gravity settling, the fractional charge loss (fractional decrease in area of the charged-weighted distribution curves) will always be less than unity in an aerosol with other than equal magnitudes of positive and negative charges. Under such conditions, knowing the original ratio of positive to negative charge, we could calculate the (fractional) asymptote of curve 1 of figure 4 for high concentration. Under actual conditions this asymptote should be unity, because, with such large aggregation, gravity will effectively remove the unneutralized charge (this is still regarded as an effect of aggregation rather than gravity, since the final removal by gravity is conditional on previous aggregation). However, for the middle portion of the curve,

*Compilation of Data Derived from the Charge-Weighted Distribution Curves of Silica, Sodium Chloride and Mixed Aerosols.**

Aerosol	Concentration, Mg./M.³	Row	Position of Maximum: Positive Particles	Position of Maximum: Negative Particles	Area: Positive Particles	Area: Negative Particles	Charge Ratio (+ Area)/(− Area) = Positive Charge / Negative Charge	Fractional Charge Loss (= Area 1 − Area 2)/Area 1: Positive Particles	Fractional Charge Loss (= Area 1 − Area 2)/Area 1: Negative Particles
SiO_2	33	1	5.0	7.0	77.5	59.0	1.31	.40	.39
		2	6.8	8.2	46.5	35.9	1.30	...	...
SiO_2	42	1	5.7	7.4	109	63.2	1.72	.38	.40
		2	8.0	9.5	68.0	38.1	1.78	...	...
SiO_2	47	1	7.3	8.4	83.6	67.1	1.25	.40	.40
		2	8.6	9.2	49.9	40.6	1.23	...	...
SiO_2	52	1	6.2	8.2	106	73.6	1.44	.42	.43
		2	8.5	9.8	61.7	41.9	1.47	...	...
SiO_2	60	1	7.0	9.3	110	75.2	1.46	.43	.48
		2	9.3	11.5	62.9	39.2	1.60	...	...
NaCl (8% solution)	42	1	11.0	10.0	443	366	1.21	.50	.53
		2	30.0	31.5	220	173	1.27	...	...
NaCl (8% solution)	56	1	12.5	12.5	435	321	1.35	.54	.52
		2	33.0	35.0	202	155	1.30	...	...
NaCl (2% solution)	14.8	1	4.5	6.0	389	287	1.36	.53	.57
		2	30.0	23.0	183	124	1.47	...	...
SiO_2 + NaCl	17.0	1	...	...	290	242	1.20	.52	.53
	29.1	2	...	...	139	113	1.23	...	...
SiO_2 + NaCl	33.2	1	...	...	258	211	1.22	.45	.52
	31.4	2	...	...	142	101	1.41	...	...
SiO_2 + NaCl	36.8	1	...	...	191	155	1.23	.47	.47
	13.5	2	...	...	101	82.6	1.23	...	...
Residue (see text)	below detection	1	.32	.26	76.4	85.4	.90	.65	.69
		2	.80	.70	26.6	26.2	1.01	...	...

* The figures in row 1 for a given aerosol are values for that aerosol taken direct from the exposure chamber, effectively nine minutes after dispersal in that chamber. Row 2 for the aerosol gives values found after it has passed from the exposure chamber through a 20 l. settling chamber at the rate of 1.45 l./min. (effectively 14 minutes in the settling chamber or 23 minutes after dispersal). The charge density ρ (in electrostatic units per cubic centimeter) of the aerosol = $6.28 \times 10^{-6} \times$ area.

different ratios of positive and negative charge, as well as different sizes, will lead to somewhat different values of ordinate for the same aggregation rate.

A second restriction arises in case collisions occur in which particle charges are neutralized but the particles themselves do not stick.[16] In such cases a fractional charge loss is produced which does not represent aggregation. If a sufficient number of such collisions should occur, it might be possible (see below) to detect the change in shape which they would produce in the aggregation distribution curves.

Neither of these restrictions affects the determination of relative settling out due to gravity, or that due to diffusion, since these are extrapolations to zero concentra-

16. Aside from the probability of charge neutralization, collisions in which particles do not stick are usually considered unlikely with particles of this size, whatever their composition. See article by R. Whytlaw-Gray (Disperse Systems in Gases, Tr. Farad. Soc. **32**:1042, 1936).