The 1999 GSA Honors and Awards

The Genetics Society of America annually honors members who have made outstanding contributions to genetics. The Thomas Hunt Morgan Medal recognizes a lifetime contribution to the science of genetics. The Genetics Society of America Medal recognizes particularly outstanding contributions to the science of genetics within the past fifteen years. This year we have established a new award. The George W. Beadle Medal recognizes distinguished service to the field of genetics and the community of geneticists. We are pleased to announce the 1999 awards.

Salome G. Waelsch

The 1999 Thomas Hunt Morgan Medal

Salome G. Waelsch

SALOME WAELSCH is truly the most well-deserving recipient of this last Thomas Hunt Morgan Medal of the twentieth century awarded by the Genetics Society of America, for her career has spanned nearly the entire century. Salome was born in Danzig, Germany, in 1907 and studied zoology as an undergraduate. She became fascinated by embryology and, in 1928, she was accepted for graduate studies in the Freiburg laboratory of the great developmental biologist (and later Nobel Laureate) Hans Spemann. Although it may be hard for biologists at the end of the twentieth century to understand, Spemann and many of his German embryology colleagues refused to consider the possibility that genes might have something to do with the process of embryonic development. Thus, Salome was forced to work on the problem of embryonic induction without recourse to genetic analysis.

Salome received her Ph.D. in 1932 from the University of Freiburg and moved immediately to her first academic appointment at the University of Berlin. Unfortunately, the timing of her move was not ideal, to say the least. Just a year later, Adolf Hitler consolidated his power over Germany. Among Hitler's many senseless acts was the firing of all Jewish academics who held university positions. Suddenly unemployed, Salome saw "the writing on the wall" and fled to New York City with

her first husband Rudolf Schoenheimer (who was also Jewish and an outstanding biochemist). After a period of three years without work during the Depression, Salome was hired in 1936 as a Research Associate at Columbia University with the great American geneticist L. C. Dunn.

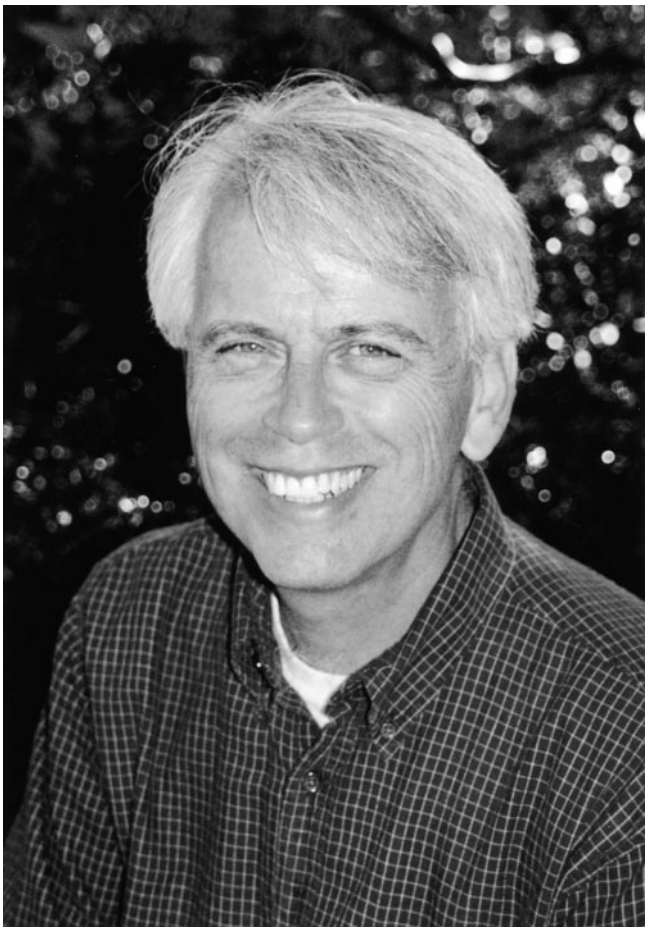
In Dunn's "mouse house" at Columbia University, Salome's scientific career flourished. She combined her embryological expertise with new-found genetic knowledge from her Columbia colleagues to demonstrate the very real role that single gene mutations in the mouse t complex had on the process of mammalian development and gametogenesis, repudiating her original advisor's antigene bias. Indeed, Salome was among the first to show the power of genetic analysis in the study of development.

While Salome experienced anti-Semitism firsthand in Nazi Germany, she experienced sexism firsthand in Ivy League America. After nineteen years at Columbia, and the publication of numerous breakthrough articles in genetics, Salome still held the same Research Associate position that she had been given at the beginning of her tenure there. In 1955, the Albert Einstein College of Medicine came to her rescue by providing her with a full faculty position in their new Department of Genetics, where she has remained ever since.

In 1980, I had the personal pleasure of working with Salome at Einstein, when she was just seventy-three years old. At that time, she still went into her mouse room every morning of the week to examine and record newborn mice and to set up new matings of animals that carried various mutations in the t complex on chromosome 17 and around the albino locus on chromosome 7. Her breeding studies were supported by one of the longest continuously running grants ever to be awarded by the American Cancer Society.

It was not until late in her career (when most people her age were already retired) that Salome was recognized for the major contributions that she had made to the field of developmental genetics and for her role in nurturing and encouraging women to pursue scientific careers. In 1979, she was elected to the National Academy of Sciences and made an Honorary Life Member of the New York Academy of Sciences. In the 1980s, she was made a Fellow of the American Academy of Arts and Sciences and the American Association for the Advancement of Science. In 1993, she personally received the National Medal of Science from President Clinton and Vice President Gore, and in 1995, she was made a foreign fellow of the Royal Society of the United Kingdom. Over these years, as well, she was awarded numerous honorary degrees, including one from Columbia University in recognition of their earlier inability to retain a truly great woman of science.

Lee M. Silver



Charles H. Langley. Photo courtesy of Stacia Langley.

The 1999 Genetics Society of America Medal

Charles H. Langley

CHARLES HUNT LANGLEY was awarded the 1999 Genetics Society of America Medal in recognition of his contributions to our understanding of genetic variation in natural populations and the population biology of parasitic transposable elements. Chuck has conducted seminal investigations that helped to reveal how polymorphism frequencies vary across the genome and helped to document the molecular basis of natural phenotypic variation. In the course of this work, he trained an entire school of investigators in the use of molecular-genetic methods of analysis in population genetics and dispersed them worldwide, many of whom now occupy key positions in major research institutions.

Chuck took his doctoral degree at the University of Texas at Austin with Ken Kojima and then did postdoctoral work at the University of Wisconsin at Madison with Jim Crow. In 1973, he joined the genetics community at the national Institute of Environmental Health Sciences (NIEHS), where he stayed until moving to the University of California at Davis in 1989. Following a long tradition among experimental population geneticists, he has consistently used Drosophila as his system of choice.

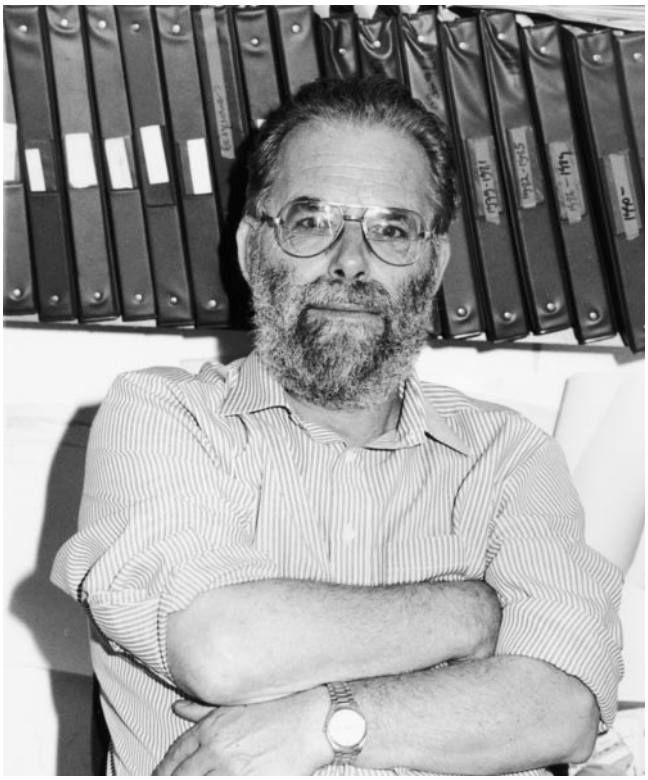
In years-long collaborations with Walter Fitch and John Gillespie, Chuck showed that the evolutionary molecular clock is substantially more erratic than had been suspected, contradicting some of the more simple versions of the theory of neutral molecular evolution. Walter remembers that Chuck did all the math and theory for their papers and introduced Walter to the wonders of maximum likelihood. Moving from the widely used one-dimensional systems for displaying protein mobility variants, Chuck, Andy Leigh Brown, and others adapted two-dimensional displays to show that levels of polymorphism in Drosophila's coding regions had been systematically overestimated. Working with Bob Voelker and others, Chuck showed that frequencies of null alleles in natural Drosophila populations can be explained by classical mutation-selection balance with average selection coefficients of about 10^{-3}; this value convincingly demonstrated the near impossibility of directly estimating selection on electromorphs. Chuck performed some of the first large-scale surveys of polymorphisms in nuclear DNA using restriction enzymes. With Brian Charlesworth and Norm Kaplan he described natural

variation in transposable element number and position and offered an attractive explanation for their distribution. More recently, Chuck and his collaborators showed that frequencies of DNA polymorphisms decrease in regions of the genome that have lower rates of crossing over, and they constructed a plausible theory to explain this effect. This theory, which uses coalescents, grew out of a long-standing collaboration with Dick Hudson. Chuck was among the first to appreciate the important role that coalescent theory plays in population genetics and he has been influential in its development and application. In another long-standing collaboration, with Trudy Mackay, Chuck used a "candidate locus" approach to unravel the molecular basis of phenotypic variation.

Chuck's *curriculum vitae* reveals a key aspect of his manner. After documenting his existence and education, it appends only two more entries: a brief chronology of employment, and an impressive list of publications. Having been his colleague and nominal chief for a number of years, I know firsthand that there has been far more to his life than these entries reveal. For instance, when the International Program Committees for both the 16th and the 18th International Congresses of Genetics ran into difficulties, my reaction was to assemble a small group of polymaths and ask them to draft an instant program of the highest possible quality. In both instances Chuck played a key role, personally (and until now invisibly) proposing a large portion of each program. It is thus historically just that he himself now chairs the International Program Committee for the 2003 Congress in Melbourne. I also well remember a terrible time in 1987–88 when an NIEHS Scientific Director turned viciously against the institute's genetics community, igniting a battle that fortunately resulted in the Scientific Director's resignation rather than our mass departure. In this battle Chuck once again played a key role, taking over the formal leadership of the community for several months until the drama played out. In the following year Chuck migrated to Davis, where he has continued to prosper.

More recently, Chuck became aware of some of the potential pitfalls of the populational aspects of human genome research. As a result, he has served on several key national committees focused on the kinds of information that must be collected in order to get the most from this huge enterprise.

Jan Drake



Michael Ashburner

The 1999 George W. Beadle Medal

Michael Ashburner

IT is a pleasure to recognize Michael Ashburner as the first awardee of the George W. Beadle Medal. Michael's early work on the regulation of ecdysone-induced chromosome puffs in Drosophila is truly seminal and laid the foundation for all subsequent work in the field. His model of the regulation of early *vs.* late puffs, which he drew from genetic and cytogenetic observations, is now largely supported by the molecular analyses carried out by his scientific progeny, all of whom acknowledge Michael's insight and founding contribution to their work.

Michael continues to play a very significant role in the Drosophila community. Over the years he has established himself as the repository of an encyclopedic amount of information on the genetics of flies and the relationship of the Drosophila system to other genetically tractable systems. He is one of the founding members of FlyBase, an electronic database of the genetics of Drosophila. He has produced, by editorial prowess or writing them himself, several extremely valuable compendia on the genetics and biology of Drosophila. These contributions to the community are widely recognized as invaluable to research in the area, and have earned Michael a prominent international reputation. It is not an overstatement to argue that Michael's book, *Drosophila: A Laboratory Handbook*, was instrumental in providing a critical primer on the "real genetics" of Drosophila to those entering the field from other disciplines. It is now cited as the primary source for many basic genetic techniques and approaches. Prior to the laboratory handbook, Michael's *Genetics and Biology of Drosophila* anthology served as the core repository of information regarding fly genetics and biology from the late 1970s to the early 1990s.

Michael also organized the Advanced Drosophila Genetics Course at the Cold Spring Harbor Laboratory and continues as its primary instructor almost fifteen years later. The number of important meetings and workshops he has organized is beyond count, as is the number of seminal review articles. But these public venues, while important, do not match the contribution he has made by the constant one-on-one tutelage of so many of us in the community (whether we desired it or not).

We can think of no one more deserving of this award. The Drosophila and genetics community benefit immensely from Michael's contributions. Those of us who have known him personally have been greatly enriched by him. His legacy of contribution, as well as those to come, will ensure that future generations of fly workers will owe him a similar debt of gratitude.

R. Scott Hawley
Thomas C. Kaufman

Previous Recipients of These Awards

Thomas Hunt Morgan Medal		Genetics Society of America Medal
Barbara McClintock and Marcus M. Rhoades	1981	Beatrice Mintz
Sewall Wright	1982	Gerald R. Fink
Edward B. Lewis	1983	Charles Yanofsky
George W. Beadle and R. Alexander Brink	1984	David S. Hogness
Herschel L. Roman	1985	Philip Leder
Seymour Benzer	1986	Gerald M. Rubin
James F. Crow	1987	Sydney Brenner
Norman H. Giles	1988	David Boststein and Ira Herskowitz
Dan L. Lindsley	1989	Allan C. Spradling
Charles Yanofsky	1990	Nancy Kleckner
Armin Dale Kaiser	1991	Bruce S. Baker
Edward H. Coe, Jr.	1992	Maynard V. Olson
Ray D. Owen	1993	Jonathan R. Beckwith
David D. Perkins	1994	Leland H. Hartwell
Matthew Meselson	1995	Eric Wieschaus
Franklin W. Stahl	1996	Elliot Meyerowitz
Oliver Evans Nelson, Jr.	1997	Christine Guthrie
Norman H. Horowitz	1998	Ronald W. Davis