

The dialectic of the atmosphere: Heinrich Wilhelm Dove in context

Bernhard Fritscher

Institute for the History of Science, Munich, Germany

[B.Fritscher.@lrz.uni-muenchen.de](mailto:B.Fritscher@lrz.uni-muenchen.de)

Extended Abstract:

In history of meteorology, Heinrich Wilhelm Dove (1803-1879) is usually remembered by his “law of rotation of the wind” (“Drehungsgesetz des Windes”), and as the leading organizer of the Prussian meteorological survey in the 1850s and 1860s. By the British journal *Nature* he was even styled “the Father of the meteorology”, in particular for his engagement in the plans for the establishment of a meteorological survey in the British Colonies.

Nevertheless, Dove’s position in the history of meteorology seems to be a somewhat ambiguous one. Due, for instance, to his rejection of Christoph Heinrich Buys-Ballot’s (1817-1890) theory that winds arise because of differences in atmospheric pressure, he may also be seen as a representative of an older concept of meteorology which had to be overcome by the true modern one.

In this paper, Dove’s position in the history of meteorology is rethought by placing his work in its cultural and political context which is, in particular, German natural philosophy and the movement for the popularization of sciences (which was particularly related to endeavours to build a united German nation). Thus, it will be shown that Dove and his work are less ‘ambiguous’ but, rather, characteristic representatives of the Prussian scientific culture of the 1830s and 1840s.

For three years Dove studied at the university of Breslau where the Norwegian philosopher Henrik Steffens (1773-1845) lectured on natural philosophy. He also attended lectures in physical geography, and mineralogical geography; his main subjects, however, were philosophy, history and classical philology. It was only when he moved to Berlin in 1824 that Dove began to focus on the sciences. Nevertheless, he continued his philosophical studies attending, in particular, Georg Wilhelm Friedrich Hegel’s (1770-1831) lectures on natural philosophy. - Dove’s manuscript of Hegel’s lectures is still existing, and is currently prepared to be published (by Klaus Vieweg, Jena, and others).

Meteorological phenomena made up essential parts both of Hegel’s natural philosophy as well as of the philosophy of Friedrich Wilhelm Joseph Schelling (1775-1854). In what Hegel called the “meteoric” or “elemental process” he connected - in accordance with ancient meteorology - in a systematic way volcanoes, earthquakes, clouds, rain, thunder and lightning. And Schelling, in his *Ideas concerning a philosophy of nature (Ideen zu einer Philosophie der Natur)* (1797) discussed a connexion between the frequency of thunderstorms and the occurrence of earthquakes and volcanoes, claiming electricity as their common cause. The connexion between these phenomena is a basic idea of Aristotle’s *Meteorology* (and it was a wide spread one throughout the centuries up to 19th century).

In one of his early papers entitled *The inner connexion of the meteorological phenomena (Der innere Zusammenhang der Witterungserscheinungen)* (1834), Dove constructed the interrelation between the meteorological phenomena in exactly this ancient meaning, i.e. in the sense of Hegel and Schelling. A second, more striking parallel, however, to Hegel’s philosophy is Dove’s ‘dialectic approach’ to atmospheric processes. In the preface to his

Meteorological studies (Meteorologische Untersuchungen) of 1837, he stated that the whole of the meteorological phenomena of our latitudes may be attributed to the struggle of two air currents which. If both are predominating as North-East and South-West winds, they cause the extremes of the weather; if, however, they are changing into each other in an appropriate way, they cause the change of the weather, which is the characteristic feature of our climatic conditions. Thus, Dove's "law of rotation of the wind" may be seen as the application of Hegel's "dialectic of nature" to atmospheric phenomena, i.e. as the "dialectic of the atmosphere".

In addition to this philosophical context, the paper points to some political features of Dove's work. He strongly advocated a united German Nation, as many of the Berlin scientists of the 1820s and 1830s, and already at Breslau he had joined the student's association *Arminia*. His political engagement might have been a reason, too, for the long time which Dove has had to wait for an ordinary professorship (although, it has to be realized that a lot of his colleagues at Berlin university were in a quite similar situation). In any case, Dove's efforts in the popularization of the sciences related to his political convictions: education (of the German people) was thought to be an essential task and condition of the construction of an united German Nation.

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PD Dr. Bernhard Fritscher
Munich Center for the History of Science and Technology
Institute for the History of Science
Museumsinsel 1
D-80306 Munich
Germany

Email: B.Fritscher@lrz.uni-muenchen.de
Tel. +49-(0)89-2179-275
Fax. +49-(0)89-2180-3162