559·25 grs.=3·56 ozs. The amount by weight, of strong solution of ammonia employed, is equivalent to 1·15 grs. gaseous ammonia. Eight ozs. carbonate of ammonia ($N_4H_{16}C_3O_8$) are also required in preparing seven pints of the spirit. If one molecule (236 parts) of carbonate will yield sufficient nitrogen to form 68 parts of ammonia gas, 8 ozs. of carbonate, if completely decomposed, will yield 2·3 ozs. of gaseous ammonia, making in all 3·45 ozs. in seven imp. pints sp. ammon. arom. B. P., or ·4928 of an oz. in one imp. pint. If one imp. pint (8750 × ·870 = 7612·5 grs. of a solution whose sp. gr. is ·870), holds in solution ·4928 of an oz. of NH_3 one wine pint (7291·2 × ·870 = 6343·34 grs.) will represent, therefore, ·4106 of an oz., and 10 pints, wine, 4·106 ozs., *Ans.*

III.—*Sp. Ammon. Arom.*, U. S. P., is a preparation somewhat similar to the above. One troy oz. carbonate of ammonia and three fluid ozs. water of ammonia are consumed in preparing two pints, wine. As 236 grs. carbonate represent 68 grs. gaseous ammonia, 480 grs. carbonate are equivalent to 138·3 grs. NH_3. 236: 480:: 68: 138·3. The "water of ammonia" (sp. gr. ·960) contains 9·7 per cent. of NH_3. One fluid oz., wine, of a solution whose sp. gr. is ·960, will weigh 437·47 grs.; the three fluid ozs. weigh, therefore, 1312·41 grs. and contain 127·3 grs. NH_3, this added to 138·3 grs. obtainable from the carbonate, gives 265·6 grs. in two pints, and 1328· grs. in 10 pints, wine, which is equal to 3·03 ozs. av., *Ans.*

IV.—*Liquor Arsenicalis* B. P., is ·037 per cent stronger in arsenious acid, than *Liq. Potassæ Arsenitis* U. S. P. One fluid oz. (437·5 grs.) Fowler's solution B. P. contains 4 grs. arsenious acid; or ·914 per cent. One fluid oz. (455·7 grs.) Fowler's solution U. S. P., contains 4 grs of arsenious acid, which is equivalent to ·877 per cent.; ·037 per cent. is, therefore, the difference in the arsenical strength. An imperial minim at 60° F. weighs ·9114 of a grain; a wine minim, under like circumstances, weighs ·9493 of a grain. One oz. imp., or wine, each represents 480 minims, therefore the difference in the strength of the solutions.

V.—*Chloroform, Perchloride of Formyl.*—Properties—Chloroform is a limpid, colorless, very volatile, neutral fluid, of a bland ethereal odor, and hot, aromatic, ethereal, and very sweet taste. It is freely soluble in alcohol and in ether, and slightly so in in water, communicating to it a sweetish taste, a strong alcoholic solution is decomposed by abundance of water, setting the chloroform free at the bottom of the liquid. It readily and entirely volatizes, with characteristic odor, at common temperatures, and boils at 142° F.; sp. gr. varies from 1·490 to 1·494. Burns with a sluggish green smoky flame, and imparts to the flame of an alcohol lamp a yellow sootiness Exposure to sunlight, or even diffused daylight, for a lengthened period will decompose it, generating an acid or bleaching reaction on litmus paper, and among the products of decomposition may be found hydrochloric acid, chloroxycarbonic acid, formic acid, and free chlorine. When pure, it exerts no influence on potassium, sodium, nor solution of nitrate of silver, and is not colored by agitation with sulphuric acid. Chloroform is a powerful solvent, capable of dissolving most gums and resins; as mastic, tolu, benzoin, guaiacum, scammony, camphor, &c. It also dissolves iodine, bromine, the organic alkalies, fixed oils, fats, and all the volatile oils. Chloroform is sometimes considered to be the chloride of a trivalent radical methenyl (CH). It may also be regarded as the chloride of dichlormethyl, and has the formula $CH Cl_3$. Tests for purity—Heavy volatile oils, occurring as an impurity, may be detected by agitation with sulphuric acid, which produces a black coloration, if present. Alcohol or ether lessens the sp. gr., and renders it immediately inflammable, while pure chloroform is not immediately inflammable. When pure, if dropped into water, the globules fall bright; if adulterated

with alcohol, the surface of the drop becomes opaline. Potassium or sodium will color chloroform containing this impurity, and give rise to sharp, acid fumes; a solution of bicarbonate of potash in sulphuric acid becomes green on the addition of chloroform containing alcohol; and albumen is coagulated by chloroform containing this impurity. Chloroform, adulterated with alcohol or ether, is diminished in volume by agitation with water. Ether may be recognized by tinging chloroform dull red, added to an aqueous solution of iodine. Chlorine, hydrochloric and hydrochlorous acids, if present, develop a strong smell; a bleaching or acid reaction with litmus paper; fumes of chlorine, with vapor, if ammonia be added; and white precipitate with nitrate of silver. If pure, odor not unpleasant, neutral action on litmus, and the last two regents give negative indications. If the chloroform has an acid reaction, and nitrate of silver does not produce a precipitate, or one soluble in a quantity of water, acetic acid is present. Sulphuric acid may be detected by the chloroform giving a precipitate when solution of chloride of barium is added, and its acid reaction on litmus. The presence of Dutch liquid, by an alcoholic solution of potassa, volatile chloride of acetyl is emitted, of an offensive odor. When pure, two or three drams, spontaneously evaporated from a porcelain plate, or a small quantity poured on a piece of clean filtering paper, and allowed to evaporate, the last portions have a slight aromatic odor, free from pungency and empyreuma, and the plate left covered with a film of moisture, devoid of odor and taste. The chlorinated pyrogenous oils, or any pernicious foreign matter, may be easily and readily detected in this way, by their offensive smell remaining after the odor of the chloroform has dissipated. Chloroform is purified by agitation with distilled water, and then with pure sulphuric acid, which chars and removes hydrocarbons, but does not affect the chloroform. It is freed from any trace of acid by agitation with lime, and from moisture by solid chloride of calcium.

ORDER OF MERIT.

NUMBER OF MARKS AWARDED FOR ANSWERS.

Questions —	I.	II.	III.	IV.	V.	EXTRA.	Total
1. *W. A. C., Orono*	5	5	5	5	5	10	35
2. *H. Maclagan, Lindsay*	3	4	3	5	5	2	24
3. *Jos. Williams, London*	3	1	1	5	5	2	17
4. *Chemicus, Toronto* ...	5	0	0	3	5	0	13
5. *J. P. S., Woodstock* ..	2	1	1	5	3	0	12

NOTES AND QUERIES.

J. B. D.—Twaddell's hydrometer is used, principally, in bleaching and dyeing operations, though it is fast giving way to the more rational standard of specific gravity. Twaddell's zero corresponds with 1,000—the sp. gr. of distilled water, at 60° F. Each degree of Twaddell is equal to ·005 sp. gr. so that by multiplying this number by the indication of the hydrometer, and adding 1· the specific gravity is given. The following table gives the corresponding degrees on both scales:—

Twaddell.	Sp. Gr.	Twaddell.	Sp. Gr.
0	1000	100	1500
10	1050	110	1550
20	1100	120	1600
30	1150	130	1650
40	1200	140	1700
50	1250	150	1750
60	1300	160	1800
70	1350	170	1850
80	1400	180	1900
90	1450	190	1950

Beginner.—To stain wood a mahogany color, a liquor made in the following manner, may be applied; ½ lb. of madder and 2 oz. of logwood are boiled together in a gallon of water. Apply to the wood, while hot, with a brush, when dry, brush over with a solution of ½ oz. pearlash in a quart of water.

For walnut, a strong solution of potassium permanganate makes a fair imitation.

ONTARIO COLLEGE OF PHARMACY.

MEETING OF THE COUNCIL.

Agreeably with the resolution adopted at the regular monthly meeting, the members of the Provisional Council of the Ontario College of Pharmacy were called together for preliminary purposes connected with the carrying out of the Pharmacy Act, on Wednesday 26th inst., at noon. The following gentlemen were present:—Messrs. J. W. Bickle, Hamilton; W. Saunders, London; C. Stork, Brampton; J. C. Holden, Belleville; E. Gregory, Lindsay; A. W. Kempt, Peterboro'; H. Miller, Geo. Hodgetts and H. J. Rose, Toronto. Mr. Miller was appointed chairman.

Letters of apology were read from Messrs. Jas. Mills, jr., St. Catharines; F. Jordan, Goderich, and T. Matchett, Omenee, and the absence of Mr. Elliot, Toronto, was accounted for by sickness, and of Mr. Dunspaugh from family affliction.

The chairman explained that there were many questions arising at the present time with regard to the new Pharmacy Act, which it was thought advisable to place before the provisional Council, rather than decide them at the regular monthly meetings of the Toronto members of the Society, such as the adoption of a seal for the Society, the kind of certificates to be got up, the registration of partners, &c.

With regard to the legality of the present meeting, as the Act specified that the first meeting of the Council should be held in July, they had obtained the advice of Mr. Scott to the following effect.

DEAR SIR,—In accordance with your request, I give below answers to the following questions:—

"1st. Has the provisional course of the Ontario College of Pharmacy power to hold meetings before the 10th July, 1871?"

Had it not been that I am informed that it is utterly impossible to carry out the provisions of the act respecting certificates, I would have considered that the first meeting of the council, with rights of exercising their functions as such body, could not have been held before this date. Although, of course, there could have been no possible objection to meetings of the *members* of the council for preliminary purposes.

However, in view of the fact before-mentioned, I would advise that the council might be called together for the purpose of doing such acts as are absolutely necessary for carrying their Act of Incorporation into effect. One of these would be a corporate seal, with which the registrar would seal the certificates authorized. I would, however, advise that upon the meeting of 1st July all previous acts be adopted and confirmed.

2nd. "Has the registrar power to grant certificates before the 1st July?"

The certificates are, I understand it to be, under the seal of the college. If so, the adoption of the seal is an act preliminary to the issue of such certificates. Immediately a seal is adopted the registrar may issue certificates.

3rd. "Does section 40 come into effect upon the passing of the act?" Yes.

I have not the act before me and speak from a recollection of its provisions.

Yours truly,

J. G. SCOTT.

H. J. ROSE,
Registrar, Ontario College of Pharmacy.

From which it would be seen that it was quite competent for them to take the present steps.

The first question taken up was the adoption of a seal, and after discussion, it was moved by Mr. Bickle and seconded by Mr. Holden, that the general design of seal for the College be as follows: Hand holding torch over mortar and pestle, encircled by wreath of maple leaves with the words, "Ontario College of Pharmacy; incorporated 1871," and that the Chairman, Secretary, and Mr. Hodgetts be a committee to procure a die and press in accordance with this resolution.—Carried.

The style of the certificates to be used, was then discussed and on motion of Mr. Saunders, it was decided that the size should be 12 by 16 inches, and the design and particulars should be left with the committee appointed in Mr. Bickle's resolution, six hundred copies to be obtained.

Mr. Gregory brought up the subject of books for registering sales of poisons, and the same committee was requested to have 500 copies printed similar to the English books, with a copy of the Pharmacy Act, table of antidotes, and a limited number of advertisements, making the column for signatures a little wider than the sample shown, to be furnished to the trade at a slight advance on cost price.

The question of the registration of firms was taken up, and it was moved by Mr. Holden, seconded by Mr. Bickle, that this

Council declares that the first clause of the Pharmacy Act requires each partner in a firm to be registered.—Carried.

Mr. Gregory moved, seconded by Mr. Stork. That the Registrar be requested to issue printed notices forthwith to all druggists in Ontario, who have not already made application, calling their attention to the requirements of the law and requesting them to register immediately, and enclosing a blank declaration of their eligibility, to be signed before a magistrate.—Carried.

The secretary said that he had received a letter, wishing to know the course to be taken with reference to branch establishments. After discussion it was moved by Mr. Saunders, seconded by Mr. Hodgetts, that in the case of registered druggists opening branch establishments, a duplicate certificate may be obtained on application to the Council, by the payment of one dollar annually, provided sufficient evidence is given that such business is to be managed by a competent person.—Carried.

The applications received by the Registrar were submitted, and that of Mr. J. Trueman, Hamilton, withdrawn by order of the Council, and the Registrar instructed to apply for the necessary declaration before a magistrate in the case of some others.

It was then on motion of Mr. Bickle, decided that the Toronto members of the Council, be a committee to decide on the eligibility of applicants for registration.

Meeting adjourned.

HENRY J. ROSE, Sec.

MONTHLY MEETING.

The regular monthly meeting was held at the usual place, with Mr. Miller in the chair.

Minutes of last meeting were read and adopted.

Mr. Shuttleworth asked if it would be in order to have the minutes of the preliminary meeting of Council read, as he understood the Council had taken action regarding Poison Books, &c.

The Chairman consented, and the minutes were read.

Mr. S. said that these minutes confirmed a report which he had received of the meeting from a member of the Council, and placed him in a very awkward position indeed, as he had been appointed, along with two members of the Society, a printing committee to obtain a seal and get the poison books printed, and that part of the work allotted to them had been done—indeed, but for the news of the action of the Council, would have been by this time completed—while a committee of the Council had been appointed for the same purpose, without any reference to, or acknowledgent of the labors of the committee appointed at the monthly meeting. He also understood that there had been a proposal to add to the committee the name of the chairman of the one already appointed, but the proposal was met with the reply that no outsiders would be appointed, although this did not appear in the minutes. He thought that if the Council took matters up with such a high hand—slighting the labors of those who had exerted themselves for the benefit of the Society—it would cause a natural feeling of opposition to the Council, and be the cause of unpleasantness.

The Secretary said that he had some recollection of Mr. S.'s name being proposed to be added to the committee, but there was no motion in writing handed to the chairman with Mr. Shuttleworth's name, otherwise it would have appeared, and as to the exclusion of outsiders, it was thought that the Council had no power to appoint any one but their own members on the committee.

Mr. Hodgetts said that their was no intention of slighting the other committee or its chairman in not appointing them on the Council committee, and the fact of no acknowledgement being given was doubtless owing to the hurried nature of the meeting, many members being anxious to leave by the afternoon train.

The Chairman said that the verbal report of the Council meeting to Mr. S. had conveyed a wrong idea if he thought that any slight had been intended to him or the committee. The meeting was called of all the members of the Council to decide on questions which the monthly meetings declined to dispose of on their own authority, and, so far from slighting the Toronto members, had placed so much confidence in them as to leave the question of printing in their hands as to details. He thought that the gentlemen appointed at the monthly meeting were only to procure designs for certificates, &c., but on reference to the minutes of the February meeting it was found that they were authorized to obtain poison books and designs for seal and certificates. He thought the remarks reflecting on the members of the Council quite uncalled for.

After further remarks by the members present, Mr. Hunter moved, seconded by Mr. Love, That the Council having appointed a committee for printing purposes, the committee appointed at the February meeting be authorized to act in concert with the Council committee in the matter of certificates, &c. Carried.

Meeting adjourned.

H. J. ROSE, Secy.

LIST OF REGISTRATIONS
Received to May 11th, 1871.

Archer, Geo. H.	Leamington.
Adams, Alex.	Rockwood.
Appleton, R. H.	Stratford.
Appleton, F. D.	Stratford.
Bache, J. H.	London.
Banks, J. H.	Weston.
Barclay, M. F.	Wardsville.
Baxter, Frank	Niagara.
Bell, Jos., jr.	Meaford.
Bickle, J. W.	Hamilton.
Bickle, T.	Hamilton.
Bond, Jno	Aurora.
Bond, J. R.	Schomberg.
Bosworth, N. A.	Stratford.
Bowman, W. H.	Berlin.
Breakenridge, V. A.	Morrisburg.
Callard, Jno	Sparta.
Cameron, D.	Cayuga.
Carpenter, E. R.	Collingwood.
Carter, Henry	Bondhead.
Cattle, Geo.	Goderich.
Chamberlain, S. T.	Strathroy.
Chapman, J.	Chatham.
Chudleigh, Geo.	Clinton.
Clarke, Jas.	Belleville.
Connor, H. E.	Aurora.
Coombs, R. M. L.	Perth.
Corbett, R.	Rosemont.
Cox, W. H	Barrie.
Craig, Jos. W.	Brantford.
Cruickshank, P.	Parkhill.
Cull, J. Walker	Mitchell.
Daniels, R. T.	Ottawa.
Davidson, F. R.	Ottawa.
Deans, Jas	Colborne.
Deans, R. T.	Colborne.
Denham, Geo.	Petrolia.
Doan, D. W.	Aurora.
Dyas, J. J.	Strathroy.
Eastman, D. W.	Smithville.
Eby, M. F.	Normanton.
Elliot, R. W.	Toronto.
Elwell, G. T.	Orillia.
Engels, E. A.	Mitchell.
Everest, W. E.	Fenelon Falls.
Gamsby, L. A.	Orono.
Gerrie, J. H.	Whitby.
Gissing, A. W.	Princeton.
Hamilton, A.	Hamilton.
Harper, Hy.	Cookstown.
Hawkes, Jas.	Brockville.
Heaks, J. R.	Toronto.
Hervey, E.	Guelph.
Hearn, W	Ottawa.
Hey, T.	Ailsa Craig.
Higginbotham, John	Bowmanville.
Hilborn, W R.	Hawksville.
Hodgson, R. H.	Brampton.
Holden, W. J.	Strathroy.
Holden, J. C	Belleville.
Hooper, Charles	Toronto.
Hunter, D.	Toronto.
Hunter, W.	Toronto.
Jackes, Baldwin	Galt.
Kelly, Alex.	Sarnia.
Kempt, C. W.	Peterboro'.
Kempt, A. W.	Peterboro'.
King, J. G.	Kingston.
Lamb, J. P.	Farmersville.
Lang, G. J.	Owen Sound.
Lewis, Jno.	Brantford.
Livingston, Jno., jr.	Listowel.
Margach, J. L.	Toronto.
Matchett, T.	Omemee.
Meacham, J. B.	Dundas.
Middleton, J. T.	Smithville.
Miller, H.	Galt.
Monkman, Geo.	Barrie.
Mundy, Mark.	Hamilton.
McBride, J.	Port Dover.
McCallum, C	St. Mary's.
McCammon, H.	Warkworth.
McCarthy, H. F.	Ottawa.

McGilton, R. J.....Ottawa.
McKendrick, G.....Kincardine.
McLaren, W. P.....Watford.
McLean, G. S.....Sarnia.
McLean, Jno.....St. Marys.
McNeillie, J. R.....Omemee.
Nasmyth, J. H.....Stratford.
Nevills, Jno. E.....Preston.
Nispel, Conrad.....Preston.
O'Connor, T. J.....Toronto.
Oliver, W. H.....Galt.
Pafford, H.....Niagara.
Page, G. S.....Kingston.
Pickering, P. P.....Toronto.
Polson, Neil C.....Tamworth.
Portas, Thos. H.....Bracebridge.
Poyntz, T. G.....Orangeville.
Priddy, R. S.....Windsor.
Radley, S. D., jr.....Chatham.
Roberts, Jno. S.....Mitchell.
Rose, D. E.....Tamworth.
Ruston, Thos.....Georgetown.
Saunders, W.....London.
Scoon, Jno.....Parkhill.
Servis, G.....Iroquois.
Smith, S. W. B.....Whitby.
Smith, S. H.....St. Catharines.
Snyder, S.....Waterloo.
Springer, M.....Waterloo.
Stevenson, Thos.....Orangeville.
Steward, W. R.....Toronto.
Stork, C.....Brampton.
Stork, Jas.....Bolton.
Stork, E. T.....Brampton.
Stott, C.....Bowmanville.
Stott, D.....Bowmanville.
Tapscott, S.....Brantford.
Thexton, Geo.....Goderich.
Tibbetts, W. F.....Port Dover.
Tidey, Jno, A.....Norwich.
Trickey, A. F.....Lyn.
Turner, Wm.....Milbrook.
Turner, R. W.....Bethany.
Wait, Jno. T.....Arnprior.
Watts, W. R.....Clinton.
Watts, F. W.....Clinton.
Weeks, A. D.....Uxbridge.
Wilson, W. R.....Niagara.
Wilson, Archdale.....Hamilton.
Wilson, Michael.....Madoc.
Wilson, R.....Cobourg.
Wilson, W. R.....Chicago.
Wood, Allen W.....Toronto.
Wood, Jno. O.....Toronto.
Wood, R. A.....Toronto.
Wright, J. P.....Kincardine.
Wyllie, John.....Ayr.
Yeomans, Horace.....Belleville.
Yeomans, L. W.....Belleville.
Zoellner, H.....Waterloo.
Zoellner, Paul.....Tavistock.

ASSOCIATES.

Beattie, Wm.....Arnprior.
Garland, Louis.....Hamilton.
Graham, W. K.....Brampton.
Geary, C. P.....St. Thomas.
Griffis, Wm. C.....Colborne.
Massey, George.....Toronto.
Macdonald, Hugh.....Cartwright.
Morse, E. W.....Barrie.
McEachren, Neil.....Buffalo, U.S.
McGinnis, W. R.....Arnprior.
McKee, Jno.....Welland.
McKenzie, Robert.....Schomberg.
Oliphant, D.....Toronto.
Sheppard, C.....Durham.
Spreule, G. S.....Brantford.

Correction.—In April list published, read W. O. Foster instead of W. D. Foster.

PRACTICAL FORMULÆ.

Essence of Rennet.

Take fresh rennet, cut small....12 ounces
Common salt.....3 "

Knead them together and leave in a cool place for 6 weeks; then add, of

Water.....18 ounces
Alcohol, dilute (or whiskey).... 2 "

Digest for 24 hours, and, if you wish, color the liquid with burnt sugar. A couple of teaspoonfuls will curdle a pint or more of milk. *Drug. Circular.*

Fumigating Pastilles.

1—Take Benzoin..... 2 ounces.
Balsam of Tolu,
Yellow Sandal-wood,
of each..... 4 drachms
Nitre..... 2 drachms
Labdanum..... 1 drachm
Charcoal..... 6 ounces

Mix with a solution of gum tragacanth, and divide the mass into pastilles, cone shaped, and dry them in the air. The foregoing is the formula of the Paris Codex.

2—Take Benzoin..... 4 ounces
Cascarilla..... ½ ounce
Nitre and Gum Arabic
of each..... 3 drachms
Myrrh..... 1 drachm
Oils of Nutmeg and
Cloves, of each....25 drops
Charcoal..... 7 ounces

All in fine powder. Beat them to a smooth mass with cold water, q. s., and form into small cones and dry in the air —*Ibid.*

Mucilage for Labels (damp proof.)

The *Archives of Pharmacy* gives the following recipe: Macerate five parts of good glue in eighteen to twenty parts of water for a day, and to the liquid add nine parts of rock candy and three parts of gum arabic. The mixture can be brushed upon paper while lukewarm; it keeps well, does not stick together, and when moistened adheres firmly to bottles. For the labels of soda or seltzer water bottles, it is well to prepare a paste of good rye flour and glue, to which linseed oil varnish and turpentine have been added in the proportion of half an ounce each to the pound. Labels prepared in the latter way do not fall of in damp cellars.

TRADE REPORT.

Sales in White Lead, and Linseed Oil especially are reported active. Remittances somewhat backward. New goods by sailing vessels are coming forward freely, and by the end of this month assortments will be quite complete. In prices there are no very sudden or marked changes to report, with the exception of Opium, which is much cheaper. Quinine, Shellac and Mercurials are much easier, and Spts. Turpentine, which has been scarce and dear, shows signs of being easier at the close. Tartaric Acid and Cream Tartar are costing more, and the quotations are slightly advanced. Iodine and the iodides are dearer. Soda Ash and Bicarb are costing more, and quotations are advanced in proportion; Oil Lemon is reported short for first quality, and the price has been somewhat advanced; Oil Bergamot, on the contrary, is slightly easier, Oil Peppermint is somewhat lower; Bichromate Potash is held for higher rates; Madder and dyewoods generally are firmer; Magenta Aniline Crystals are coming out higher than last year, and other anilines are unchanged; Glues of all kinds are dearer and somewhat scarce; White Lead in Oil is firmer on account of advances in dry lead and the high price of oil in England. There seems to be a distrust that Seal Oil will be greatly lower on account of the large catch of this season; it is, however, argued that the owners of the oil are able to hold it until it realizes remunerative prices, and rates are not more than 2½c to 5c easier; Lard Oil is comparatively cheap; Olive Oil is lower; Linseed Oils, although not quite so dear as about a fortnight since, are firmly held at quotations.

PETROLEUM REPORT.

Great activity now exists in Petrolia, so far as the sinking of new wells and development of new oil lands is concerned. East, west and north, new wells are being located in, as yet, untried territory, and the promoters and owners are as sanguine as ever of success. So far, however, new wells have demanded nothing more than passing mention, their production only coming up to the average, and by no means entitling them to be ranked with those commonly termed "lucky strikes." Nevertheless, the actual production is constantly on the increase, and, I think, may be safely estimated at about 8,000 barrels per week. But even with this increase in production, the crude oil business is at present anything but remunerative to producers. This is owing chiefly to the home market being overstocked with refined oil, consequent upon the great competition now existing among refiners. Great efforts have been made to organize a combination of the refiners of Canada, with the object of protecting each other's interests by concerted action in buying the crude article and selling its products. We think the scheme would prove beneficial to all concerned could it be unanimously carried into effect as was contemplated, but owing to the non-compliance of one or two large firms, it seems probable that no arrangement of the kind can be effected, and the scheme will, perforce, have to be abandoned.

The quantity of oil, (Crude, refined and distilled,) which was shipped from Petrolia station, during the month of April, is as follows:—

Crude.	Refined.	Distillate.
19,539 brls.	858 brls.	3,710 brls.

Parrafin Wax, (solid) grease for lubricating purposes (not fluid), lubricating oil (made without undergoing any process of distillation, tar and other refuse remaining in the still and not passing through the worm or condenser, and any product of the residuum, were all exempted from excise duty by an Act passed during the last session of Parliament. The fire test has been lowered from 115° to 105°, a change which meets with the approval of the refiners generally, as they consider Canada oil, safe and perfectly free from explosive qualities, at even a lower test than 100°.

Crude oil may now be quoted as worth from $1.35 to $1.40 per barrel, with a depressed market.

Refined oil, nominal at 18c. to 19c. per gallon for first-class oil.

Tar dull at 50 cents per barrel.

WHOLESALE PRICES CURRENT.—MAY, 1871.

Drugs, Medicines, &c.	$ c.	$ c.
Acid, Acetic, fort	0 12 @	0 14
" Benzoic, pure	0 25	0 35
" Citric	0 77	0 85
" Muriatic	0 04	0 06
" Nitric	0 11½	0 15
" Oxalic do	0 24	0 30
" Sulphuric	0 03½	0 07
" Tartaric, pulv.	0 40	0 42
Ammon., carb' casks	0 18	0 19
" " jars	0 18	0 20
" Liquor, 880	0 18	0 25
" Muriate	0 12½	0 15
" Nitrate	0 45	0 60
Æther, Acetic	0 45	0 50
" Nitrous	0 25	0 30
" Sulphuric	0 45	0 50
Antim. Crude, pulv.	0 15	0 17
" Tart. "	0 50	0 55
Alcohol, 95%.....Cash	1 65	1 72
Arrowroot, Jamaica	0 19	0 22
" Bermuda	0 45	0 65
Alum	0 02½	0 03½
Balsam, Canada	0 24	0 35
" Copaiba	0 68	0 75
" Peru	3 80	4 00
" Tolu	1 00	1 20
Bark, Bayberry, pulv.	0 18	0 20
" Canella, "	0 17	0 20
" Peruvian, yel. pulv	0 45	0 50
" " red "	1 40	1 80
" Slippery Elm, g. b.	0 15	0 20
" " flour, pkt's	0 28	0 32
" Sassafras	0 12	0 15
Berries, Cubebs, ground.	0 20	0 25
" Juniper	0 06	0 10
Beans, Tonquin	0 60	1 10
" Vanilla	14 50	17 00
Bismuth, Alb.	4 60	5 00
" Carb.	4 60	5 00
Camphor, Crude	0 33	0 35
" Refined	0 45	0 55
Cantharides	1 90	2 00
" Powdered	2 10	2 25
Charcoal, Animal	0 04	0 06
" Wood, pow'd.	0 10	0 15
Chiretta	0 25	0 30
Chloroform	1 00	1 50
Cochineal, S. G.	0 80	0 90
" Black	1 00	1 20
Colocynth, Pulv.	0 50	0 60
Collodion	0 67	0 70
Elaterium .....oz.	4 50	5 00
Ergot	0 55	0 65
Extract, Belladonna	2 50	2 75
" Colocynth, Co.	1 25	1 75
" Gentian	0 50	0 60
" Hemlock, Ang.	1 12	1 25
" Henbane, "	2 20	2 50
" Jalap	5 00	5 50
" Mandrake	1 75	2 00
" Nux Vomic...oz	0 60	0 70
" Opium "	Variable.	
" Rhubarb	7 50	—
" Sarsap. Hon. Co	1 00	1 20
" " Jam. Co	3 25	3 70
" Taraxicum, Ang	0 70	0 80
Flowers, Arnica	0 25	0 35
" Chamomile	0 30	0 40
Gum, Aloes, Barb. extra	0 70	0 80
" " " good	0 42	0 50
" " Cape	0 12	0 20
" " " pow'd	0 20	0 30
" " Socot	0 50	0 75
" " " pulv.	0 90	1 00
" Arabic, white	0 60	0 65
" " " pow'd	0 50	0 55
" " sorts	0 30	0 33
" " " pow'd	0 42	0 50
" " com. Gedda	0 13	0 16
" Assafœtida	0 31	0 35
" British or Dextrine	0 13	0 15
" Benzoin	0 48	0 55
" Catechu	0 12	0 15
" " pow'd	0 25	0 30
" Euphorb, pulv.	0 32	0 40
" Gamboge	1 05	1 20
" Guaiacum	0 38	0 70
Myrrh	0 48	0 60
Sang Dracon	0 60	0 70
Sammony, pow'd	5 60	—
Virg. "	14 50	—
" Shellac, Orange	35	37

Drugs, Medicines, &c. Continued.	$ c.	$ c.
Gum, Shellac, liver	0 37 @	0 40
" Storax	0 65	0 75
" Tragacanth, flake.	1 10	1 40
" " common	0 35	0 40
Galls	0 27	0 32
Gelatine, Cox's, Gd.	1 10	1 20
Glycerine, com.	0 26	0 30
" Vienna	0 30	0 40
" Price's	0 60	0 75
Honey, Canada, best	0 17	0 20
" Lower Canada	0 15	0 18
Iron, Carb. Precip.	0 20	0 25
" " Saccha r	0 40	0 45
" Citrate Ammon.	0 90	1 00
" " & Quinine oz.	0 50	0 60
" " & Strychnine "	0 17	0 25
" Sulphate, pure	0 08	0 10
Iodine, good	5 00	0 00
" Resublimed	6 00	0 00
Jalapin .....oz.	1 40	1 60
Kreosote	1 60	1 70
Leaves, Buchu	0 25	0 30
" Foxglove	0 25	0 30
" Henbane	0 35	0 40
" Senna, Alex	0 30	0 60
" " E. I.	0 12½	0 20
" " Tinnevilly	0 20	0 30
" Uva Ursi	0 15	0 20
Lime, Carbolate .....brl.	5 50	—
" Chloride	0 04½	0 06½
" Sulphate	0 08	0 12½
Lint, Taylor's best	1 30	1 35
Lead, Acetate	0 14	0 17
Leptandrin .....oz.	0 60	—
Liq. Bismuthi	0 50	0 75
" Opii, Battley's	6 50	8 00
Lyé, Concentrated	1 50	2 00
Liquorice, Solazzi	0 42	0 45
" Cassano	0 23	0 40
" Other brands	0 14	0 25
Liquorice, Refined	0 35 @	0 45
" " Hessin's doz	2 00	-
Magnesia, Carb .....1 oz.	0 20	0 25
" " .....4 "	0 17	0 20
" Calcined	0 65	0 75
" Citrate...gran.	0 37	0 50
Mercury	0 90	0 95
" Bichlor	1 00	0 00
" Biniodid.....oz.	0 35	0 40
" Chloride	1 25	0 00
" C. Chalk	0 60	0 00
" Nit. Oxyd	1 80	0 00
Morphia, Acet	4 80	6 00
" Mur	4 80	6 00
" Sulph.	5 00	6 20
Musk, Pure grain.....oz.	21 00	—
" Canton	0 90	1 20
Oil, Almonds, sweet	0 37	0 45
" " bitter	14 00	15 00
" Aniseed	3 60	4 00
" Bergamot, super.	5 00	5 25
" Carraway	4 00	4 20
" Cassia	2 00	2 20
" Castor, E. I.	0 14	0 15
" " Crystal	0 22	0 25
" " Italian	0 26	0 28
" Citronella	1 25	1 60
" Cloves, Ang.	1 00	1 10
" Cod Liver	1 35	1 50
" Croton	1 50	2 10
" Geranium, pure, oz.	2 00	2 20
" Juniper Wood	0 80	1 00
" " Berries	6 00	7 00
" Lavand, Ang.	16 00	17 60
" " Exot.	1 40	1 60
" Lemon, super.	3 60	4 00
" " ord.	2 60	2 60
" Orange	2 70	3 00
" Origanum	0 65	0 75
" Peppermint, Ang.	15 00	17 00
" " Amer.	3 00	3 25
" Rose, virgin	7 75	8 00
" " good	5 50	6 00
" Sassafras	0 85	0 95
" Wintergreen	6 50	7 00
" Wormwood, pure	5 80	50
Ointment, blue	0 70	0 80
Opium, Turkey	6 00	6 25
" " pulv.	10 00	11 00
Orange Peel, opt.	0 33	0 42
" " good	0 12½	0 20
Pill, Blue, Mass	0 75	0 80

Drugs, Medicines, &c. Continued.	$ c.	$ c.
Potash, Bi-chrom	0 13½ @	0 15
" Bi-tart	0 27	0 28
" Carbonate	0 14	0 20
" Chlorate	0 45	0 50
" Nitrate	10 50	11 00
Potassium, Bromide	1 20	1 80
" Cyanide	0 60	0 70
" Iodide	4 75	5 00
" Sulphuret	0 25	0 35
Pepsin, Boudault's...oz.	1 50	0 00
" Houghton's, doz	8 00	9 00
" Morson's. ....oz.	0 85	1 10
Phosphorus	0 75	0 85
Podophyllin	0 50	0 60
Quinine, Pelletier's	—	2 25
" Howard's	2 20	—
" " 100 oz. case	2 25	—
" " 25 oz. tin	2 20	—
Root, Colomba	0 13	0 20
" Curcuma, grd	0 12½	0 17
" Dandelion,	0 25	0 35
" Elecampane	0 14	0 17
" Gentian	0 10	0 12½
" " pulv.	0 15	0 20
" Hellebore, pulv.	0 17	0 25
" Ipecaac	2 20	2 30
" Jalap, Vera Cruz.	1 35	1 00
" " Tampico	0 90	1 —
" Liquorice, select.	0 11	0 13
" " pow'd	0 15	0 20
" Mandrake, "	0 20	0 25
" Orris "	0 20	0 25
" Rhubarb, Turky.	3 50	0 00
" " E. I.	1 25	2 00
" " " pulv.	1 40	2 50
" " " 2nd	1 30	1 50
" " Freuch	0 75	—
" Sarsap., Hond	0 40	0 45
" " Jam.	0 88	0 90
" Squills	0 10	0 15½
" Senega	1 25	1 30
" Spigelia	0 48	0 50
Sal., Epsom	2 25	3 00
" Rochelle	0 28	0 35
" Soda	0 01½	0 03
Seed, Anise	0 16	0 30
" Canary	0 05	0 06
" Cardamon	4 10	5 75
" Fenugreek, gr'd	0 08	0 10
" Hemp	0 06½	0 06½
" Mustard, white	0 14	0 16
Saffron, Amer.	4 00	5 00
" Spanish	17 00	18 00
Santonine	9 50	10 50
Sago	0 07½	0 09
Silver, Nitrate, cash	14 50	16 50
Soap, Castile, mottled	0 10	0 14
Soda Ash	0 03	0 04
" Bicarb. Newcastle.	3 75	4 00
" " Howard's	0 14	0 16
" Caustic	0 04	0 05
Spirits Ammon., arom.	0 25	0 35
Strychnine, Crystals	2 00	2 50
Sulphur, Precip.	0 10	0 12½
" Sublimed	0 3½	0 05
" Roll	0 03	0 04½
Tamarinds	0 17	0 20
Tapioca	0 15	0 18
Veratria .....oz.	2 75	3 00
Vinegar, Wine, pure	0 55	0 60
Verdigris,	0 35	0 40
" Pow'd	0 45	0 50
Wax, White, pure	0 80	0 90
Zinc, Chloride .....oz.	0 10	0 15
" Sulphate, pure	0 10	0 15
" com	0 06	0 10

Dyestuffs	$ c.	$ c.
Annatto	0 35 @	0 60
Analine, Magenta, cryst	3 25	4 00
" " liquid	2 00	—
Argols, ground	0 15	0 25
Blue Vitriol, pure	0 08	0 10
Camwood, pure	0 06½	0 09
Copperas, green	0 01½	0 02½
Cudbear	0 16	0 25
Fustic, Cuban	0 02	0 04
Indigo, Bengal	2 40	2 50
" Madras	1 00	1 10
" Extract	0 28	0 35
Japonica	0 05	0 06½
Lacdye, pow'd	0 33	0 38
Logwood	0 02	0 03

Dyestuffs—Continued	$ c.	$ c.
Logwood, Camp	0 02 @	03½
" Extract	0 10	0 14
" " 1lb bxs	0 14	—
" " ½lb "	0 15	—
Madder, best Dutch	0 16	0 17
" 2nd quality	0 15	0 16
Quercitron	0 03	0 05
Sumac	0 06	0 08
Tin, Muriate	0 10½	0 12½
Redwood	0 05	0 06

Spices.		
Allspice	0 08½ @	0 10
Cassia	0 38	0 40
Cloves	0 12½	0 15
Cayenne	0 18	0 25
Ginger, E. I.	0 12	0 14
" Jam.	0 20	0 30
Mace	1 35	1 40
Mustard, com.	0 20	0 25
" D. S.	0 40	0 45
Nutmegs	0 73	0 76
Pepper, Black	0 15	0 16
" White	0 23	0 25

Paints, Dry.		
Black, Lamp, com	0 07 @	0 08
" " refined	0 25	0 30
Blue, Celestial	0 08	0 12
" Prussian	0 65	0 75
Brown, Vandyke	0 10	0 12½
Chalk, White	0 01	0 01½
" Red	0 05½	0 10
Green, Brunswick	0 07	0 10
" Chrome	0 16	0 25
" Paris	0 25	0 35
" Magnesia	0 20	0 25
Litharge	0 06½	0 09
Pink, Rose	0 12½	0 15
Red Lead	0 06½	0 08
" Venetian	0 02½	0 03½
Sienna, B. & G.	0 10	0 15
Umber, "	0 07	0 10
Vermillion, English	1 25	1 30
" American	0 25	0 35
Whiting	0 80	0 52
White Lead, dry, gen.	0 07	0 91
" " " No. 1	0 06	0 08
" " " No. 2	0 05	0 07
Yellow Chrome	0 12½	0 35
" Ochre	0 02½	0 03½
Zinc White, Star	0 10	0 12

Colors, in Oil.		
Blue Paint	0 12 @	0 15
Fire Proof Paint	0 06	0 08
Green, Paris	0 30	0 37½
Red, Venetian	0 07	0 10
Patent Dryers, 1lb tins	0 14½	0 16
Putty	0 03½	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25lb tins	2 30	—
" " No. 1 "	2 10	—
" " No. 2 "	1 90	—
" " No. 3 "	1 65	—
" " Com. "	1 30	—
White Zinc, Snow	2 75	3 25

Naval Stores.		
Black Pitch	3 10 @	3 50
Rosin, Strained	3 10	3 75
" Clear, pale	5 75	10 00
Spirits Turpentine	0 68	0 70
Tar Wood	3 40	4 00

Oils.		
Cod	0 62 @	0 65
Lard, extra	1 45	—
" No. 1	0 95	1 00
" No. 2	0 85	0 90
Linseed, Raw	0 75	0 77
" Boiled	0 80	0 82½
Olive, Common	1 17	1 35
" Salad	1 80	2 30
" " Pints, cases	4 20	4 40
" " Quarts	3 60	3 00
Seal Oil, Pale	0 70	0 80
" " Straw	0 60	0 75
Sesame Salad	1 30	1 35
Sperm, genuine	1 90	2 00
Whale, refined	0 75	0 80