tion of the alcohols at the salicylaldehyde/water interface. We consider that changes in the polar characteristics of the interfacial layer of salicylaldehyde molecules and water dipoles are induced by the alcohol molecules in accordance with their steric disposition. These changes at the A_2 interface will lead in turn to electrical asymmetry of the cell, due to different states of ionic distribution at the A_1 and A_2 interfaces. The salicylaldehyde/water interface may therefore be considered as having the properties of a specific receptor for alcohols with certain arrangements of the carbon chain.

The phenomena described above may conceivably lead to a clarification of certain selective phenomena in biological systems, such as, for example, the changes in the properties of local anesthetics caused by different carbon chain arrangements and the specificity shown by the olfactory chemoceptors.

Further observations are proceeding, and their results, together with a more detailed account of the above, will appear in the *Arkiv för Kemi,* Stockholm.

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EXPERIMENTAL VITAMIN P DEFICIENCY

RUSZNYÁK and Szent-Györgyi[1] were the first to find that flavones (citrine) behave like vitamins in man. The new vitamin was named P vitamin, because of its effect on the permeability of capillaries. Later Bentsáth, Rusznyák and Szent-Györgyi[2] found that scurvy in guinea-pigs is not only due to vitamin C deficiency, but is a mixture of deficiency in C and P vitamins. Zilva[3] could not confirm these later experiments, and Szent-Györgyi[4] did not succeed in reproducing them. Two years ago Zacho[5] showed that the diminution of capillary resistance in guinea-pig scurvy has no connection with a lack of ascorbic acid, and can only be made to cease with citrine. It seemed that with the help of a method based on this result vitamin P deficiency could be studied and the efficiency of various citrine preparations controlled. Our own experiments are in agreement with those of Zacho, and we succeeded in showing that those citrine preparations which have a therapeutic action in man, cause the diminished capillary resistance to disappear in the guinea-pig. As it appeared that the scurvy diet is not only deficient in ascorbic acid, but in flavones also, we have studied the effect of a scorbutogenic diet on rats. It is well known that the rat does not develop scurvy even on a diet lacking ascorbic acid. It appeared that under the influence of a scorbutogenic diet the rats did not, in fact, develop scurvy even after a long period of time, but their capillary resistance, measured with the Borbély method, diminished considerably in 5 to 6 weeks. When we gave such rats with diminished capillary resistance 3 to 4 mgm. of citrine per day subcutaneously, their capillary resistance became normal in 10 to 14 days. It became clear, therefore, that one can study vitamin P avitaminosis and control the efficiency of citrine preparations on guinea-pigs with scurvy and rats kept on a scorbutogenic diet. These animal experiments are in entire agreement with the results of Scarborough,[6] who has recently published observations which prove the occurrence of isolated P avitaminosis in man.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

PREPARING NITRATE-FREE SEA WATER

IN the photometric or colorimetric determination of nitrate in sea water by the "reduced strychnine" method, nitrate-free sea water of the same chlorinity as the water being analyzed is required for the preparation of the standard solutions used in the estimation of the unknown solutions or calibration of the photometer.

Harvey[1] first mentioned the difficulty of obtaining nitrate-free sea water. However, he made the observation that surface water from the English Channel during the spring months usually contained less than ten microgram atoms of nitrate-nitrogen per liter. (A microgram atom is a millionth of a gram atom.) Riddell[2] also observed that at the time of extensive diatom flowering certain waters from the Georgia Straits were nitrate-free. Unfortunately, naturally occurring nitrate-free sea water is not always available when needed. Because of this sea water is often freed of nitrate by conversion of the nitrate to ammonia by boiling for several hours with amalgamated

[1] *Nature,* 138: 27, 1936.
[2] *Ibid.,* 138: 798, 1936; 139: 326, 1937.
[3] *Biochem. Jour.,* 31: 915, 1488, 1937.
[4] *Hoppe-Seylers Zeits.,* 255: 126, 1938.
[5] *Acta path. scand.,* 16: 1411, 1939.
[6] *Lancet,* 2: 644, 1940.

[1] H. W. Harvey, *Jour. Mar. Biol. Asn. United Kingdom,* 14: 71–88, 1926.
[2] W. A. Riddell, *Jour. Biol. Board Canada,* 2: 1–11, 1936.