

and he suggests that these substances may be due to the water used in their manufacture, or to crude acetic acid added to the vinegars in question. Many natural waters contain sufficiently high sulphates and chlorides to account for the presence of these substances in vinegar made with their use.

Dr. Donald's second suggestion is worthy of consideration, and its probability receives some support from a study of the acetic acid percentage present in these samples. This varies from as low as 2.22 to as high as 9.15 per cent. The wide variation of acetic acid strength in the vinegars of this collection, goes far to support the suspicion that many of them are mere dilutions of acetic acid.

We have no recognized acetic acid strength for genuine vinegar. The British Pharmacopoeia of 1885 defined vinegar as containing 5.41 per cent of acetic acid. The last edition of the Pharmacopoeia (1898) omits any official definition of the article. Proof vinegar of the Inland Revenue contains 6 per cent of acetic anhydride, equivalent to 7.06 per cent of acetic acid. Commercial vinegar, made by fermentation and acetification of saccharine liquids, or by direct acetification of dilute alcohol, seldom contains 7 per cent of acetic acid. In support of this assertion I may quote from 'Konig' (Zusammensetzung der menschlichen Nahr. & Genussmittel, 1903).

Mean of 17 samples Wine—Vinegars.....	5.07	p. c.	acetic acid.
" 13 " " " .....	6.56	"	"
" 22 " Malt " .....	4.46	"	"
" 4 " Cider " .....	6.19	"	"

The last report on vinegars issued from this Laboratory, gave the analysis of 93 samples, (see Bull. 35—1893) and these were found to contain from 2.86 p.c. to 7.99 per cent of acetic acid, the averages being as follows:—

Districts.	Sample.	Mean Acetic Acid.
		p. c.
Nova Scotia .....	19	4.01
Quebec .....	23	6.11
Ontario .....	39	5.32
Manitoba .....	12	5.09
	93	.....

Average for the Dominion=5.13 p. c. acetic acid.

A similar tabulation of the 242 samples now reported, shows the following:—

Districts.	Sample.	Mean Acetic Acid.
		p. c.
Nova Scotia .....	20	4.42
New Brunswick .....	20	5.02
Prince Edward Island .....	20	5.02
Quebec .....	20	6.67
St. Hyacinthe .....	20	5.91
Montreal .....	20	5.72
Kingston .....	20	5.18
Toronto .....	20	4.76
London .....	20	5.06
Manitoba .....	20	6.60
Calgary .....	20	7.19
British Columbia .....	22	6.40
Dominion .....	242	5.66