to determine if this is a real effect, possibly due to the lower mobility of the heavy H isotope [*cf.* Bernal and Fowler, *J. Chem. Phys.*, **1**, 515 (1933)].

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SCALE READINGS OF ISOMERIC ESTERS ON THE MAGNETO-OPTIC APPARATUS

Sir:

In a former report [THIS JOURNAL, **55**, 2614 (1933)] the scale readings of the characteristic minima of a number of organic compounds were determined and were found to increase with the increasing weight of positive radicals and to decrease with the increasing weight of the negative radicals. We desired to determine whether these observations held true in the case of isomeric esters or whether it might be that compounds having the same total mass would also have identical scale readings. In order to test this point, the scale readings of various types of esters which are isomeric with the normal alkyl acetates (published in the above mentioned report and reproduced here) were determined experimentally. The readings referred to carbon bisulfide are given in the table herewith.

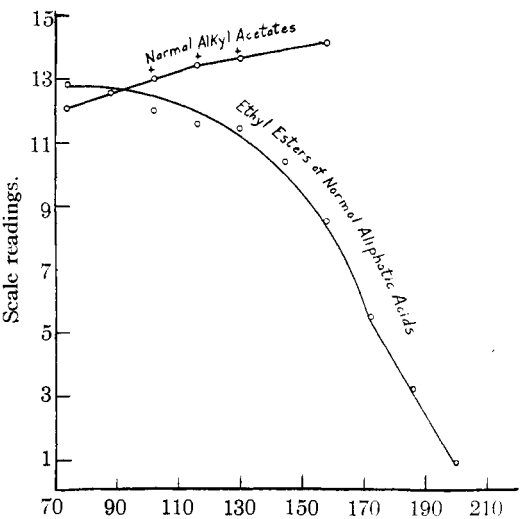

Fig. 1.—Scale readings of isomeric esters on the magneto-optic apparatus.

The usual precautions regarding impurities and contaminations were observed. All readings were made in both water and ether.

A study of the table will show that in the case of corresponding iso and normal acetates, where there is no change in the weights of the positive and negative radicals, the scale readings are identical. But for isomers such as methyl acetate and ethyl formate, where there is a change in the weight of both positive and negative radicals, different scale readings for the two compounds are obtained.

Ester	Scale Reading	Mol. Wt.	Ester	Scale Reading
Methyl acetate	12.00	74	Ethyl formate	12.74
Ethyl acetate	12.50	88	Ethyl acetate	12.50
Propyl acetate	12.97	102	Ethyl propionate	11.93
Butyl acetate	13.39	116	Ethyl butyrate	11.54
Amyl acetate	13.60	130	Ethyl valerate	11.42
		144	Ethyl caproate	10.32
Heptyl acetate	14.11	158	Ethyl heptylate	8.50
		172	Ethyl caprylate	5.50
		186	Ethyl pelargonate	3.26
		200	Ethyl caprate	0.89
Isopropyl acetate	12.97	102		
Isobutyl acetate	13.39	116		
Isoamyl acetate	13.60	130		

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THE SOLUBILITY OF SALTS IN H^2H^2O

Sir:

Preliminary experiments in this Laboratory have indicated that the solubility of salts in water containing a high concentration of H^2H^2O is markedly less than in ordinary distilled water at the same temperature. These solubility measurements were conducted in the usual way by preparing a saturated salt solution, removing and weighing a portion of the saturated solution, and finally weighing the residual salt after evaporation and suitable drying. By reason of the small volume of heavy water available, however, these operations were performed on a small scale using a special technique. The validity of the procedure was tested by first determining the solubility of a typical salt in ordinary water, and it was found that such solubility measurements could be made with an error of less than one per cent.

In the case of sodium chloride where 1.000 g. of ordinary water dissolves 0.359 g. at 25°, it was found that 1.000 g. of water containing 92% H^2H^2O dissolves only 0.305 g. of this salt, a difference of -15.0%. On a molar basis this corresponds to 0.111 mole of sodium chloride dissolved by a mole of ordinary water as contrasted to approximately 0.103 mole dissolved by one mole of heavy water, a difference of -7.2%. Similarly with barium chloride where 1.000 g. of ordinary water dissolves 0.357 g. of the anhydrous salt at 20°, it was found that 1.000 g. of water containing 92% H^2H^2O dissolves only 0.289 g. of the dehydrated salt at this temperature, a difference of -19.0%. This corresponds to 0.0309 mole of barium chloride dissolved by a mole of ordinary water in contrast to approximately 0.0275 mole dissolved by one mole of the heavy water, a difference