A preparation of cholesterol was purified by means of being separated twice as the dibromide and subsequently recrystallized. This preparation failed to be activated by ultra-violet rays. O. Rosenheim has communicated to one of us (Windaus) that he has had a similar negative result with brominated cholesterol. Furthermore, it did not give the characteristic absorption spectrum of ordinary cholesterol, nor did it show a decrease in absorption following irradiation, a phenomenon which takes place in ordinary cholesterol. Likewise phytosterol, which had been purified similarly by means of a bromine derivative, failed of activation by ultra-violet irradiation.

Over-radiated cholesterol which had been recrystallized, could not be activated.

These experiences lead us to question whether cholesterol itself develops antirachitic properties through ultra-violet irradiation, or whether it is not rather some contaminating substance intimately associated with it which acquires this specific property.

[1] Hess, A. F., and Windaus, A., PROC. SOC. EXP. BIOL. AND MED., 1926, xxiv, 171-172.

[2] Hess, A. F., Weinstock, M., and Sherman, E., *J. Biol. Chem.*, 1926, lxx, 123-127.

3376

Antagonistic Action Between NaCl and $CaCl_2$ as Influencing the Penetration of Dye into Nitella.*

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This paper deals with the effects of several chlorides upon the penetration of the basic dye, dahlia, into the sap of *Nitella* sp. The plants were placed in solutions containing .0125, .025, and .05 M NaCl, KCl, $CaCl_2$ or $MgCl_2$, respectively, and .000476 per cent dahlia. The concentration of the dye in the sap was determined colorimetrically. The control solutions consisted of distilled water and tap water.

When the external solution contained any of the chlorides used the amount of dye found in the sap was less than that found when distilled water or tap water was used. NaCl was least effective in

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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.

3377

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.