Migration Velocities of the Ions of Hydrochlorate of Cocaine.

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The following data was received too late to appear in its proper connection in the paper on "The Foundation Principles of Dental Cataphoresis," which appeared in the May Items.

Professor Morley's investigations covered many weeks, and considerable hard laboratory work, in order to determine the velocity of the negative ion of cocaine. Chemically pure materials were essential, and required special apparatus for making. His determinations show that the complex positive ion which goes to the negative pole, has a migration velocity in dilute solution of not far from one-tenth that of the negative ion Cl. or of na. He believes the molecule of hydrochlorate of cocaine, $C_{19}H_{27}NO_4HCl$. to dissociate $C_{19}H_{27}NO_4H$. forming the positive ion, and Cl. forming the negative ion. The migration velocity of Cl. is known to be 0.00069 cm. per second at a potential gradient of one volt per cm.

This means that the alkaloid would travel into tissue about one inch in one hour with twenty-five volts difference of potential across the tooth. Of course the circulation in soft tissue, as the pulp, would very materially hasten the dissemination.