Buchbesprechungen

HARWOOD, J.: **Styles of Scientific Thought – The German Genetics Community 1900–1933.** Chicago and London: The University of Chicago Press 1993. 423 pp., 22 figs., 13 tabs., 27.50 US $. ISBN 0-226-31882-6

This book aims at characterizing research directions and major schools of thought within the German genetics community in the time period from 1900 to 1933. Furthermore it provides a thorough evaluation of differences in scientific approaches, in the organization of research, funding, and teaching, and in the social and cultural background of particular scientists, both within Germany and between Germany and the USA. The author's observations and considerations are presented in nine chapters and a conclusion.

Chapter one provides methodological considerations as to the definition of style in science and its comparison among different countries. Furthermore, a detailed account of German research traditions is given. The latter were characterized by a high interest in morphology and developmental biology, by strong emphasis on a broad education in biology, and by a remarkable resistance against specialization in research and teaching. Chapter two considers the German response to T. H. MORGAN's chromosome theory during the 1920s. While most of the German geneticists (e. g. R. GOLDSCHMIDT, V. HAECKER, A. KÜHN, K. HENKE) felt that the chromosome theory neglected the process of development and were rather interested in developmental genetics and cytoplasmatic inheritance, MORGAN stated it would be "far better to concentrate on more tractable problems such as the structure of the hereditary material and the process of its transmission between generations..." (p. 49). This statement exactly hits what may be considered one of the major differences between research in Germany and the USA elaborated in this book. While most American researchers tended to be "pragmatic", i. e. they attempted to restrict themselves to simple but testable questions, German geneticists were usually willing to address more complex issues, at the inevitable expense of a greater deal of speculation involved in their interpretations. Chapter three concentrates on evolutionary genetics. While in the interwar period many geneticists in the United States were relatively uninterested in evolutionary issues or held overly simplified mutationist or selectionist views, several German geneticists sought to integrate genetic theory with complex patterns of geographical distribution and the fossil record. The author finds it typical that the synthetic theory of evolution was developed by broadly educated biologists (e. g. TH. DOBZHANSKY, J. HUXLEY, B. RENSCH, S. WRIGHT), who were able to bridge the gap between genetic principles and various other biological disciplines. Details on possible reasons for a more specialist and a more generalist approach to genetics in the USA and Germany, respectively, are given in chapter four. For example, whereas in the United States universities regularly expanded by the foundation of new departments, facilitating the establishment of new research disciplines, German universities rather expanded by obtaining additional funds for already existing institutes. Research diversity within the latter was subjected to the constraints set up by the respective chairholders. Due to the payment of extra fees for teaching, in Germany the presentation of basic and general lectures remained the domain of well established professors. By contrast, their American colleagues rather focused on teaching specialities of their interest, leaving basic lectures to junior staff Also with respect to an academic career the organization of the German University actively discouraged specialization. The best strategy for a young geneticist in search of a chair (necessarily in zoology or botany) was to cultivate a broad profile, working on genetic aspects of the major biological problems: development and evolution. Finally, as a result of a much greater dependence on private funds, geneticists in the United States tended to cooperate much more intensively with agricultural institutions than German researchers did.

In chapters five to nine it is shown that the aforementioned differences in research interests did not apply only to geneticists in Germany and the United States, but were, to some extent, also found within the German genetics community. In particular, the careers and research interests of E. BAUR and A. KÜHN are contrasted. The former is considered an early advocate of the chromosome theory and, as a result of his studies on natural populations and selection, a contributor to the evolutionary synthesis. The latter is referred to as a prominent researcher in developmental genetics with a broad interest in various other biological disciplines. Both researchers and various members of their schools are compared in some detail as to broadness of their biological knowledge, their interest in culture, their engagement in policy, and their holistic or pragmatic view of science. This data is then used for sketching some general philosophical and psychological characteristics of researchers holding either a 'comprehensive (holistic)' or a 'pragmatic' view. It is suggested that the pragmatic style of science resulted from an increasing erosion of the traditional ideal of Bildung at the turn of the century. According to an evaluation of the social background, geneticists with a comprehensive view of science typically stemmed

from an educated-middle-class milieu whereas those with a pragmatic view were largely from lower- and industrial-middle-class strata. Finally, the author turns from problem choice to theory choice in genetics. The use of social analogies to biological phenomena is briefly reviewed, and their impact on the conception of theories is discussed (e. g. 'monarchist' vs. 'democratic' concepts in the context of cytoplasmatic inheritance). It is argued that, in view of poor empirical evidence, comprehensive thinkers tended to endorse the holistic plasmon theory while pragmatics either adopted a competing atomistic theory or rejected cytoplasmatic inheritance alltogether. In his general conclusion, the author stresses the relevance of the concept derived from research styles in genetics to other disciplines of science.

Apart from providing a rich source of information on the development of genetics in Germany, this excellent book gives a detailed account of the various social, philosophical, and psychological factors involved in the choice of research directions and the development of theories. The issues addressed are far from being merely historical (things have changed only gradually, not in principle), and are highly relevant to everyone interested in biology.

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Boyd, J. S.; Paterson, C.: **Farbatlas der klinischen Anatomie von Hund und Katze.** Übersetzt aus dem Englischen von M. und B. Schnorr. Stuttgart: Ferdinand Enke Verlag 1995. 192 Seiten, 327 Abb. 148,– DM. ISBN 3-432-26101-2

In diesem großformatigen und auch für den Säugetierkundler informativen Band wird mit photographischen Abbildungen die Anatomie des Hundes ausführlich und die der Katze ergänzend dazu dargestellt. Folgende Körperabschnitte werden behandelt: Kopf und Hals, Wirbelsäule, Schultergliedmaße, Thorax, Bauch- und Beckenhöhle und die Beckengliedmaße; der Abschluß wird von einem Sachverzeichnis gebildet.

Nach Darstellung der Oberflächenanatomie am lebenden Hund, werden in detailreichen Bildern das Skelett und seine Bauelemente vorgestellt, dann folgt die Weichteilanatomie. Vermutlich aufgrund der Tatsache, daß Praktiker mit diesem Farbatlas angesprochen werden sollen, wird teilweise die dem anatomischen Gebrauch entsprechende Terminologie benutzt, teilweise werden aber auch deutsche Begriffe gebraucht. So wird, beispielsweise, in der Abb. 208 einerseits von der „Tunica albuginea" des Hodens gesprochen, doch vom „Körper des Nebenhodens" und nicht vom „Capud epididymidis".

In dem vorliegenden Band werden Muskulatur und Weichteile anhand von unfixierten Frischpräparaten abgebildet. Nach dem Vorwort der schottischen Autoren soll bei Darstellungen, welche von fixiertem Material hergestellt wurden, „Realitätsmangel, verbunden mit dem Verlust der normalen Farbe und Form, ... oft den Wert dieser Publikationen" schmälern, „weil die Präparate häufig wenig Ähnlichkeit mit natürlichen Organen und Geweben haben." Der Referent kann diese Meinung nicht uneingeschränkt teilen, muß aber zugestehen, daß von der Seite der hier angesprochenen chirurgisch arbeitenden Tierärzte und Veterinärpathologen entsprechende Wünsche geäußert werden.

Leider sind einzelne Abbildungen von Muskelpräparationen nicht optimal für die Photographie vorbereitet worden, was wohl an der Tatsache liegt, daß unfixiertes Frischmaterial benutzt wurde: Von der Oberfläche der Präparate nicht entfernte Haare und Gewebebröckchen (beispielsweise in den Abbildungen 113, 206 und anderen) beeinträchtigen den sonst sehr positiven Eindruck, welchen die Abbildungen in diesem Farbatlas machen.

Der Benutzer des vorliegenden Bandes wird an mehreren Details seine Freude haben: Die dargestellte Körperregion ist neben dem Photo auf einer Umrißzeichnung des Hundes so markiert, daß die Orientierung leicht fällt. Zweitens ist positiv die klare Beschriftung mit Ziffern, welche jeweils in einem „Kasten" erklärt werden, zu vermerken. Dies bietet schnellen Überblick auch bei komplexeren Strukturen. (Es ist allerdings zu fragen, ob in nahe beieinander stehenden Abbildungen gleichartiger Knochen von Hund und Katze nicht auch eine gleichartige Numerierung der Details hilfreich wäre. Als Beispiel sei der Axis des Hundes, Abb. 63 B, und der Katze, Abb. 64 B, genannt). Als drittes Positivum sei auf die Ergänzung der anatomischen Abbildungen durch einige Ultraschall-Darstellungen, sowie durch Arteriogramme und mehrere Röntgenbilder hingewiesen.

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