in ordinary water to that of H^2Cl in pure H^2H^2O. We believe these figures to be accurate to 0.5%.

TABLE I

t, °C.	5	15	25	35	18
x(KCl)	1.212	1.180	1.162	1.152	1.173
x(HCl)	1.476	1.426	1.390	1.362	1.414

It seems safe to assume that the ratio of equivalent conductance to equivalent conductance at infinite dilution is the same for each electrolyte in the two solvents, and further, that the ratio of the mobilities of K^+ and Cl^- is the same in both solvents. We then obtain the mobilities at 18° of H^{2+}, K^+ and Cl^- in pure H^2H^2O as 213.7, 54.5 and 55.3 if we take the corresponding mobilities of H^{1+}, K^+ and Cl^- from the "International Critical Tables" as 315.2, 64.2 and 65.2.

DEPARTMENT OF CHEMISTRY
UNIVERSITY OF CALIFORNIA
BERKELEY, CALIFORNIA
GILBERT N. LEWIS
THOMAS C. DOODY

RECEIVED JULY 24, 1933 PUBLISHED AUGUST 5, 1933

VESICANT ACTION OF CHLOROALKYL SULFIDES

Sir:

I realize that the first published statement on the relationship between beta substitution of chloroalkyl sulfides and vesicant action was made by Kirner [THIS JOURNAL, **50**, 2446 (1928)] and deeply regret that the statement in my recent article [*ibid.*, **55**, 2070 (1933)] was not so phrased as to indicate clearly the limitation I had in mind, which was the application of this principle to the condensation theory of vesicant action.

It has been current knowledge at Edgewood Arsenal for many years that the vesicant action of mustard gas and its homologs is limited to those substituted on the beta carbon atom. This information was unpublished and detracts in no way from Kirner's recognition of the fact. However, it was this knowledge, coupled with certain difficulties in accepting completely the hydrochloric acid theory of vesicant action, that led Lawson and Reid [*ibid.*, **47**, 2821 (1925)] to bring up again the condensation theory and to suggest the possibility of thiazane formation as an important factor. The results published in my recent paper demonstrate that thiazane formation is not essential to vesicant action and indicate that if the condensation theory is to be retained it must assume an additional limitation, a reactive halogen on the beta carbon atom.

EDGEWOOD ARSENAL, MD.
THOMAS P. DAWSON

RECEIVED JULY 25, 1933 PUBLISHED AUGUST 5, 1933