

dilution used, $0.0000577N_w$, gave an equivalent conductivity of 372.4 mhos, compared with Mr. Dye's 360.5 for his most dilute solution, $0.001089N_w$.

The graph also shows the Onsager slope, calculated from the latest value for myristyl ion, 371.6 (2). It will be seen that the conductivity in this dilute region rises above its infinite dilution value, "a phenomenon which seems to admit of no other interpretation than the formation of (probably small) micelles" (3). This conclusion was also reached in the paper to which this experimental work is an extension. It would probably be found true for all colloidal electrolytes if special care were given to the study of the most dilute solutions.

REFERENCES

1. MCBAIN, E. L., DYE, W. B., AND JOHNSON, S. A., *J. Am. Chem. Soc.* **61**, 3210 (1939).
2. GONICK, E., *J. Phys. & Colloid Chem.* **50**, 291 (1946).
3. Quoted from HARTLEY, G. S., COLLIE, B., AND SAMIS, C. S., *Trans. Faraday Soc.* **32**, 796 (1937).

Stanford University, California

M. E. L. MCBAIN

Received March 1, 1955

THEORY OF THE STABILITY OF LYOPHOBIC COLLOIDS

In 1948 a monograph (1) with the above title appeared from our hand. Recently Professor B. V. Derjaguin drew our attention to a number of papers (2, 3) published by him on the same subject which were not quoted in our monograph. These papers, especially the 1941 paper by Derjaguin and Landau, contain already the essential elements of the theory as treated in our monograph, notably a combination of Van der Waals' attraction with double-layer repulsion for high potentials, applied especially to the deduction of the Schulze-Hardy rule.

We regret greatly to have overlooked these publications, and this note is published to recognize explicitly Derjaguin's and Landau's priority. Professor Derjaguin's earlier publications on the repulsion between weakly charged double layers are of course well known, among them the first calculation of the repulsive force (4) and the first indication of thermodynamically and statistically correct methods for calculating the corresponding free energy (5).

We feel that we may be partly excused for overlooking the papers because all the work for our monograph was performed during the war (*cf.* Preface to the monograph) when we were cut off from all Allied information by the occupation of our country by the German army. The papers (2, 3) were published during this period.

In order to show that our work, although later than Professor Derjaguin's, was performed independently, we wish to point to the existence of a number of publications (6-11) prior to our monograph (1); the 1944 publication, in particular (of which the 1945 one is a nearly literal translation), contains already all the essentials of our work. Moreover the treatment in the monograph is more extended than that by Derjaguin and Landau and often runs along completely different lines. On the other hand, their publication contains remarks that do not figure in our monograph, *e.g.*, a theoretical derivation of Ostwald's rule of activity coefficients (AK Satz).

REFERENCES

1. VERWEY, E. J. W., AND OVERBEEK, J. TH. G., "Theory of the Stability of Lyophobic Colloids." Elsevier, Amsterdam, 1948.
2. DERJAGUIN, B., *Trans. Faraday Soc.* **36**, 730 (1940).
3. DERJAGUIN, B., AND LANDAU, L., *Acta Physicochim. U. R. S. S.* **14**, 633 (1941); *J. Exptl. Theoret. Phys. (U. S. S. R.)* **11**, 802 (1941); *J. Exptl. Theoret. Phys. (U. S. S. R.)* **15**, 662 (1945). This is a second printing of the paper in Russian of (1941).
4. DERJAGUIN, B., *Bull. acad. sci. U. R. S. S. Classe math. nat., Sér. chim. (Russ.)*, **5**, 1153 (1937); *Acta Physicochim. U. R. S. S.* **10**, 333 (1939).
5. DERJAGUIN, B., *Trans. Faraday Soc.* **36**, 203 (1940).
6. VERWEY, E. J. W., *Chem. Weekblad* **39**, 563 (1942) (in Dutch).
7. VERWEY, E. J. W., Tweede Symposium over sterke elektrolyten en over de elektrische Dubbellaag, Utrecht, 3 and 4 July 1944, pp. 111-132 (in Dutch).
8. VERWEY, E. J. W., *Philips Research Repts.* **1**, 33 (1945) (in English).
9. OVERBEEK, J. TH. G., Grenslaagverschijnselen, Symposium 5 and 6 July 1946. *Verhandel. Koninkl. Vlaam. Acad. Wetenschap. Belg., Kl. Wetenschap.*, pp. 130-156 (1947) (in Dutch).
10. VERWEY, E. J. W., AND OVERBEEK, J. TH. G., *Trans. Faraday Soc.* **42B**, 117 (1946).
11. VERWEY, E. J. W., *J. Phys. & Colloid Chem.* **51**, 631 (1947).

*Philips Research Laboratories, Eindhoven,
van't Hoff Laboratory, University of Utrecht
Received February 4, 1955*

E. J. W. VERWEY
J. TH. G. OVERBEEK

DROPWISE CONDENSATION OF VAPORS AND HEAT TRANSFER RATES

The condensation of saturated vapor on a colder surface is commonly "filmwise." Water condensate, under some conditions, fails to wet metallic surfaces and forms discrete droplets, "dropwise condensation." Dropwise condensation of water on metal has been achieved in the past (1) by coating the metal with stearic acid, benzyl mercaptan, or similar materials. These promoters of dropwise condensation are dissolved and removed by the