Synopsis of results pointing to adulteration.

Character.	Serial Number of Sample.																		
	1	9	12	13	14	15	16	19	22	29	31	32	34	36	40	41	44	45	46	51
Colour abnormal						×				×										
Clearness of first fraction		×									×								×	×
Odour abnormal																				×
Density abnormally low in sample						×					×								×	×
Density abnormally high in sample		×						×		×										
Density abnormally low in fraction		×									×				×				×	×
Density abnormally high in residue						×							×	×	×					
Boiling point abnormally low																				×
" " high						×					×									
Residue abnormally high	×					×		×	×	×		×			×					×
Flash point abnormally low																				×
Viscosity ratio low																				×
Solubility in acetic acid incomplete			×	×	×		×	×		×						×	×	×		
Index of refraction high						×		×	×	×										
" " low																			×	×
Summary	1	3	1	1	1	6	1	4	2	5	4	1	1	1	3	1	1	1	4	8

In the accompanying synopsis I have arranged the results of my tests as applied to the samples collected. It will be seen that 9 samples give abnormal indications in regard to two or more characters. The identifying numbers are as follows :—

Serial Numbers.	Description.	Remarks.
9	19,497	Probably contains petroleum.
15	19,837	Contains rosin oil.
19	19,841	Probably contains rosin oil.
22	19,844	May contain rosin oil.
29	19,851	Probably contains rosin oil.
31	19,853	May contain petroleum.
40	20,852	" "
46	20,867	Contains mineral oil.
51	M	" "

It occurred to me that the determination of the heat of combustion might furnish numbers which would have value in discriminating between genuine and adulterated turpentines. My friend Dr. H. C. Sherman of Columbia College, New York, was good enough to determine (with the bomb calorimeter) the calorific values for three samples, viz.:—

No. 53—(Coal oil) ..... (a) 11168
(b) 11176
(c) 11198

Mean = 11184 calories per gram at constant volume.