R. E. Clausen, Geneticist

Roy Elwod Clausen was born 21 August 1891 at Randall, Iowa, the son of Jens and Matilda Christianson Clausen, both of whom came from Denmark. After graduating from Oklahoma A. and M. College in 1910 with a degree in animal husbandry, he entered the University of California at Berkeley where he obtained his Ph.D. degree in biochemistry 4 years later. In the same year, 1914 he joined the late E. B. Babcock in the newly created division of genetics. With the exception of service in the United States Army, 1917–19, a leave of absence to serve as special consultant in genetics for the Sugar and Pineapple Experiment Stations in Hawaii, 1941, and special duties at the Los Alamos Scientific Laboratory, 1944–45, Clausen spent more than 40 years in teaching and research in Berkeley. His long and distinguished career ended abuptly with his death from a heart attack on 21 August 1956.

Starting with W. A. Setchell's collection of *Nicotiana* species, first in collaboration with T. H. Goodspeed and later with D. R. Cameron, Clausen devoted a lifetime to the study of evolutionary changes within this genus. The origin of the wide range of chromosome numbers within this group of species that gave every indication of descent from a common ancestor attracted and held his attention. From an analysis of chromosome pairing in species hybrids and from the production of the artificial species *N. digluta,* which arose through spontaneous doubling of the chromosomes in the sterile interspecific hybrid *N. tabacum* × *glutinosa,* it was possible to obtain experimental verification of Winge's hypothesis that polyploid species could arise through chromosome doubling in sterile hybrids.

Clausen's pioneering studies on unbalanced chromosomal types—haploids, trisomics, and monosomics—culminated in the recognition of a complete set of 24 monosomics. However, he was not content merely to isolate and describe the monosomics, but through their use he developed a powerful new tool of genetic analysis. He demonstrated how monosomic analysis makes it possible to study, chromosome by chromosome, the genetic differences between the cultivated species *N. tabacum,* a natural allopolyploid, and a series of raw amphidiploids synthesized by doubling the chromosomes of sterile hybrids between putative ancestral species. Through monosomic analysis it was also possible to determine the way in which a gene or group of genes from one species can be incorporated as an integral part of the germ plasm of a second species. Both evolutionary and practical aspects of this transfer mechanism were developed by Clausen and his students.

Although Clausen's main research interest was centered in *Nicotiana,* nevertheless, he carried out extensive investigations on *Drosophila,* particularly the species *D. hydei,* and was interested in the origin and evolution of cultivated plants. The latter was the subject of his Faculty Research Lecture in 1954. Unfortunately, much of this material was never published, owing, in part, to his heavy administrative duties and, in part, to ill health in his later years.

Clausen began his scientific career in that happy period when it was possible for one person to read and digest all the published literature in genetics. Students and colleagues were impressed not only with his wide knowledge of the field but by his penetrating comments. More than one graduate student had the experience of bringing up an obscure subject with him only to be handed a dusty hand-written manuscript that succinctly summarized all that was worth saying on the subject.

For 40 years Clausen gave a unique course of lectures on cytogenetics. This masterly synthesis of developments in the field was revised annually. The chapters on cytogenetics in *Genetics in Relation to Agriculture,* which was written in collaboration with E. B. Babcock, first published in 1918 with a second edition in 1927, represent two revisions of his course. Students frequently repeated the course, some of them even more than once, and found that it was an exciting experience each time. They were attracted by the quality of his mind, his penetrating analytic ability, his sound judgment, and his clear, unemotional, and well-organized presentation. His solid worth was recognized by all who knew him, and to many of his students he was the ideal scientist.

Because of his ability, modesty, and devotion to duty, Clausen held numerous offices in scientific societies, including vice president and chairman of the Pacific Division of the AAAS, secretary-general of the sixth Pacific Science Congress, and president of the Genetics Society of America. Through his long years of service on faculty and administrative committees, particularly the Committee on Budget and Interdepartmental Relations, he played a major role in directing the affairs of the university. These exacting duties, together with his service at Los Alamos, adversely affected his health. Although he tried to avoid administrative duties on his return to Berkeley, he was persuaded to serve as chairman of the department of genetics, which he did for the last 9 years. His election to membership in the National Academy of Sciences and his selection by fellow-faculty members to give the Faculty Research Lecture at the University of California were well-deserved honors.

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