Editor in the field
Caltech's Division of Biology

Elliot Meyerowitz, the chairman of Caltech's Division of Biology, has two offices. The first is adjacent to his lab in the Church building and is no different from that of any other principal investigator. The second, nearby, has a more ceremonial feel to it and serves as the chairman's office. In a pinch, it doubles as a small museum devoted to the history of biology at Caltech, and as Meyerowitz narrates a brief tour with the aid of the photographs on the walls, the names of those who have passed through since the division's founding in 1928 are rattled off quickly: T.H. Morgan, Alfred Sturtevant, George Beadle, Calvin Bridges, Albert Tyler, Barbara McClintock, Conrad Waddington, R.A. Emerson, Max Delbruck, Theodosius Dobzhansky, Edward Lewis, Roger Sperry. That Caltech was a pre-eminent home of genetics almost from the start is clear: "They immediately had a lot of distinguished visitors," says Meyerowitz. "It was going very well in the mode of being the world center of genetics in the 1930s…. After the war Beadle came in as chairman and he immediately brought in a new group of people, many of whom had been postdocs at Caltech earlier on." The intergenerational links between members of the division's faculty are so numerous that a complex pedigree makes more sense of it than a list of names. Nodding to the photographs, Meyerowitz adds, "The only one of all these people who's still alive is C.C. Tan (a student of Dobzhansky's), who became vice president of Fudan University. He really founded all of Chinese genetics as it exists today."

Can Caltech keep it up, given the much broader distribution of resources in today's scientific world? "I don't know why not," replies Meyerowitz. "It's been done over and over in fly genetics in the 20s and 30s here, with molecular genetics in the 40s and 50s. Right now there are really three themes in the division—there's developmental/regulatory biology; cell, molecular and structural biology; and neurobiology. We're also opening up a front into computational biology. So I think it's possible to start a new area and become the world center of it, even in today's busy world of science, if you're careful and concentrate on answering fundamental questions, work very hard to get the very best young people, and let it grow."

The division does seem adept at achieving the right mix of established investigators and new recruits. Longtime faculty members Seymour Benzer and Eric Davidson are just two examples of researchers who developed programs that have evolved to encompass new approaches and new questions. Benzer's group continues its work on the genetic basis of behavior in *Drosophila melanogaster* but has also published in recent years on genetic and nongenetic factors affecting longevity. Davidson carries on the tradition of sea urchin research at Caltech, generating maps of gene regulatory networks and participating in the project to sequence the genome of the sea urchin. Meyerowitz himself leads a program in *Arabidopsis thaliana* biology that has grown beyond a purely genetic analysis of flower development to include the use of *in vivo* live confocal microscopy and computational modeling to understand better the control circuit that modulates the size of the apical shoot meristem.

All this work takes place in the cluster of Spanish Renaissance buildings that are the hallmark of the Caltech campus. But two of the newer recruits, Michael Elowitz and Angelike Stathopoulos, are housed in the new Broad Center for Biological Sciences, just down the street on Wilson Avenue, with a much better view of the San Gabriel Mountains to the north. Elowitz is part of Caltech's move into computational biology ("voting with our feet," says Meyerowitz), and his joint appointment in applied physics reflects both his training and his work on the behavior of oscillatory networks in bacteria and on the stochastic nature of gene expression. Stathopoulos, whose work is in the vanguard of those using microarrays and whole-genome approaches to study development, is mapping the network of interactions downstream of the transcription factor Dorsal during dorsal-ventral patterning in *D. melanogaster*.

"We're in the process of expanding," says Meyerowitz. "I think we could easily, over the next few years, hire seven more people and have room for them. There's another form of expansion that's been going on, though, which is that biologists have been getting hired in other divisions at Caltech, and biology's become a campus-wide theme over the last 5 or 10 years." This blurring of traditional boundaries includes people like Michael Dickinson in bioengineering, who studies how insects fly. Meyerowitz adds that, in a sense, this is nothing new: "Even (Richard) Feynman used to spend his summers growing phage here in the 1950s."

Though forward-looking, Caltech also has a keen sense of its own history, and nowhere is this better exemplified than in a small room on an upper floor of the Church building, which houses the reprint collection of many of the founders of the Division of Biology. Meyerowitz points to one particular paper and notes, "There's the little paper that started this great place—that is, Morgan's first paper in *Drosophila* genetics, which eventually led his lab to figure out that chromosomes carry the hereditary material, that genetic maps could be constructed, and that made him prominent enough to get asked to start this division." ■