Until recently the writer disregarded the decolorization of the liquid in polluted river waters, and accepted the decolorization of the sediment as the criterion. Correspondence between the writer and Dr. F. E. Hale, of the Mount Prospect laboratory, Brooklyn, N.Y., developed a difference of opinion regarding the reliability of this procedure. Doctor Hale held that the methylene blue once thrown out of solution is probably inert, and that, therefore, the decolorization of the liquid should be accepted as the sole index of the putrescibility. Doctor Hale's procedure consists in adding one cc. of methylene green solution at the beginning and continuously thereafter, as demanded by absorption, until a slight color persists in the liquid. Decolorization of this was taken as the endpoint. Doctor Hale considers that this method gives good relative results, but probably does not represent absolute values. The writer's aim was to obtain correct relative stabilities, while Doctor's Hale's procedure aimed at relative results. In this respect the problem differed. Notwithstanding, I decided to investigate whether the observation of the decolorization of the sediment actually furnishes correct relative stabilities, and if not, which procedure would have to be followed. Jackson and Horton recommend the use of as little methylene blue as possible, on account of its antiseptic properties, and the writer, in investigating the quantities recommended in the "Standard Methods," fixed the amount at 0.4 cc. of a 0.05 per cent. aqueous solution per 150 cc. bottle capacity. When working with waters carrying colloids, it is clear, of course, that there should always be 0.4 cc. or less of the coloring matter in solution, provided the sediment containing the precipitated coloring matter is actually inert. An excess of coloring matter in solution would interfere with obtaining correct results. If the coloring matter in the sediment retains its antiseptic qualities, even though to a lesser degree, it would still be impossible to obtain correct figures. The entire question depends, of course, upon the value of all methylene blue or other similar "relative stabilities" when applied to liquids other than sprinkling filter effluents.

Since the decolorization of the blue color coincides fairly closely with the elimination of the total available oxygen, the writer first determined the oxygen at the time of decolorization of the liquid and sediment as well. An artificial turbidity of 100 was imparted to a putrescible sewage-water mixture and a number of glass stoppered

Table I.—Elimination of Available Oxygen in Turbid Waters on Applying the Methylene Blue Putrescibility Test.

Serial No.	Date and time 1914.	No. of cc. 0.05% methy. blue added per 150 cc. capacity.	Color of supernatant liquid in 24 hours.	Time of decolorization of liquid in hours.	Time of decolorization of sediment in hours.	P.P.M. total initial available oxygen.	P.P.M. residual oxygen at time of decolorization of liquid.
1	April 14	0.4	colorless	24	Sediment	23.3	10.5
	11.00 a.m.	0.8	colorless	24	did not	23.3	10.5
		1.2	colorless	24	decolorize in	23.3	—
		2.0	blue	blue after 10 days	10 days	23.3	—
2	April 15	0.4	colorless	24	Sediment	23.5	8.8
	10.30 a.m.	0.8	colorless	24	did not	23.5	8.8
		1.2	colorless	24	decolorize in	23.5	8.8
		2.0	blue	blue after 10 days	10 days	23.5	—
3	April 20	0.4	colorless	20*	88	20.1	0.5
	11.00 a.m.	0.8	colorless	20*	105	20.1	0.5
		1.2	colorless	20*	112	20.1	0.5
		2.0	slightly blue	45	119	20.1	0.4
4	April 23	0.4	colorless	24	Sediment	22.1	4.7
	11.00 a.m.	0.8	colorless	24	did not	22.1	4.7
		1.2	slightly blue	48	decolorize in	22.1	0.6
		2.0	slightly blue	93	10 days	22.1	0.5
5	April 27	0.4	colorless	20*	52	18.7	0.5
	11.00 a.m.	0.8	colorless	20*	61	18.7	0.5
		1.2	colorless	20*	70	18.7	0.5
		2.0	blue	45	76	18.7	0.4
6	April 29	0.4	colorless	20	100	21.0	2.9
	11.00 a.m.	0.8	colorless	20	118	21.0	2.9
		1.2	colorless	20	127	21.0	2.9
		2.0	blue	45	142	21.0	0.7
7	April 30	0.4	colorless	20	127	21.4	5.0
	11.00 a.m.	0.8		20	148	21.4	5.0
		1.2		20	169	21.4	5.0
		2.0		45	181	21.4	0.4

*Decolorized during the night, therefore estimated but roughly. The absence of the residual oxygen at the time of the decolorization of the liquid is of course due to the fact that the oxygen has not been determined at the exact time of decolorization.