The principle of the simplified, capillary method was developed by Mooney.[2] The carefully cleaned tube (0.45-0.50 mm. outside and 0.15-0.25 mm. inside) is dipped into the bacterial suspension. It fills by capillarity. It is then laid across the electrodes in the simple chamber which had been previously filled with distilled water. The chamber is merely a rectangular glass dish with a pair of platinum electrodes bent to hold the capillary in a horizontal position. The "cataphoretic velocity" of the bacteria in the middle of the capillary is determined by the method which has already been described in detail.[1] The measurement recorded here, however, is not the true cataphoretic mobility of the bacilli, but the difference between this mobility and the velocity of the endosmotic streaming in the capillary.

[1] Falk, Tonney, White and Jensen, *Am. J. Pub. Health*, 1927, xvii, 714.
[2] Mooney, *Phys. Rev.*, 1927, xxix, 218.

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Chemical Constitution and Germicidal Action.

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In two recent papers Tilley and Schaffer[1,2] have reported upon the extraordinarily constant relations between chemical constitution and germicidal activity of alcohols, phenols, resorcinols and corresponding intermediate ketones. By correcting the phenol coefficients with the ratio of the molecular weights of the test substance to the molecular weight of phenol, the computed germicidal action for certain organisms is found to vary in a constant ratio with the addition of alkyl groups.

Hence it seemed of interest to determine whether a similar constancy would appear in other chemical series. We have utilized the data reported by Kligler[3] in his studies on the antiseptic properties of certain organic compounds. In a number of series, recomputation of Kligler's data on the germicidal activities of these substances for *Bacterium coli A* (of his series) shows the following ratios:

TABLE I.

	Substance	Molecular Coefficient	Ratio	
A	1. Methyl alcohol	.68		
	2. Ethyl alcohol	1.47	1:2	2.16*
B	3. Aniline	59.4		
	4. Methyl aniline	146.9	3:4	2.5
	5. Di-methyl aniline	389.4	4:5	2.7
C	6. O-toluidine	214.7	3:6	3:6
	7. Methy-O-toluidine	437.0	7:6	2.0
	8. Di-methy-O-toluidine	760.0	8:7	1.7
D	9. P-toluidine	214.7	9:3	3.6
	10. Methy-P-toluidine	437.0	10:9	2.0
	11. Di-methy-P-toluidine	1300.0	11:10	3.0
E	12. Ethyl aniline	283.1	3:12	4.8
	13. Di-ethyl aniline	1710.0	13:12	6.0
F	14. Malachite green	31,040.		
	15. Brilliant green	604,800.	15:14	19.4

*Computed for *Bacterium typhosum*, 2.88. Tilley and Schaffer give 2.2 for this organism.

It is significant to note that the germicidal ratios computed from data prepared by another investigator, working with slightly different technique, give results essentially harmonious with those reported by Tilley and Schaffer. It will be observed that:

(1) In series A, the addition of a methyl group multiplies the germicidal action 2.16-2.88 times. (Tilley and Schaffer obtained ratios of circa 3.1.)

(2) In series B, the addition of a methyl group multiplies the germicidal action of aniline 2.5-2.7 times.

(3) In the toluidine series, Series C and D, both ortho- and para-, the substitution of methyl groups gives approximately the same results.

(4) The substitution of ethyl groups in aniline Series E, multiplies the activity 4.8-6.0 times, or by twice as much.

(5) The replacement of four methyl groups, Series F, in malachite green by corresponding ethyl groups (brilliant green), multiplies the potency nearly 20 times.

This note is presented because it seems important to record a proximate confirmation of work which may significantly clarify the confusion that prevails in the literature on relations between chemical composition and germicidal action.

[1] Tilley, F. W., and Shaffer, J. M., *J. Bact.*, 1926, xii, 303.

[2] Schaffer, J. M., and Tilley, F. W., *Ibid.*, 1927, xiv, 259.

[3] Kligler, I. J., *J. Exp. Med.*, 1918, xxvii, 463.