

Gobind Khorana and My Current Research on *Drosophila* Behavior

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Here we honor Gobind. The day Gobind and I came to Madison, in August 1960, we accidentally met each other for the first time on Picnic Point. So that was 59 years ago. Gobind and I soon became close friends and collaborating colleagues. Although I shared work with Gobind in that first year, he encouraged me to study what interested me the most. That was - and is - the behavior of organisms.

After 50 years of research on the behavior of motile *Escherichia coli* bacteria, I turned my attention to the behavior of animals - people, mice, *Drosophila* fruit flies. I want to tell you today about an aspect of that.

Organisms are attracted by things that are good for them and repelled by harmful things. When an attractant is together with a repellent, the organism must decide what to do. This is a crucial decision as life may depend on it, so the "highest" part of the organism is called upon to make this decision. In people and other mammals it is the prefrontal cortex that is involved. Recent experiments by Edmund Rolls and his colleagues at Oxford on decision-making in humans support this role of the prefrontal cortex. My own experiments, done by undergraduates here, deal with such decision-making but in *Drosophila*. The advantage of *Drosophila* over people is that mutants can be isolated, as we have now done, and then these mutants will be used to identify the genes involved and to characterize the proteins needed, so that the mechanism can be elucidated. In *E. coli* we had already found such decision-making.

An account of this work is presented in "In Search of the Boss: The Thing that Controls each Organism", prefatory chapter of Annual Review of Biochemistry, 2010.

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