is involved in either S35 or S52, but such an agent has been demonstrated in other affinis strains by Williamson, 1961, and others.

Unfortunately both S35 and S52 have been lost in a fire, but new CO_2 sensitive affinis strains are now being established with the aim of studying the variation in sensitivity which seems to exist in this species.

References: McCrady, W.B. and R.L. Sulerud, 1964 Genetics 50:509; Willismson, D.L. 1961, Genetics 46:1053.

Søndergaard, L. University of Copenhagen, Denmark. Studies on the behavour of the paralytic mutant Out-cold^{ts}.

When females heterozygotic for Ocd^{ts} are transferred from 25°C to 19°C (or below) they show a constant sequence of behavoural patterns: 1) uncoordinated movements of the legs so that they fall on their backs, 2) flexion of the first and strong deflexion of the second and third pairs of legs, 3) flutter of the wings so that the flies flop around in the vial (20% of the flies do not show wing flutter). After this sequence the legs are relaxed and the flies are immobilized. When shifted back to 25°C immobilized flies recover mobility within 1-5 min dependent upon how long they have been kept at a low temperature. The duration of the behavoural patterns 1 and 2 does not vary between specimens, but varies with the magnitude of temperature shift down from 25°C (Fig. 1).

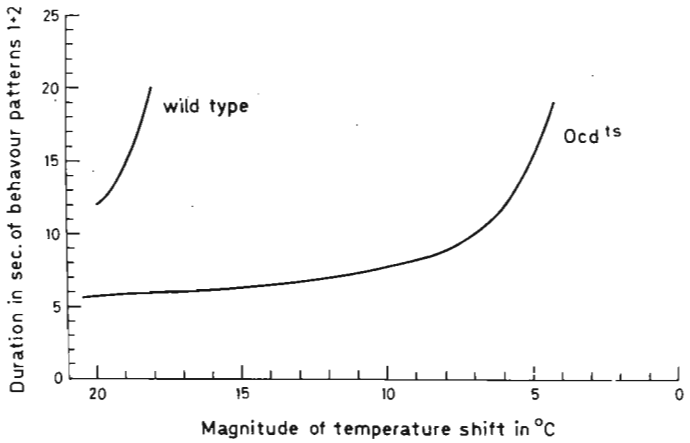

fig.1

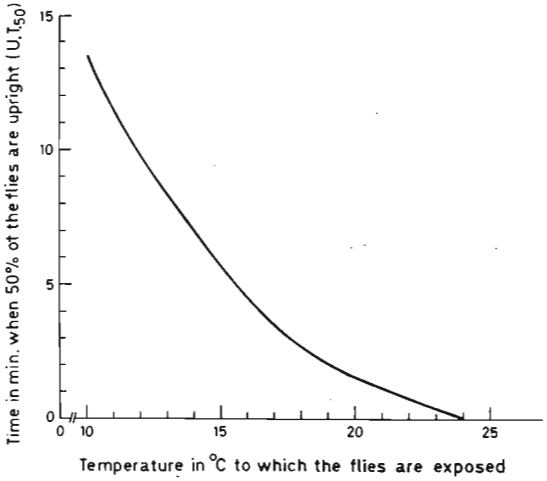

fig. 2

Even when flies are shifted from 25°C to between 20°C and 23°C they are affected, but an increasing number show only uncoordinated leg movements (39% at 20°C and 80% at 23°C).

Paralyzed flies kept at low temperatures regain normal behavour after some time (Fig.2). Wild type flies when shifted to a temperature of 7°C show a similar behavour, but take a longer period of time to become paralyzed.

Ocd^{ts} males at 25°C walk in a reeling manner and fall over frequently; only after a long period of time of kicking do they rise again. Usually only about 50% of the males in a population are upright at a given time. About 40% hold their wings in a drooped position. Ocd^{ts} males are smaller than normal males, and tend to stick in the media immediately after eclosion. They are weak and even when prevented from drowning they will not survive for 48 hours. The males as well as the females are affected by low temperatures. Although incapable of flying, they flutter their wings after cold shocks, as do the females.

Ocd^{ts} flies show leg shaking when etherized, although not as much as the mutant HK_2. Etherized flies and flies injected with tubocurare will show no paralytic behavour in connection with cold shocks. Wild type flies fed a sublethal dose of DDT behave as a phenocopy of Ocd^{ts} males. These observations suggest that Ocd^{ts} mutants are in some way affected in the nervous system.