slopes for positive and negative responses, as Sternberg[4] pointed out. If the time taken on this decision, as to which member of CS matches TS most closely, is a linear function of the size of CS, and if the decision is more difficult and takes longer when the items are drawn from a similar population than when they are drawn from a neutral population, then the obtained result may be deduced.

LINDA WILCOX
J. M. WILDING

Department of Psychology,
Bedford College,
University of London.

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Eye to Eye Transfer of an Early Response Modification in Chicks

ZEIER[1] reported that trained loss of a cliff-avoidance response did not transfer from eye to eye in the chick whereas imprinting and pattern discriminations do transfer in birds. He suggested "It is possible therefore that tasks involving responses for which there is a strong inherent disposition are more easily transferred from eye to eye than are reactions that run counter to an innate response tendency". I have observed, however, transfer of a learned response that runs counter to the "innate" tendency of chicks to peck small targets.

The basic procedure has been described[2,3]. When neonate white Leghorn cockerels are presented with a small target, nearly all peck it within 10 s. Repetition of this response can be suppressed by a single presentation of the target coated with an aversive liquid such as *n*-propanol[4] or methyl anthranilate[2,3,5]. I have used this response modification to study transfer by training chicks with one eye occluded followed by testing after 16–128 min with the contralateral eye occluded.

The original occluder was a Band-Aid "sheer spot" (Johnson and Johnson), a 22 mm circular adhesive plastic with a 10 mm central gauze pad; the pad was centred over the eye. In a second experiment two "sheet spots" were overlapped to a long diameter of 26 mm. Each occluder was inspected before each target presentation and pressed down or replaced as necessary. Each monocular occluder, whether shifted or not, was replaced with a fresh occluder before the test trial to equalize handling conditions. Chicks tested binocularly wore a monular "occluder" left open rostrally to permit vision; it was also replaced. The ability of "sheer spots" to block vision was confirmed by presenting the target to chicks ($n = 40$) with both eyes occluded. No pecking occurred in 97·0 per cent of 200 presentations; the comparable rate for chicks with monocular or binocular vision was 8·3 per cent.

The training target, a 3×5 mm microminiature lamp, was dipped into methyl anthranilate just before presentation to each experimental chick or into water before presentation to each control chick. The lamp was dry during all test presentations. The novel test target was a dry 3 mm stainless steel bead[5]. The chicks were individually blind-coded between training and testing. The interval between training and testing was 16, 32, 64, or 128 min in the first experiment; the results were independent of the interval and are pooled in Table 1 (groups 1–4). A single training-testing interval of 120 min was used in the second experiment (Table 1, groups 5–10). Chicks trained monocularly transferred the peck avoidance response to the contralateral eye (groups 1, 2 and 5). In the first experiment (groups 1 and 2) 75 per cent of chicks trained monocularly avoided the lamp target when tested with the untrained eye; in a separate experiment[2] with normal binocular training and testing, the mean avoidance was 74·5 per cent and the range was 62·5 to 85·0 per cent in twelve groups ($n \approx 40$ per group). In the second experiment, chicks tested with the untrained eye (group 5) had a higher avoidance than chicks tested with the trained eye (group 6) or binocularly (group 7) but the differences were not statistically significant ($\chi^2 = 1{\cdot}20$, $P > 0{\cdot}2$; $\chi^2 = 2{\cdot}98$, $P > 0{\cdot}08$, respectively). There was no evidence of significant lateralization; the pooled avoidance of all L–R chicks (trained with the left eye, tested with the right eye) did not differ significantly from the pooled avoidance of all R–L chicks (41/50 versus 36/50; $\chi^2 = 0{\cdot}90$; $P > 0{\cdot}3$). The test with the novel bead target ruled out a general performance deficit as a factor in the avoidance response; the results demonstrate that peck performance *per se* was normal, because 82·5 to 100 per cent of each group pecked the bead.

Table 1. DISCRIMINATED TEST RESPONSE OF CHICKS TO THE TRAINING TARGET (LAMP) AND A NOVEL TARGET (BEAD)

Group		Condition	Train-test interval (min)	Lamp A	Lamp P	Lamp Per cent A	Bead A	Bead P	Bead Per cent A
1	Exp.	L–R	16–128	31	9	77·5	7	33	17·5
2	Exp.	R–L	16–128	29	11	72·5	6	34	15·0
1,2	Exp.	L–R, R–L	16–128	60	20	75·0	13	67	16·3
3	Control	L–R	16–128	8	32	20·0	0	40	0·0
4	Control	R–L	16–128	6	34	15·0	2	38	5·0
3, 4	Control	L–R, R–L	16–128	14	66	17·5	2	78	2·5
5	Exp.	L–R, R–L	120	17	3	85·0	3	17	15·0
6	Exp.	L–L, R–R	120	13	7	65·0	0	20	0·0
7	Exp.	Binocular	120	11	9	55·0	1	18	11·1
8	Control	L–R, R–L	120	2	18	10·0	0	20	0·0
9	Control	L–R, R–R	120	3	17	15·0	0	20	0·0
10	Control	Binocular	120	3	17	15·0	2	18	10·0

Experimental groups (Exp.) were trained to avoid the lamp by coating it with methyl anthranilate; control groups were "trained" on the lamp coated with distilled water; L, left; R, right; L–R condition signifies training with left eye open, testing with right eye open; R–L condition signifies the reverse; L–L and R–R signify training and testing with the same eye; A, avoided target; P, pecked target.

The successful interocular transfer of trained loss of "innate" pecking behaviour runs counter to the generalization suggested by Zeier[1]. Possibly the explanation is to be sought in one of the other reported determinants of interocular transfer in birds, for example position of the relevant stimulus in the visual field[6].

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ARTHUR CHERKIN

Psychobiology Research Laboratory,
Veterans Administration Hospital,
Sepulveda, California 91343 and
Division of Anesthesia,
University of California School of Medicine,
Los Angeles, California 90024.

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Faeces of the Medicinal Leech, *Hirudo medicinalis*, are Haem

The pigmented tissue around the gut of the blood feeding leech, *Hirudo medicinalis*, was regarded by Moquin-Tandon in 1826 (ref. 1) as a liver. Spiess[2] challenged this concept on the grounds that the pigmented tissue was not