Inge FRANZ

Franz von BAADER's (1765 – 1841) Conception of Evolution in the Context of Contemporary Earth Sciences

Inge FRANZ, Brockhausstraße 8, Leipzig

Franz Xaver von BAADER (1765 - 1841) was a fully qualified physician who studied at the Freiberg University of Mining and Technology from 1788 to 1792. He first gained practical mining experience in England and Scotland, besides he was active in his home province of Bavaria from 1796 onwards. Already in Freiberg, he published articles about technical innovations in mining. Following rationalisation measures in Bavarian mining (including the mergers of several administrative departments), he was retired temporarily in 1820. He turned his attention primarily towards the humanities, but also continued to discuss problems relating to medicine and natural sciences.

A comprehensive theory of evolution was only arrived at around the mid-nineteenth century. In the manner of a geological resume, BAADER, during his final year, emphasised his actualistic (uniformistic) directedness, the core themes of which he centred round the category of time: developmental-theoretical positions, especially those philosophical and scientific ones that were orientated on dynamics. But how did the young BAADER approach evolutionist thinking? Here are some distinctive milestones.

The existing level of knowledge starting from about the beginning of the 18th century until the end of that century is first outlined with examples that had some influence on BAADER's thinking.

These begin with the universal scholar Gottfried Wilhelm LEIBNIZ (1646 - 1716), who presented essential developmental-historical and conceptual, deterministic-dynamic substantiations, geologically applying these to include mining. At the centre of focus is his main work in this area, *Protagaea* (1693ff). Immanuel KANT (1724 - 1804) was intensively occupied with Leibniz and his basic approaches to dynamic characteristics, and developed these further. BAADER obtained corresponding writings of Kant that had already been published from 1746 onwards, but not before the 1790s. They were epistemologically and empirically influential, including the *Universal Natural History and Theory of Heaven* (1755) as well as *Metaphysical Rudiments of Natural Science* (1786). The understanding of history - as the basis of any interpretation of evolution - especially in the case of the young BAADER, was developed from the interpretation of the development of the earth and humanity through works of Johann Gottfried HERDER (1744 - 1803), one of the chief representatives of the German Enlightenment and Classicism. With the acceptance of the creation as its point of departure, Herder pursued its formation as a legitimate *"natural chain"*, partially retaining theistic points. It was his principal work in the area of the philosophy of history, *Ideas on the Philosophy of Human History* (1784/1791), that was primarily consulted.

A caesura in these concerns took place around the turn of the 19th century, with the more extensive confrontation with contemporary geological positions initiated by BAADER. These were largely based on meanwhile altered social/socio-political conditions, e.g. material (economical necessities), and intellectual conditions (secularisation, new orientation of the sciences and profiling according to subject and method) to an even greater extent, and in combination with each other.

Georges Louis LECLERC DE BUFFON (1707 - 1788) must be appraised as an important personality; Baader began to obtain his works from the mid-1780s onwards. As with Herder, he also appreciated Buffon's historical point of view - indispensible for interpretations of evolution, now present in the form of periodisation and/or chronology of history without narrow classification (especially against that of Carl von LINNÉs, 1707 - 1778), including his attempts to determine the age of the earth within this framework. He only shared BUFFON's cosmological point of view to a limited extent, however. BUFFON's relatively unorthodox representation of natural history as an organic process, as well as the

acknowledgement of the effect of natural laws - in contrast to the Bible, at that time the principal source and without alternatives as yet - is substantiated in *Histoire naturelle, générale et particuliére* (beginning in 1749 with the cooperation of renowned specialist scientists). In particular, one of the supplementary volumes with the essay *Époque de la nature* (1778) should be especially noted.

A direct contemporary of BAADER, the Gotha geologist Karl Ernst Adolf von HOFF (1771 - 1837), shared his view of the origins and continuous further development of the earth based on forces still continuing to act; HOFF, however, saw this more in exogenous than endogenous form. His advanced works document the search for objective criteria, combined with the partial retreat from theories of Abraham Gottlob WERNER (1749 - 1817; Neptunists' dispute). There was concentrated attention on HOFF's main work concerning current thought in geological sciences, the *History of Proven Natural Changes of the Earth's Surface* (1822 - 1840/41). Eight years after the first volume appeared, Charles LYELL (1797 - 1875) presented the *Principles of Geology...* (1830 - 1833): uniformism. For the German-speaking world, K.E.A. von HOFF can be considered a prototype for this transformation of geology as a science.

Thus followed the integration, in the broadest sense, of the geologists' comparative geological positions: Karl Caesar von LEONHARD (1779 - 1862), Heinrich Friedrich LINK (1767 - 1851) and Gotthilf Heinrich von SCHUBERT (1780 - 1860).