Accordingly, we can guess the constitution of interfacial phase from the estimation of this value, ωL_0 being calculated from resonance method.

On the other hand, Q is a measure of the sharpness of the resonance curve, *i. e.* it is calculated from the equation,

$$Q = \frac{L_1 + L_2}{L_1 - L_2}$$

where L_1 and L_2 are the values of the inductance when the current of the circuit I satisfies the equation

$$I = I_0/\sqrt{2},$$

I_0 being that value at resonance. Hence, we can calculate the values of Q from the graphical analysis of the resonance curves. The measurement of Q-value at 2,500 cps., at various I_0, which is considered to be proportional to Δc, gave the following results;

Vibrator input	I_0	Q
100	104.2	2.01
20	68.0	2.27
10	33.9	2.61
5	8.5	3.36
3	2.5	3.83

Apparently, Q-value increased as Δc decreased. This can be interpreted by the following consideration. As this circuit contains periodically changing capacitance, it is a sort of frequency modulation circuit, in which the carrier frequency equals the signal frequency. Hence, the inductance at resonance L_0 changes with it by

$$\Delta L_0 = L_0 \, (\Delta c/K),$$

which induces the decrease in the apparent Q-value, calculated from the analysis of the resonance curves. Hence, the true value of Q is given by

$$\lim_{\Delta c \to 0} Q.$$

Another device of Q-measurement can be obtained from the principle of the so-called "Q-meter". This denotes that the Q-value of this circuit is given by

$$Q = E_c/V,$$

where V is the emf. of U-effect II and E_c the potential difference at the condenser at resonance. The value of Q so obtained is independent of Δc and can be used for the more accurate estimation of this value.

10. Protective Power of Surfactants for Dyestuffs

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In order to investigate protective power of surfactants for dyestuffs, Rubine numbers were examined and following results were obtained as shown in Table 1.

Table 1. Rubine Numbers of Surfactants.
Concentration of Congo Rubine: 0.01%.
Concentration of KCl: 160m. mole/l.

Surfactants		Rubine Number	
		g./100 cc.	mole/l.
Na- Oleate		1.0	3.1 10^{-2}
Na- Laurylsulfate		0.5	1.1 10^{-2}
(Gelatin)		0.072	——
L. P - 6*	(Polyoxyethylene alkyl ether)	0.017	3.8 10^{-4}
L. P - 6		0.020	4.4 〃
L. P - 17		0.036	3.1 〃
C. P - 8		0.018	3.1 〃
C. P - 10		0.022	3.3 〃
C. P - 18		0.013	1.3 〃
O. P - 20		0.013	1.1 〃
Trimethyl cetyl ammonium bromide		0.005	1.17 〃
Nissan Cation SA		0.005	——

L: Lauryl; C: Cetyl; O: Oleyl,
P-n: Degree of polymerisation of ethylene oxide,
*: Synthesised in the authors' laboratory.

Comparing with anionic surfactants, non-ionics and cationics showed remarkable protective power for Congo Rubine which is an anionic dyestuff, and cationics induced distinct coagulation Congo Rubine, without color change, while precipitation of the dye-stuff by KCl accompanies distinct color change.

It may be noticeable that even anionic surfactants have some protective power for anionic Congo Rubine. This fact and remarkable protective power of non-ionics suggest that interaction between surfactants and dyestuffs is not necessarily ionic.

11. Traube's Rule for Organic Solutions of Lower Aliphatic Alcohols

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Concerning the surface tension of the solutions, Traube's rule has been confirmed mainly on the aqueous systems and its extension to the non-aqueous, *e. g.* the organic systems has not been examined thoroughly as yet. In order to find some informations about this problem, the authors prepared various solutions, using one of the homologous series of lower aliphatic alcohols ($C_1 \sim C_5$) as a solute and ethylene glycol or nitrobenzene as a solvent, and measured the surface tension of the solutions at 20°C. The results