Chamberlain[23-25] are particularly relevant. These authors have reported that an endogenous clock mechanism seems to be involved in regulating both the sensitivity of the visual system and the extent of locomotor activity of *Limulus*. A photosensitive neurosecretory cell, releasing a neurohormone capable of modulating neuronal activity, might be the simplest way to generate such diurnal activities.

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Daily variation in the eye's 5-HT stores

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Summary. Eyes from mice have been assayed for 5-HT content at various times during the day. 5-HT levels are highest midway in the light period and lowest during the dark period. In general this daily variation conforms with other published reports for variation of 5-HT stores in brain and pineal.

Daily variation in 5-hydroxytryptamine (5-HT) stores in brain and pineal are well documented[1-3]. Another neuronal structure with well established 5-HT stores is the eye[4,5]. We have wondered if 5-HT varies upon a daily basis in the eye and if so whether that variation conforms in its pattern to brain and pineal.

Methods. Albino male mice of the CFW strain (Carworth Farms, New City, N.Y.) between 19 and 21 weeks of age were used. They were kept upon a lighting regimen of 10 h light and 14 h dark. The mice were killed by cervical dislocation at 4 different times, 2.5, 5.5 and 8.5 h into the light period and 4 h into the dark period. Eye pairs were removed, cleaned of extraneous tissues and weighed. Eye pairs were then homogenized by hand and assayed for 5-HT using the method of Quay[6]. An Aminco-Bowmen spectrophotofluorometer was used and blanks and standards were prepared and carried through the whole procedure and read interspersed with the tissue samples.

Results. As seen in the table, there are daily variations in 5-HT level in the eye. The lowest levels are during the dark period and the highest during the mid-light period, with the difference being on the order of 2.5 fold.

5-HT levels in the eye of the mouse expressed as ng 5-HT per mg wet weight eye tissue. Times of measurements are shown as h after the onset of light or darkness

	Time measured			
	Light +2.5 h	Light +5.5 h	Light +8.5 h	Dark +4 h
n	8	8	8	6
$\bar{X}$	0.48	0.99	0.65	0.38
SEM	0.048	0.084	0.044	0.026

n, number of measurements; $\bar{X}$, mean value; SEM, standard error of the mean.

Discussion. 5-HT has been known in the eye for some time, as have the enzymes associated with its metabolism[4,5,7]. 5-HT synthesis from exogenous precursor has been described and can be modified by alterations in the lighting regimen[8], however, there are differences in eye indoleamine biochemistry when compared to other structures[9,10]. Light related normal variations in the 5-HT stores of brain and pineal have been reported a number of times, and in general the levels are low during the dark period and high during the light period, although the patterns are not all duplicates of each other[1-3]. Since, as we have found here, the eye shows a similar kind of variation the same caution concerning time of day that is used in other indoleamine studies must also be exercised in investigations of the eye.

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