means of steam pipes coiled inside the tubs, or by steam jets. Some use pressure converters, which are iron or copper tanks like a boiler, when the conversion is much quicker. The operator makes frequent chemical tests to determine when the starch is entirely converted into sugar, and when this is accomplished the mixture is drawn into another vat where the acid is neutralized with some form of carbonate of lime, as marble dust, chalk or whiting. The liquid is sometimes bleached by the use of sulphurous acid at this stage of manufacture. It is now a very dilute solution of glucose, and besides incidental impurities, contains sulphate of lime formed by the action of the sulphuric acid on the carbonate, and whatever carbonate of lime was used in excess of the sulphuric acid present. These are separated by straining through cloth or bag filters and afterward percolating through columns of bone charcoal, eight or ten feet deep. When decolorized, it is drawn into the "vacuum pan," which is a large, strong tank of iron or copper, with steam pipes coiled inside for heating, and from which the air is partially exhausted by an air pump, and in which the syrup is boiled down at a temperature of 100° to to 145°. When concentrated to a specific gravity of about 1400 it is drawn off and again strained or filtered, and is ready for the market as glucose, this being the commercial term for the syrup only. The term grape sugar is applied to the dry glucose, and this is produced by carrying the conversion further before neutralization.

The syrup is used, principally, for mixing with dark colored cane syrup for making light colored table syrups (nearly all the table syrups now sold contain it, and frequently from 75 per cent. to even a larger quantity), and also in making wine, ale, beer and vinegar. On a smaller scale it is used in tobacco manufacture, the adulteration of honey, fruit preserving, etc. Both the solid and liquid forms are largely used in candy making, for which it has several marked advantages. A syrup is prepared expressly for this use, in which the conversion of the starch into sugar is only partial, the syrup containing, of its solid matter, about eighty per cent. of the intermediate product, dextrin, and twenty of glucose. The large consumers of glucose require slightly different syrups. Wine growers, for instance, use a syrup free from dextrin. Brewers desire a very small proportion of it, to give body to the beer, while vinegar makers use a syrup free from gum. The dry glucose, or grape sugar, seems, aside from its legitimate use in candy making, to be most largely in demand for the adulteration of cane sugar. No objections, save of a moral and financial nature, can be urged against this, but it is well to remember that for its value as a sweetener, compared with cane sugar at ten cents per pound, glucose is worth but four cents. So much has been written against the manufacture of glucose, on account of its use as an adulterant of cane sugar, that it is, perhaps, only just to say that it is certainly the least objectionable of any of the articles used for that purpose. It is perfectly wholesome, being in fact the physiological sugar, and has about two-fifths the sweetening power of cane sugar, which is more than can be said of terra alba, starch, bone dust, sand, etc., while its most probable impurity, calcium sulphate, can, from its insolubility, be present only in minute quantity, probably not more largely than in most potable waters, and is not in any sense noxious.—*The Druggist.*

METEOROLOGICAL REPORT FOR NEW YORK CITY FOR THE WEEK ENDING NOV. 19, 1881.

Latitude 40° 45′ 58″ N.; Longitude 73° 57′ 58″ W.; height of instruments above the ground, 53 feet; above the sea, 97 feet; by self-recording instruments.

NOVEMBER.	BAROMETER. MEAN FOR THE DAY. Reduced to Freezing.	BAROMETER. MAXIMUM. Reduced to Freezing.	BAROMETER. MAXIMUM. Time.	BAROMETER. MINIMUM. Reduced to Freezing.	BAROMETER. MINIMUM. Time.	THERMOMETERS. MEAN. Dry Bulb.	THERMOMETERS. MEAN. Wet Bulb.	THERMOMETERS. MAXIMUM. Dry Bulb.	THERMOMETERS. MAXIMUM. Time.	THERMOMETERS. MAXIMUM. Wet Bulb.	THERMOMETERS. MAXIMUM. Time.	THERMOMETERS. MINIMUM. Dry Bulb.	THERMOMETERS. MINIMUM. Time.	THERMOMETERS. MINIMUM. Wet Bulb.	THERMOMETERS. MINIMUM. Time.	MAXI'M In Sun
Sunday, 13	29.636	29.790	12 p. m.	29.542	1 a. m.	51.6	49.0	59	0 a. m.	58	0 a. m.	42	12 p. m.	42	12 p. m.	115.
Monday, 14	29.937	30.002	9 p. m.	29.790	0 a. m.	46.3	43.6	53	2 p. m.	48	2 p. m.	40	5 a. m.	40	5 a. m.	106.
Tuesday, 15	30.214	30.442	12 p. m.	29.976	1 a. m.	41.3	38.3	46	4 a. m.	43	3 a. m.	36	8 a. m.	34	8 a. m.	104.
Wednesday, 16	30.500	30.550	9 a. m.	30.442	0 a. m.	39.7	38.0	45	4 p. m.	41	4 p. m.	33	6 a. m.	33	6 a. m.	101.
Thursday, 17	30.327	30.464	0 a. m.	30.138	12 p. m.	47.6	45.7	55	3 p. m.	51	4 p. m.	37	8 a. m.	37	8 a. m.	110.
Friday, 18	29.869	30.138	0 a. m.	29.690	12 p. m.	58.3	55.6	61	2 p. m.	58	12 p. m.	52	0 a. m.	50	0 a. m.	82.
Saturday, 19	29.669	29.798	12 p. m.	29.600	1 p. m.	50.3	49.3	61	0 a. m.	58	0 a. m.	45	12 p. m.	43	12 p. m.	62.

			Dry.	Wet.
Mean for the week	30.021 inches.	Mean for the week	47.8 degrees	45.6 degrees.
Maximum for the week at 9 a. m., Nov. 16th	30.550 "	Maximum for the week, at 2 pm. 18th	61. "	at 12 pm 18th, 58. "
Minimum " at 1 a. m., Nov. 13th	29.542 "	Minimum " " 6 am. 16th	33. "	at 6 am 16th, 33. "
Range	1.008 "	Range " "	28. "	25. "

NOVEMBER.	WIND. DIRECTION. 7 a. m.	2 p. m.	9 p. m.	VELOCITY IN MILES. Distance for the Day.	FORCE IN LBS. PER SQR. FEET. Max.	Time.	HYGROMETER. FORCE OF VAPOR. 7 a. m.	2 p. m.	9 p. m.	RELATIVE HUMIDITY. 7 a. m.	2 p. m.	9 p. m.	CLOUDS. CLEAR, 0 OVERCAST, 10. 7 a. m.	2 p. m.	9 p. m.	RAIN AND SNOW. DEPTH OF RAIN AND SNOW IN INCHES. Time of Beginning.	Time of Ending.	Duration. h. m.	Amount of water	OZONE. 0 10
Sunday, 13	w. s. w.	w. n. w.	w. n. w.	241	7	3.00 pm	.389	.282	.275	93	62	92	0	1 cir. s.	0	-----	----	-----	--	0
Monday, 14	w. s. w.	w.	e. n. e.	197	7¼	3.30 pm	.235	.269	.251	91	66	84	0	7 cir. cu.	0	-----	-----	-----	--	5
Tuesday, 15	w. n. w.	n. n. w.	n. w.	369	19¼	7.30 am	.190	.186	.203	74	67	82	7 cu.	4 cu.	0	-----	-----	-----	--	2
Wednesday, 16	n. w.	w. s. w.	w.	143	1	2.00 pm	.188	.208	.231	100	75	83	0	0	0	-----	-----	-----	--	0
Thursday, 17	s.	s.	s. s. w.	170	4¾	9.30 pm	.229	.295	.334	100	73	86	0	1 s.	7 cu.	-----	-----	-----	--	2
Friday, 18	s. w.	w. s. w.	s. s. w.	258	5¾	11 15 am	.362	.412	.456	86	77	88	9 cu.	9 cu.	10	-----	-----	-----	--	0
Saturday, 19	n. n. e.	n.	n. w.	118	6¾	8.00 pm	.335	.374	.309	92	100	85	9 cu.	9 cu.	10	5.15 pm	9 pm	3.45	.03	3

Distance traveled during the week	1,496 miles.	Total amount of water for the week	0.05 inch.
Maximum force	19¼ lbs.	Duration of rain	3 hours, 45 minutes

DANIEL DRAPER, Ph. D.

Director Meteorological Observatory of the Department of Public Parks, New York.