



Portrait of Hugo de Vries by Jan Veth, 1896 (Library of the Biological Centre, University of Amsterdam).

Editorial

Hugo de Vries was born in 1848. At about the turn of the 19th century he was professor of botany and director of the Hortus Botanicus at the University of Amsterdam. On the 150th anniversary of his birth, a symposium was held in Amsterdam on 27 March 1998. The majority of the lectures have been elaborated into the papers published in this special issue of *Acta Botanica Neerlandica*. The editors are indebted to Ferry Bouman and Erik Zevenhuizen for their guest editorship.

Hugo de Vries was strongly influenced by the plant physiologist Julius Sachs and the naturalist Charles Darwin. Following Sachs, De Vries dedicated himself for almost two decades to plant physiological research. Through his writings and the lectures to his students he introduced the experimental approach to biology into The Netherlands. In the 1890s his interest gradually shifted towards heredity and evolution. De Vries remained faithful to the way of working he had developed in his physiological research, and he became one of the first to try to solve problems in heredity and evolution using an experimental approach. His conviction that evolution is not a gradual and extremely slow process, but one that proceeds by minute, observable steps caused by genetic changes, culminated in his mutation theory published in 1900. The theory was based on De Vries' profound knowledge of all aspects of plant biology and plant breeding, and was supported by ample evidence from an enormous amount of experiments.

In his opening address at the symposium, Stephen Jay Gould, Professor of Palaeontology at Harvard University, pictured the relationship between Darwin and De Vries. Quoting from their correspondence, he presented them as a scientific father and son. In his later years, after Darwin's passing, De Vries formulated his own theory on the mechanisms of the evolutionary process. Gould demonstrated how De Vries, realizing that his theory conflicted in some respects with Darwin's, kept his loyalty towards his master by pointing out the similarities rather than the differences. At present, we think that the gradual changes from Darwin's theory play in concert with the genetic changes that De Vries championed. This was nicely demonstrated at the symposium by references to recent research on *Chlamydomonas* by Ursula W. Goodenough, Professor of Genetics at Washington University, Saint Louis.

The first paper in this special issue provides a brief overview of the life and work of Hugo de Vries. In the follow-up, several papers elaborate on the development of theories in historical perspective. Piet de Rooy presents his analysis on the introduction of Darwin's evolutionary theory in The Netherlands in the second half of the last century. Erik Zevenhuizen, who is working on a biography of Hugo de Vries, evaluates the notion of the rediscovery of Mendel's laws by Hugo de Vries in the 1890s, and elaborates a new and highly original view of the impact of De Vries on genetic research. Thereafter, Herman van den Ende gives an impression of physiological experiments performed by Hugo de Vries as related to the work of Julius Sachs. The author even repeated part of the experiments on plasmolysis. Bert Theunissen reviews the mutation theory developed by Hugo de Vries, with particular reference to its implications in the field of genetics and evolution. Finally, Marga Coesèl gives an impressive insight into the willingness of Hugo de Vries to publish papers in what would currently be (dis)qualified as non-refereed journals, in order to keep society in general informed about progress in science.

Acta Botanica Neerlandica was first published in 1951. From 1999 onwards it will continue, merged with *Acta Botanica* (Germany) as the new botanical journal *Plant Biology*. Therefore, this special issue is the finishing touch for *Acta Botanica Neerlandica*. The editors consider this issue to be the best starting point towards the new journal. They are indebted to the Editorial Board and to Blackwell Science for their constructive efforts to steadily increase the quality of *Acta Botanica Neerlandica* during the last decade.

THE EDITORS



Fig. 1. Hugo de Vries during his student years in Leyden, 1866–1870 (Library of the Biological Centre, University of Amsterdam).