

extract from the *American Journal of Ophthalmology*, July 18, 1893.)

L. Ballarminow (*Russian Wratch*, No. 17, 1893,) abstract in the *Revue générale de l'ophthalmologie*, July, 1893, also has some observations on the action of scopolamine, from which he draws the following conclusions which are essentially the same as those entertained by Rhalemann: Scopolamine is indicated for the same causes as atropine, especially to determine the anomalies of refraction and accommodation, owing to its marked effect on accommodation, which permits of a speedy and accurate determination; in addition, it considerably shortens the period of duration of paralysis of accommodation and mydriasis. Scopolamine is also preferable to atropine in cases of short attacks of inflammation of the cornea. In general, scopolamine has all the good effects of atropine without its bad qualities. The author therefore thinks that scopolamine will soon replace atropine in the practice of ophthalmology. Merck (The Market Report for 1893) describes scopolamine hydrobromate as a salt of the alkaloid from *scopolia atropoides*, similar in physiological action and use to atropine, but not causing dryness of the throat, nervous restlessness or congestion of the face as in the case of atropine; neither does it affect intra-ocular pressure. Its application as a mydriatic is in $\frac{1}{10}$ to $\frac{1}{2}$ per cent. solution, which correspond to $\frac{1}{2}$ to 1 per cent. atropine solution.

It was shortly after reading these *couleur de rose* reports of the virtues of the new drug (August, 1893) that I began its occasional use—at first to determine whether it had any local anæsthetic properties, which I soon found it did not possess. I then began its use in all such cases in which we usually employ atropine. The preparation I first used, a one-fifth per cent., was made by Merck, and obtained from Fraser's. In all cases where instillations were used by myself, or my assistant, Dr. W. J. Killen, this preparation was employed, but when it was prescribed the patients got it at Weiss' drug store, Thirty-Fourth Street and Seventh Avenue, which was also stated to have been Merck's preparation.

As a mydriatic to determine the anomalies of refraction, my house surgeon has used it in a number of cases which I will not weary the Society by reporting in detail, but I will briefly

give the results. In some instances the instillations were made while the patient was in the hospital—four times within an hour, or at intervals of fifteen minutes—and then the examination was proceeded with. In every instance it was found that the effect had been to produce complete paralysis of accommodation, and that mydriasis was produced in from ten to fifteen minutes, but that it took about three to four instillations to complete the paralysis of accommodation. The completeness of the paralysis of accommodation was shown both by the inability to see in the near, and by the bringing out in the second examination the total amount of ametropia. The duration of the mydriasis and the paralysis of accommodation was from twenty-four to forty-eight hours—about the same as homatropine, but much shorter than that of sulphate of atropine. One remarkable result observed by Dr. Killen in several cases was a notable diminution in the visual acuteness after the full effect of the drug on accommodation—i.e., the correction of the ametropia did not bring the vision to the normal standard.

In three cases, all of them occurring in patients who had bought the drug themselves and used it at home, very marked toxic effects occurred. One of them is so remarkable that I shall take the liberty to report it in full. It happened in a girl of about thirteen years, in whom there was a history of convalescence from nephritis following an attack of diphtheria and cardiac palpitation. These facts, however, did not come to light until after the drug had been used. On January, 29, 1894, she came to the clinic having used the solution of scopolamine (one-fifth per cent.) six times in each eye, when the most alarming symptoms set in—the child began to stagger, talk in a thick, drunken and foolish way, and at times seemed out of her head, and was very dizzy. At the clinic, the pupils were found to be widely dilated, there was constant working of the lips and muscles of the face; the pulse was very rapid—120 to 130 per minute—and the heart's action very irregular and rapid. She had a staggering gait which did not allow her to walk without assistance. She complained of needles under her feet on standing; she said there was dryness of the throat, and there was no erythema of the face. She was kept in the hospital for three hours before she was able to go home. She was given half an