

influence of atmospheric CO_2 and membrane a few drops of buffer solution were left in contact with squares of cellophane treated as the filters had been. These were placed in small Petri dishes and left from 2 to 17 hours. The maximum changes were 0.02 pH, barely beyond the limits of the method. If small amounts of acid had been present in the membranes it seems reasonable that they would have disappeared after prolonged soaking. The control results substantiate this opinion. Cellophane 600 plain is not a molecular sieve; a P.D. of only a few millivolts is observed across it with KCl solutions with a concentration ratio of ten to one.

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Effect of Ions on Filtration Rates Through Cellophane Membranes.*

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When distilled water is filtered through cellophane membranes which have been evacuated prior to several days' soaking in water, it is found that the rate of filtration usually decreases during the first hour, finally reaching an essentially constant value. We predicted that it should be possible to raise or lower the value of this final "steady" rate of filtration by adding varying amounts of ThCl_4 to the water. The preliminary results given below show that the steady rate of filtration is affected by ThCl_4 .

The membrane was placed between glass cylinders and supported by a coarse alundum disc. Filtration was carried out at 10 cm. Hg. The rate of filtration was determined by following through a microscope equipped with a micrometer eye-piece the displacement of the meniscus in a capillary. A solution of 10^{-3} gms. ThCl_4 per liter gave a 25% increase in the rate of filtration over that of distilled water. Solutions of 1 gm. and of 10 gm. ThCl_4 per liter showed a decrease in the rate of filtration of 29% (average of 5 determinations) and 35% (average of 3 determinations), respectively. A solution of 10^{-2} gm. ThCl_4 per liter showed no large effect. A hypothesis concerning the mechanism of these processes, together with an extension of experimental results, will appear in a subsequent communication.

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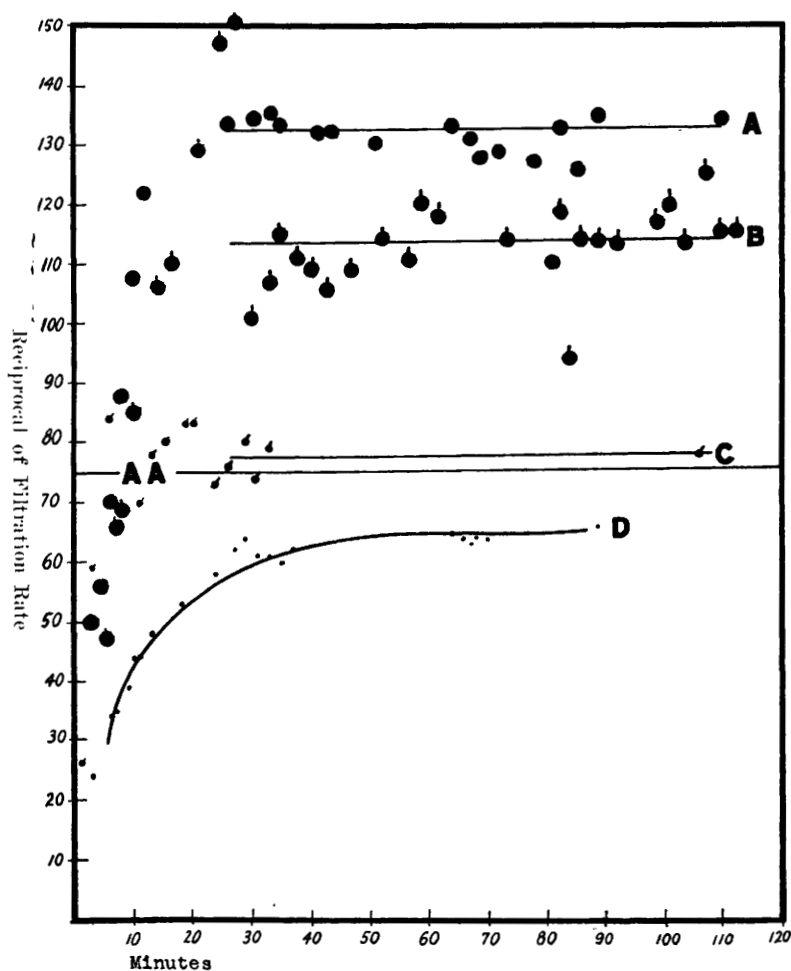


FIG. 1.

AA is curve for water, A for 10 gm. ThCl₄/liter, B for 1 gm. ThCl₄/liter, C for 10⁻² gm. ThCl₄/liter, and D for 10⁻³ gm. ThCl₄/liter. Ordinates reciprocal of filtration rate, abscissas in minutes.