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A paradoxical stability phenomenon with spontaneously agglutinating diphtheria bacilli and its practical import.

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One of the interesting and perhaps practical outgrowths of our inquiry into the rôle of surface tension in the stability of bacterial suspensions¹ is indicated by the title. Briefly, it has been found possible to stabilize certain strains, *e. g.*, in 0.85 per cent NaCl, in which immediate and complete flocculation results, if the conventional methods of preparing the suspensions are employed.

The strain is readily emulsified in 2.5 per cent NaCl and when this is then diluted with two volumes of distilled water making the final concentration about 0.8 per cent, or with four volumes making it 0.5 per cent, the organism is then quite stable for serological work. With MgCl₂ and Na citrate the same procedure is adequate. A few other strains of this group appear to behave similarly. How general the application of the procedure will be cannot now be stated.

The procedure was tried experimentally on the basis of consideration involved in Gibb's Law which indicates an inverse reciprocal relation between interfacial surface tension and adsorption. Thus the surface concentration of solute is much greater than in the bulk of the liquid when the interfacial tension is low, and an additional excess is deposited by the forces of electrical adsorption. It seemed possible then to dilute the solute present in the bulk of the solution more rapidly than that at the surface. Experiment justified the theory, although it may turn out that some other factor not now considered is also active.

¹ Mellon, R. R., Hastings, W. S., and Anastasia, C., *PROC. SOC. EXP. BIOL. AND MED.*, 1924, **xxi**, 279.