

TAXIS — If a stimulus comes from a specific direction, the animal may orient itself with respect to source of the stimulus, such response is called a taxis. For example, swimming of green flagellates towards the light is phototaxis.

and movement of spermatozoa towards chemical substances secreted by eggs is chemotaxis.

To find more complicated aspects of taxis responses, the best example is shown by flat worms. If a small piece of liver is placed at a 100 mm. from a hungry flat worm in a disc of water, the animal glides towards the food. As it moves, it waves its head from side to side and appears to compare the intensity of the stimulation on the two sides of the head.

Once it is within 20 or 30 mm. of food it approaches in a straight path under these circumstances, it seems to be able to compare the intensity stimulation on both sides simultaneously.

ANALYSIS OF SPECIES CHARACTERISTIC BEHAVIOUR — It is well known that species characteristic behaviour is controlled by

gene interacted with the environment. Some idea of relative importance of genetic and environmental influences may be gained by studying the behaviour patterns of an animal reared in isolation. The animal is separated from others, including its mother, as soon as possible after birth. On reaching maturity its responses to stimuli, and its behaviour generally are compared with those of animal reared normally.

The instinct is also species specific behaviour which is inborn that is under genetic control developing independently of the environment. But in fact no behaviour can entirely be free of environmental influences. It is not even true to say that certain parts of a behaviour pattern are instinctive. This behaviour pattern is a single entity which must be looked upon

as the result of an interaction between genes and environment.

ROLE OF STIMULI AND MOTIVATION IN BEHAVIOUR PATTERN —

(a) ROLE OF STIMULI — For convenience we may distinguish between three kinds of stimuli, those which determine the animal's state of responsiveness (called motivational stimuli), and those which elicit particular responses when the animal encounters them (called releasing stimuli), and those which bring an act of behaviour to an end (terminating stimuli).

In feeding behaviour the smell of food may raise the animal's state of responsiveness, may make it more 'conscious' of being hungry as it were, and therefore serve as a motivational stimulus. On the other hand the sight of the food may act as a releasing stimulus unleashing feeding behaviour.

Finally a full stomach may act as a terminating stimulus bringing feeding behaviour to an end.

In general a releaser is any feature of the environment which can be positively shown to evoke a behavioural response. In some cases, as in courtship, the releaser may be a feature possessed by another individual, its colour, shape and a particular marking.

In sexual reproduction releasers may be very important in changing an animal's occasionally aggressive behaviour to sexual behaviour. An example of this is provided by the courtship of certain species. The female's normal tendency is to attack and eat any other spider that approaches her. However, when a male advances towards the female he signals to her in a characteristic way, which is

one species involves waving his palps. This acts as a stimulus, changing the female's behaviour from predatory to sexual. The story has a sad ending however, for copulation her behaviour reverts to aggressive and she divorces her mate.

Stimuli is responsible for a piece of a behaviour bringing it to an end. Sometimes the same stimulus is responsible for the end of one piece of behaviour and one set of the another piece of behaviour. For example, when the male stick back reaches its breeding ground certain stimuli arising from its immediate environment brings its migrate behaviour to an end and initiate territorial behaviour in which it becomes aggressive towards other male.

Sometimes stimuli

may be of internal origin.
Example - the water drinking behaviour.

(b) **MOTIVATION** — The process which is responsible for desiring the internal state which must precede a specific out of behaviour is known as motivation. This process results from the animal's internal physiological state, particular level of different hormones in the body.

(c) **PHEROMONE** — It is a chemical substance, produced by one animal which influences the behaviour of another. It may achieve this either by the outing as release or by building up motivation towards a particular type of behaviour. For example - secretion of chemicals which are used for making out territory, attracting a mate.