TABLE 2
CHANGE IN WEIGHT OF SOILS AT 105° C.

Lab. No.	Soil series	Sample treatment	Initial weight	Oven dry weight	Deviations from average oven dry wt. of moisture samples
			gm	gm	gm
6978	Cecil	Air dry (1)	3.0000	2.9231	+.0003
"	"	" (2)	3.0000	2.9225	−.0003
"	"	Dispersed with ammonia	3.0000	2.9258	+.0030
"	"	Dispersed without ammonia	3.0000	2.9241	+.0013
4447	Becett	Air dry (1)	3.0000	2.9294	+.0005
"	"	" (2)	3.0000	2.9304	−.0005
"	"	Dispersed with ammonia	3.0000	2.9300	+.0001
"	"	Dispersed without ammonia	3.0000	2.9278	−.0021
4575	Amarillo	Air dry (1)	3.0000	2.8106	−.0015
"	"	" (2)	3.0000	2.8136	+.0015
"	"	Dispersed with ammonia	3.0000	2.8114	−.0007
"	"	Dispersed without ammonia	3.0000	2.8110	−.0011

than that of the undispersed samples. On the basis of this experiment, therefore, if any weight change occurs as a result of dispersion, it does not exceed 0.1 per cent. It is to be observed that a very small increase in weight should occur in acid soils dispersed with ammonia, since ammonia adds itself directly to acids and this addition has been repeatedly demonstrated in soils. In the case of the Cecil sample such an increase is noted. The total base capacity of the Cecil is about 1 milliequivalent per gram and the absorption of this quantity would mean an increase in the sample used of 2.5 milligrams. No such difference should occur in the Amarillo soil and indeed the difference between the weights of the sample dispersed in ammonia and that in water is less than that of the undispersed samples. The Beckett soil is also unsaturated like the Cecil, and shows a difference of about 2 mg between the sample dispersed in ammonia and that in water. Both show negative values which are probably properly ascribed to loss of organic matter during the evaporation of the dispersed material. The differences in the weight of the undispersed samples, while not large, are probably due to actual lack of uniformity in the samples themselves which were sieved to pass a 2 mm sieve. Closer duplication might have been secured by finer grinding of the material.

The results obtained are essentially negative. There is no appreciable increase in weight of dry samples as a result of dispersion in water. The writers realize, of course, that as soils are ordinarily dispersed, much greater dilutions of soil by water are employed. The concentrations employed were used in order to minimize any possible loss in handling. It seems improbable that greater dilution would give greater hydration. Also, while in the normal process of dispersion the colloid and coarser material are dried and weighed separately, there would seem, especially in soils so high in clay as these employed, to be no reason why separate drying should alter the matter. The writers are also aware that these experiments do not prove that hydration of soils by dispersion never occurs. They do show that if such result were common and of appreciable magnitude, it should have occurred in the soils examined. It seems desirable to put the results on record and to request that, if any soil worker can furnish reproducible data to show that increase in the dry weight of soils results from dispersion, he will likewise communicate the results. It is worth while to determine whether the thing is mythical or if it constitutes a real excuse for inaccurate data.

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