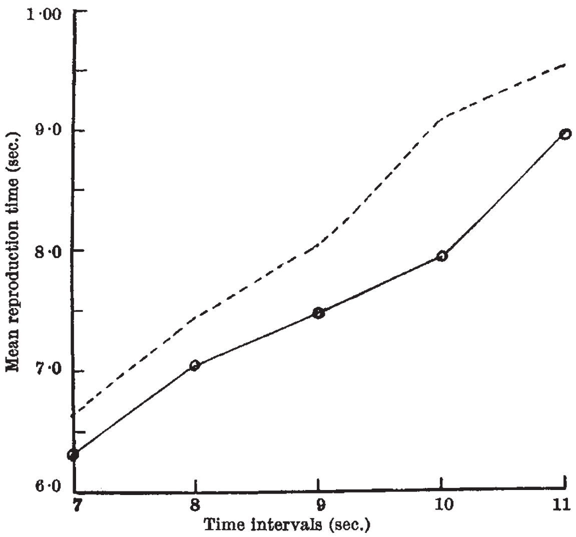

Experiment I, Ten subjects : ———, single light ; - - - -, two lights

few minutes between the series. Each series consisted of twenty trials, with the lights placed 8 in., 16 in. and 32 in. apart respectively, in that order of presentation. The visual angle approximated to 10°, 20° and 40° for each series, as light *A* was held constant and light *B* varied, again in a horizontal direction. Light *A* was to the subject's left, while light *B* varied on each series in small steps farther to his right. The 32-in. position was the same as for experiment I. Seven of the previous ten subjects took part.

Experiment III. The two lights were set in line facing the subject ; one light was 18 in. above the table and 32 in. behind the other. Eighty readings were taken in one series, a pause of five minutes rest being given after forty readings. In this series the subjects were instructed to fixate a point half-way between the two lights, in order to minimize eye-movements. In this experiment six new subjects were introduced.

The results are given in the accompanying table and graph. They seem to endorse the findings by Cohen *et al.* that a temporal interval between two successive flashes of light will seem longer as the distance between the corresponding flashes increases. The results of the first experiment were subjected to statistical treatment, and show a significant difference in the estimations made under the different sets of conditions. In all three experiments the results were unaffected by the order in which the lights were flashed in the vertical or horizontal planes.

Mean Reproduction Time in Seconds

Intervals in sec.	Experiment I 10 subjects		Experiment II 7 subjects		Experiment III 6 subjects	
7	I	6·30	8 in.	5·93	I	6·49
			16 in.	6·39		
	II	6·64	32 in.	7·07	II	7·09
8	I	7·13	8 in.	6·50	I	7·38
			16 in.	7·15		
	II	7·44	32 in.	8·05	II	8·16
9	I	7·46	8 in.	7·06	I	7·74
			16 in.	7·22		
	II	8·01	32 in.	8·28	II	8·54
10	I	7·93	8 in.	7·67	I	8·54
			16 in.	8·51		
	II	9·09	32 in.	8·99	II	9·11
11	I	8·96	8 in.	8·39	I	9·04
			16 in.	9·11		
	II	9·51	32 in.	9·49	II	9·71

I, Single light ; II, two lights.

The intervals used by Cohen *et al.* ranged from 0·6 sec. to 6·4 sec. They state that within their range the effect tends to diminish as T increases. The undiminished effect here shown to occur with larger intervals may be due to some peculiarity in the phenomenon, or to the fact that the previous experiments were done in the dark, or to other differences in the experimental conditions. Furthermore, in experiments I and III, and in one series of experiment II, the unit of distance was 32 in., whereas in the previous experiments the fixed distance was set at 1 ft.

Cohen, Hansel and Sylvester conclude that "the spatial and temporal components of the space–time events about which judgments are made are psychologically interdependent". That is the conclusion which must obviously be drawn here. However, it might be advantageous to pursue the matter in relation to phenomenological motion. It may well be that, in the *kappa* phenomenon, an 'imputed motion' is experienced by the subject which influences his temporal judgment.

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A Nickel–Gallium Superlattice (Ni_3Ga)

The nickel–gallium system has been investigated by Hellner[1], who stated that the nickel solid solution extended to 28 atomic per cent gallium, while the lattice parameter increased to 3·591 A. at the solubility limit. However, in the course of a systematic investigation of nickel alloy lattice parameters, which will be published in due course elsewhere, we have found a Ni_3Ga phase with the Cu_3Au superlattice structure. The nickel–gallium system is similar to the nickel–aluminium system[2] in that the ordered phase has a relatively small homogeneous range, while on the nickel-rich side a wide heterogeneous range is found at low temperatures, producing a considerable difference of lattice parameter of the two co-existing cubic phases.

A survey of known Ni_3X phases shows that when the radius-ratio (r_X/r_{Ni}) is equal to or less than 1·12, superlattice structures are formed by an ordering of the face-centred cubic nickel solid solution, and the temperature of formation is related to and increases with the radius-ratio.

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