

# Genetics Society of America

1992 Records, Proceedings and Reports

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## REPORT OF THE COMMITTEE ON HONORS AND AWARDS

The Society makes two awards annually to honor members who have made outstanding contributions to the science of genetics. The Thomas Hunt Morgan Medal recognizes a lifetime contribution to genetics. The Genetics Society of America Medal recognizes

particularly outstanding contributions to genetics within the past fifteen years. We are pleased to report that the 1992 Thomas Hunt Morgan Medal will be awarded to Edward H. Coe, Jr., and the 1992 GSA Medal will be awarded to Maynard V. Olson.

### 1992 Thomas Hunt Morgan Medal: Edward H. Coe, Jr.

The Thomas Hunt Morgan Medal is awarded annually for lifelong contributions to genetics. The 1992 recipient, Edward H. Coe, Jr., clearly qualifies both in terms of his basic research in maize genetics and his service on behalf of the maize genetics community.

Soon after receiving his doctorate, Dr. Coe independently identified paramutation at the *b* locus. Using only genetic and physiological data, he proposed a sequence in which the genes affecting anthocyanin synthesis operate that has been supported by subsequent biochemical and molecular research. He showed that the dominant inhibitor of anthocyanin synthesis was an allele at the *c* locus. He has made elegant analyses of morphological development in maize, including an estimate of the number of cells in the apical meristem of the embryo that are to become involved in the production of the male inflorescence, and he has devised screens for efficient detection of spontaneous haploids. With Neuffer he devised a method for the treatment of pollen with mutagenic agents that is a very effective means of producing mutations in maize. With Walbot he showed that plants homozygous for the nuclear mutation, *iojap*, produce ribosome-less chloroplasts in a programmed fashion. The *white pollen* locus was identified as a duplicate gene encoding the same function as the *c2* locus but expressed only in the pollen. The product of these loci is now known to be the enzyme, chalcone synthase, catalyzing the first dedicated step in flavonoid biosynthesis. Plants that are double mutants, *c2/c2; wp/wp*, do not produce functional pollen.

His service to the maize genetics community has been extensive and very important. Since 1975, he has served as editor of the Maize Genetics Corporation Newsletter, which is an effective means of communi-

cating on an informal basis. As a senior U.S.D.A. employee, he has been the liaison between the Maize Genetics Corporation Stock Center at the University of Illinois and the U.S.D.A., which has supported the Center. It has taken a large amount of time and a good deal of quiet diplomacy to keep the Center functioning effectively. He has been the point man in a cooperative effort to increase the number of morphological markers on the genetic map and most recently in making maps that combine the RFLP data with the isozyme and morphological marker map. With Neuffer he has written an informative and succinct 110-page summary of maize genetics, which has appeared as a chapter in *Corn and Corn Improvement*, edited by George F. Sprague, Jr. This summation is a boon to anyone interested in learning what maize has to offer as a vehicle for genetic investigations as well as the knowledge available at the time of writing.

Ed Coe has been an influential mentor both on a formal basis with graduate students and postdoctoral fellows and on an informal basis with biologists trained in other areas who were interested in doing research in maize genetics.

He was born December 7, 1926, in San Antonio, Texas and educated at the University of Minnesota (B.S., 1949 and M.S., 1951) and the University of Illinois (Ph.D., 1954). Following a year as a Research Fellow at the California Institute of Technology, he became a research geneticist with the USDA-ARS at the University of Missouri, Columbia, where he has remained. In 1977, he assumed the post of research leader of the USDA-ARS Plant Genetics Research Unit at Columbia, a position that he still holds.

OLIVER E. NELSON

### 1992 Genetics Society of America Medal: Maynard V. Olson

For Maynard V. Olson, the 1992 recipient of the Genetics Society of America medal, genetics is a second career. Maynard began his education as an inorganic chemist. He attended Caltech, where he was privileged to be one of the very few who actually took

introductory physics when Richard Feynman gave his famous lectures. Maynard found this to be a truly memorable experience. He received his Ph.D. in inorganic chemistry from Stanford University in 1970; his mentor there was Henry Taube. Maynard contin-

ued his career as instructor and then assistant professor in the Department of Chemistry at Dartmouth College.

Maynard's life as a geneticist began in 1974, when he spent a sabbatical year at the Department of Genetics at the University of Washington in Seattle, working with Ben Hall. Maynard's collaboration with Hall was singularly creative and productive, so much so that he ended up remaining in Seattle for three additional years. Those were the early years of recombinant DNA, and Maynard was a major contributor to the cloning and sequencing of all the tyrosine tRNA genes of yeast, an achievement that included the co-discovery of intervening sequences in eukaryotic tRNAs.

The aspect of Olson's tRNA work in Seattle that seems most striking in retrospect, and in light of what was to come, was the feat of mapping each of the eight cloned tRNA genes to the corresponding genetic loci, each of which had been defined as the site of a tyrosine-inserting suppressor of ochre mutations. The method Maynard devised took advantage of the differences in restriction sites near the tRNA genes among laboratory yeast strains. By making crosses in which he could follow both a single locus genetically (by virtue of the ochre suppressor) and the polymorphic restriction sites physically (by Southern blots using the tRNA as probe) Maynard and his co-workers were able to assign each of the eight tyrosine tRNAs to its genetic map position. This was, of course, one of the very first uses of restriction fragment length polymorphisms to map a cloned gene.

By 1979, Maynard was a confirmed yeast molecular geneticist, and in that year he joined the Genetics Department at the Washington University School of Medicine in St. Louis, where he rose through the ranks from assistant professor to professor. Shortly thereafter he began his ambitious, but eventually com-

pletely successful, program to produce a continuous physical map, consisting of overlapping cloned segments and a restriction map derived from these clones, of the entire genome of *Saccharomyces cerevisiae*. Maynard Olson was the first to see the possibility and the value of such physical maps. Much of the approach, as well as the technology, of modern physical mapping of complex genomes (including those of the nematode *Caenorhabditis elegans* and the human) can be traced to the yeast effort of Olson and his group. A noteworthy advance was Maynard's extension and reduction to practice of the pulse-field gel electrophoresis, which allowed the separation of the intact DNA of the yeast chromosomes and brought this technology into common use.

More recently, Maynard took up the study of the problem of physical mapping of the human genome. His entry into this field has had revolutionary consequences. His development of the yeast artificial chromosome (YAC) cloning system made practical, for the first time, the production of reliable physical maps of human chromosomes over distances of several megabases of DNA. His inspired proposal of a common language based on short stretches of unique sequence (sequence-tagged sites; STSs) as mapping landmarks a basis for detecting overlaps has become the enabling technology for the mapping portion of the Human Genome Project.

Maynard Olson has made extraordinary scientific contributions to our discipline. He, more than anyone, has brought to fruition the convergence of genetic and physical mapping. He has shown others the way both by innovative strategies and the introduction of appropriate practical techniques usable by all. For these accomplishments, Maynard Olson richly deserves the 1992 Genetics Society of America medal.

DAVID BOTSTEIN

### Recipients of GSA Honors

#### Thomas Hunt Morgan Medal

1981 Barbara McClintock, Marcus M. Rhoades  
 1982 Sewall Wright  
 1983 Edward B. Lewis  
 1984 George W. Beadle, R. Alexander Brink  
 1985 Herschel L. Roman  
 1986 Seymour Benzer  
 1987 James F. Crow  
 1988 Norman H. Giles  
 1989 Dan L. Lindsley  
 1990 Charles Yanofsky  
 1991 Armin Dale Kaiser  
 1992 Edward H. Coe, Jr.

#### Genetics Society of America Medal

1981 Beatrice Mintz  
 1982 Gerald R. Fink  
 1983 Charles Yanofsky  
 1984 David S. Hogness  
 1985 Philip Leder  
 1986 Gerald M. Rubin  
 1987 Sydney Brenner  
 1988 David Botstein, Ira Herskowitz  
 1989 Allan C. Spradling  
 1990 Nancy Kleckner  
 1991 Bruce S. Baker  
 1992 Maynard V. Olson