most instances, surprisingly long, averaging about 100 ms, Q = 45 ms, range 30–300 ms. All but four of these measurements were made on direction-sensitive units versus those responding well to movement in any direction, but the latencies for the latter four units were all less than 100 ms (32, 64, 77, 80 ms).

STROBOSCOPIC FLASHES. Almost half the units encountered responded to diffuse flashes (Table 1). The shortest latencies of discharge following a stroboscopic flash (Fig. 3) are consistent with those for the earliest components of the evoked potential in the present and previous observations (15). In most instances four to six spikes followed the flash, the pattern being more variable for the later spikes in each series. In several units only one spike occurred, and in one there were as many as 15.

If allowance is made for the fact that time for full illumination or extinction is about 9 ms with a local flash subtending 1° or less, the latencies are similar to those seen with the diffuse, stroboscopic flash. Their range, however, is greater. The latencies for on- versus off-units in this instance are also significantly different.

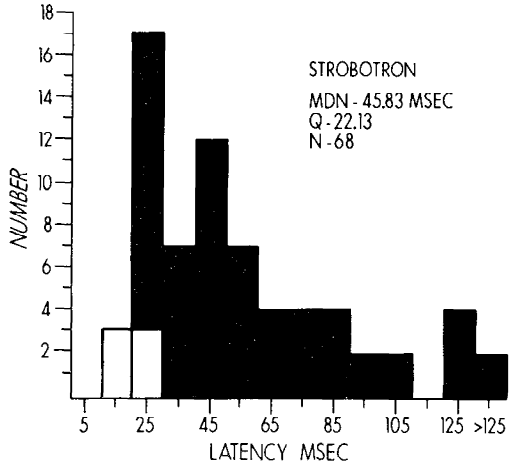

FIG. 3. Distribution of latencies of unit responses to stroboscopic flash. Open bars signify latency to inhibition of background discharge (e.g., Fig. 4), remainder signify onset of evoked discharge. Q here and elsewhere is the "semi-interquartile range," a measure of variation related to medians. It represents half the range of the middle 50% of values. (Standard deviation cannot be used because values do not form a normal distribution.)

Figure 4 and Table 2 indicate that the earliest response to a stroboscopic flash may be inhibitory. Detection of such inhibitory action requires either a high level of spontaneous activity or accumulation of the response to many flashes. It is thus probable that a number of such inhibitory responses were not detected. The histogram in Fig. 3 and some of the statistical analyses may thereby have been slightly distorted.

RESPONSE TO ELECTRICAL STIMULATION. Although there were occasional exceptions (Fig. 1), stimulation of OT, when effective, produced only a single discharge with varying degrees of probability of response to each stimulus. The probability of discharge was, of course, usually increased with increasing stimulus intensity.

Stimulation of OR, on the other hand, produced two or more discharges in about 50% of the cases where it was effective. Two units responded with a burst of up to 10 discharges beginning 15–20 ms after a stimulus pulse to OR, and lasting 20–30 ms.

In the experiments of series II, where two sets of electrodes each were placed in OT and OR, the number of units which could be discharged by stimulation of these sites doubled as compared to the animals

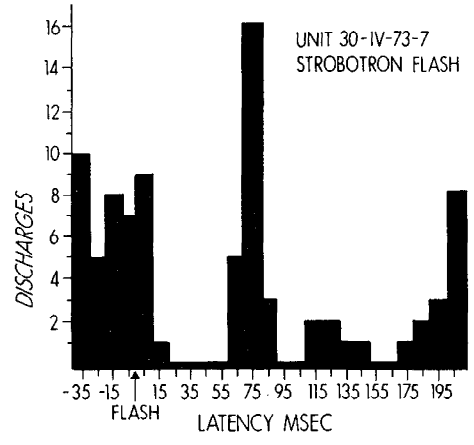

FIG. 4. Poststimulus histogram showing inhibition and excitation following stroboscopic flash. Summation from 50 flashes, bin width 10 ms. Unit was sensitive to direction of movement, had a background of 9/s in light, 11/s in dark, and latency of 5 ms to stimulation of OT; foveal receptive field, 1.8 deg^2.