

proportion, its effect was not appreciated. He was thence led to believe there was not sufficient ground for characterizing morphia as a substance the presence of which puts a stop to endosmose, and renders the membrane impermeable to either fluid.

*Influence of Tobacco.*—The decoction of tobacco is stated by M. Poiseuille, to penetrate the membrane, and render it unfit for endosmose. A decoction of four parts of tobacco-leaves to forty of distilled water was opposed to serum.—There was a descent of the column in the tube. However, the density of the fluids was not stated. The author having made a similar decoction, found that, after boiling above an hour, the density did not exceed 1023, when it was not likely to produce endosmose, with serum having a density of probably not less than 1026. But a decoction of this strength, being opposed to distilled water, produced an elevation lasting for several hours; and further a decoction of density 1052 opposed to serum of density 1031, produced a well-marked elevation of the column, which was found not to have stopped in twenty-one hours. The author proceeded to state, that having observed a great variety in the endosmose afforded by different solutions of the same density, he tried the following experiment:—Four endosmometers, closed with the prepared cæcum, were filled respectively with solutions of sugar, sulphate of magnesia, common salt, and nitrate of potash, and placed in distilled water; in half an hour the first fluid ascended 1·9 inch, the second 1 inch, the third 2 inches, and the fourth 1·8 of an inch; other membranes afforded corresponding though less marked results. Thus the common salt was the most energetic at first, and the nitre the least so. But again, the syrup and sulphate of magnesia continued to ascend for several hours, while the common salt stopped in four hours and the nitre in less than two. Syrup, though it has a remarkable power of endosmose, is not a purgative, which Poiseuille accounts for by its being decomposed by the gastric juice. The author then extended the examination to classes of substances. The results obtained were arranged in a tabular form, and laid before the Society. It was remarkable that the sulphates from which experience has selected the most generally useful purgatives had invariably a strong and continued action, while the class to which nitre belonged was comparatively feeble. Chlorate of potash and the iodide and bromide of potassium were among the substances which had the lowest place in the table. Gum and liquorice showed a moderate degree of energy, but it continued uninterruptedly for weeks. The author, after entering into some further details said he mentioned these as coincidences which might prove useful aids to investigation, but without any view to the formative construction of a theory. From what proceeded, he was led to the following conclusions:—

1. That the division of substances into those which are favourable to endosmose, and those which on the one hand retard and annihilate it, by their influence on the membrane, and on the other render the membrane permeable or reduce it to the condition of a filter, requires confirmation.
2. That the power of endosmose of different solutions is not regulated entirely by their density, as already observed by Dutrochet.
3. That the purgative salts generally have an energetic form of endosmose, and that this is exerted with more steadiness and uniformity by those which medical experience has selected as the most useful in ordinary circumstances.
4. That some of the other substances have marked peculiarities with regard to endosmose, which will probably assist towards explaining the mode of action on the system.