
From Merkmal to Marker. The taxonomic origin of the genetic character concept

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Abstract

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Historians of genetics have long pointed out the continuity between taxonomists' concerns with the constancy of types and experimental studies of heredity, such as Mendel's or Johannsen's. Instead of focussing on the species concept or the question of the constancy of types directly, I wish to reconstruct this relation on the level of the respective character concepts underlying these discourses and the practices by which characters are individuated.

Concerning the continuity of the character concept, it can be said that characters were used to classify the offspring of organisms in hybridization as well as in pure line breeding experiments. Only through indicating class membership of the individual organism genetic characters could finally indicate constituents of the gametes that gave rise to the offspring. But there were also significant differences between classification in taxonomy and in studies of heredity. While taxonomy attempts to exclude inter-species variation, genetics deals exactly with this variability. In consequence, taxonomy employs a character concept that rests on reliable observability, whereas genetics operates with a concept of characters that need to be inferred. In Mendel, for instance, whether the expression of a character, such as color, is constant, or dominant hybrid, and in Johannsen, whether the expression of a character, such as size, constitutes a short form of the large class or a large form of the small class, can not be observed, but has to be inferred from observing the offspring of the organism exhibiting a character.

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