the other to a dilution of 1/640. Normal rabbit serum failed to inhibit hæmadsorption.

Since hæmadsorption could be blocked by treatment of infected cells with anti-virus serum, but not by anti-erythrocyte serum, it appears that the first of the two explanations is the correct one. The 'stickiness' of infected HeLa cells is evidently associated with specific viral antigens present at the cell surface, so that the results provide corroboration of Roane and Roizmann's[4] finding that new antigens appear at the surface of HeLa cells infected with herpes simplex virus.

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PSYCHOLOGY

Effect of Conceptual Cueing on the Recall of Order

It has been demonstrated by Averbach and Sperling[1] that, when using brief visual displays of between four and twelve letters or digits, the level of percentage recall is higher when only a part of the display has to be recalled than when the whole is required. It was contended that peripheral mechanisms subserved this effect.

The work recorded here used auditorily presented lists to discover if an analogous effect, probably of central origin, was demonstrable. Lists of the same twelve items were repeatedly used. To involve selection of abstract qualities the lists were made up of the cardinal points of the compass, the suits of cards and the names of the gospel writers. Eighteen lists were recorded: nine for the partial recall condition, nine for the total recall condition. Each list of each condition had one of the nine different combinations of different category/quartet list structure. (A quartet is one of the three sets of four consecutive serial positions of items in a twelve-item list: 1–4; 5–8; 9–12.) Hence, pairs of lists corresponding in structure were used, one being cued 'all', the other with one of the category cues: 'Compass', or 'Suits', or 'Gospels', for the total and partial recall conditions, respectively.

Subjects knew the items in the lists before presentation and that they occurred in blocks of four members of one category at a constant rate. There was a constant interval of 1 sec between items. The instructions and practice lists preceding the presentation of experimental lists acquainted subjects with their task. This was to say the whole list or a part in accordance with the one word succeeding the list attempting to reproduce the order of presentation of the last list's items. Subjects recorded their responses on a stenorette and these were later scored.

Three indices of the recall of order were used:

Score 1—the total number of individual words which occurred in the correct positions in response lists, over all nine total recall and all nine partial recall lists, subject by subject, for all subjects.

Score 2—the number of times in which partial recall is better than total recall (P–T positive) and the number of times that the reverse was the case (P–T negative) in the nine pairs of lists corresponding in category/quartet structure, subject by subject, for all subjects.

Score 3—the number of occasions on which a complete quartet was correctly given in the correct order and position, in each condition, subject by subject, for all subjects.

With eight subjects all these indices showed performance to be significantly better ($P < 0{\cdot}01$ in all cases) in the partial recall condition. The results appear in Table 1; *n.b.*, direct comparison across conditions is possible as only the relevant quartet of the total recall condition response was scored.

Table 1

Subject	Score 1		Score 2		Score 3	
	Partial	Total	$P-T$ (positive)	$P-T$ (negative)	Partial	Total
M. B.	27	21	4	3	5	4
A. H.	26	7	6	1	6	1
K. H.	28	22	4	3	6	4
A. S.	23	19	5	4	4	3
R. B.	29	13	6	1	6	2
G. R.	29	24	3	2	7	5
C. W.	25	18	4	1	5	3
T. K.	24	11	7	2	5	0
Totals	211	135	39	17	44	22
Means	26·25	16·88	4·88	1·88	5·50	2·75

An information analysis of the transmission of order information gave complementary results. A graph (Fig. 1) was plotted of efficiency of transmission against transitions. Transitions are those periods at which the orderings of items are decided; schematically:

List Quartet presented		North		East		South		West	
Transitions	1st		2nd		3rd		4th		Time
Response Quartet scored		North		East		West		South	

Here errors appear at the 3rd and 4th transitions.

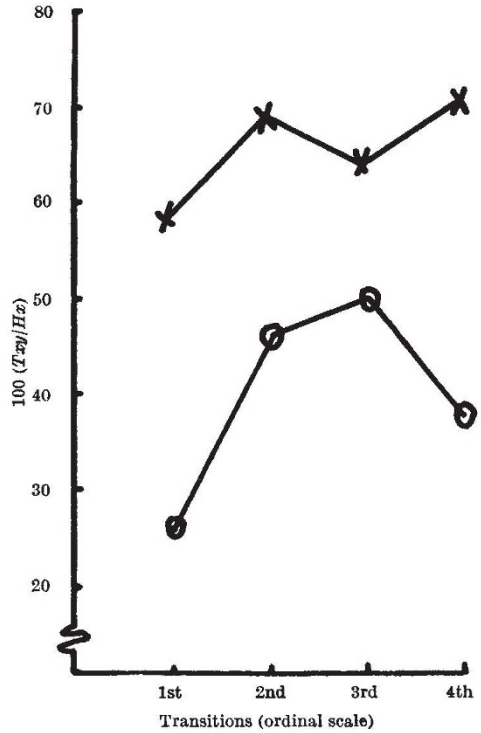

Fig. 1. Efficiency of transmission plotted against transitions. ×, Partial condition; ○, total condition

These results are analogous to those reported earlier by Averbach and Sperling and demonstrate that such improvements in recall need not be limited to recall subserved by peripheral storage.

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[1] Averbach, E., and Sperling, G., in *Information Theory* (Butterworth, London, 1961).