

off a great portion of acetic acid, much less lime will be required, and if we could, by filtration or subsidence, get rid of the precipitated feculencies, we would make a tolerably good sugar; but, as under the present plan, we have no means of so doing, the acetic acid which is still forming during the whole process of evaporation (as fermentation still goes on) unites with the lime before it can be dissipated by the heat, and thus not only forms acetate of lime, but causes the re-resolution of the precipitated feculencies, thus rendering it necessary to add a fresh portion of lime in the tache, a proceeding always to be avoided, if possible, but generally necessary in boiling down sour liquor. Take a small portion of cane-juice (hot or cold) in a tumbler, and temper it with lime until the feculencies are precipitated and the flakes perfectly visible, then add vinegar by drops, and it will be found that the flakes will speedily disappear and be re-dissolved, showing that lime has a greater affinity for acetic acid than starch, and that, although when added to sour cane-juice, it neutralises the acidity, still, that result is a consequence, not the cause, of the application, and is highly injurious. Lime is one of the greatest known solvents of vegetable matter, it dissolves albumen, gluten, gum, and lignin, or woody fibre, forming soapy compounds with wax, resin, and chlorophyle; ordinary cane-juice contains about three parts of resin to every 100 of sugar, and the projection of a small piece of soap into a tache full of granulating syrup will soon convince any one of the effect likely to result from the presence of that material; although, by tempering hot, we get rid of a very great quantity of the substances on which lime acts injuriously, a considerable portion of them remain in suspension, the quantity of albumen contained in the cane-juice not being sufficient to carry them all off by coagulation; on the addition of the lime, however, they are entirely dissolved, and as the impurities left behind consist chiefly of gluten, the liability of the liquor to ferment is greatly increased by its retention, that being the fermenting principle contained in wheat and other vegetable productions prone to that process.

100 parts consist of	Carbon	Oxygen.	Hydrogen.	Nitrogen.			
Albumen	52.88	23.88	7.54	15.70			
Gluten	Nearly	same as	Albumen.				
	Carbon	Oxygen.	Hydrogen.	Carbon.	Water.	Excess of Oxygen.	Excess of Hydrogen.
Lignin, or Woody Fibre	51.45	42.73	5.82	or 51.45	48.55
Starch	43.55	49.68	6.77	43.55	56.45
Sugar	42.47	50.63	6.90	42.47	57.53
Gum	42.23	50.84	6.93	42.23	57.77
Alcohol	51.98	34.32	13.70	51.98	38.99	..	9.03
Acetic Acid	50.22	44.15	5.63	50.22	46.91	2.87	..
Resin	75.94	13.34	10.72	75.94	15.16	..	8.90
Wax	81.79	5.54	12.76	81.79	6.30	..	11.91