preventing penetration of the dye, and $MgCl_2$ had the greatest effect. The monovalent salts were, on the whole, less effective than the bivalent salts, although there was little difference between the effects of KCl and $CaCl_2$.

When NaCl and $CaCl_2$ were used together in the most favorable proportion, namely, 2 parts of Ca to 98 parts of Na, there was some antagonism between the ions in their effect upon the penetration of the dye into the sap, but not enough to permit the dye to enter at the normal rate.

These results seem to indicate that complete antagonism is not present. It is possible that appropriate mixtures containing three or more cations might show no inhibiting effect. Whether we have here a simple effect of one cation upon the other, or whether there is also an anion effect or "salt effect" is also a question which will bear further investigation.

Complete details of this paper will be published in the near future.

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On the Filtrability of Bacteria.

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The statement has been made that filtrates, presumably sterile, prepared from lysed cultures of various bacteria sometimes yield, on standing, a visible growth. The growth so obtained has been interpreted as pointing to a filtrable stage in the life cycle of the bacteria employed.[1, 2]

We have followed for a period of three years lysed cultures of different bacteria, and have watched for the appearances mentioned. On the basis of our studies we have concluded that all such secondary growths are the results of accidents due to imperfection of the filter itself, or to faulty technique employed in carrying out the filtration process. We have recently subjected comparatively large amounts of lysed cultures to fractional filtration through new candles, and noted that while the first several fractions of the filtrate came through wholly sterile, the later fractions often yielded growths.

The number of bacteria which may pass the filter in this way is too small to be detected by the ordinary subculture control; but when entire fractions of the filtrates are incubated, the gradual lessening of the efficiency of the filter, which now permits organisms to pass, is shown. Probably the breakdown of the filter is attributable to the coating of the surface with the colloids of the culture medium and distribution of the charge on its particles.

[1] Hauduroy, P., *Comp. rend. Soc. Biol.*, 1926, xciv, 661.
[2] Fejgin, B., *Comp. rend. Soc. Biol.*, 1925, xcii, 1528.

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Further Evidence of the Resistance of Bacteriophage to Alcohol.

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By growing bacteria, in the presence of suitable bacteriophage, on synthetic medium with salts of ammonia as the only source of nitrogen, one may obtain lytic filtrates of very high potency. When such filtrates are fractioned and freed of all dialysable material by means of electro-ultra-filtration, it is possible, either before or after hydrolysis, to obtain a residue which is free from nitrogenous material, as tested by Nessler's reagent or ninhydrin. The active material thus obtained is not weakened in lytic activity when mixed with 10 volumes of alcohol and left at 22-25° C. for 8 days.

This observation lends further support to our earlier statement that the apparent inactivation of bacteriophage in the experiments of d'Herelle[1] was due not to the supposed virucidal action of the alcohol, but to the adsorption of the lytic agent during the precipitation of the medium, induced by the alcohol.[2, 3] When precipitation is absent, as is the case with our purified material, no inactivation of the lytic principle takes place.

[1] d'Herelle, F., *Monog. de l'Institut Pasteur*, Paris, 1921, xcv.
[2] Bronfenbrenner, J., and Korb, C., PROC. SOC. EXP. BIOL. AND MED., 1925, xxii, 5.
[3] Bronfenbrenner, J., and Korb, C., *J. Exp. Med.*, 1925, xlii, 419; 1926, xliii, 71.