avian thorax (indicating flight ability) must be evolutionarily older than homoiothermy. This consequence is not discussed by the author, but anyway could inseminate the current discussion about the evolutionary origin of flight in birds. — Karl EDLINGER stresses "The mechanical constraints in mollusc constructions – the function of the shell, the musculature, and the connective tissue". Like some other representations of 'constructional morphology', he argues lively against traditional morphologists whose suggestions are dequalified as "totally unexplained" hypotheses. This were acceptable if the author's phylogenetic ideas were better substantiated, but they are not. K. EDLINGER's "alternative phylogenetic relationships" are pure statements, relying on certain assumptions. Thus, they are as apodictic and axiomatic as those he criticizes. For example: although he – correctly — emphasizes that "none of the reconstructions can be directly deduced from the fossil record", he states without any empirical data that "the constructional stages of the sequence never possessed a waist". This is the type of mere statement on which the whole argument is based. — P. W. SKELTON evaluates "Morphogenetic versus environmental cues for adaptive radiations". Unlike most of the other authors, he starts from a cladogram (of Aptian-Cenomanian recumbent rudist Bivalvia), thus discussing a series of concrete cladogenetic events. Despite some – from a Hennigian point of view – odd usages of terms (e.g. "polyphyletic origin" of a taxon, "convergent taxa"), the author stays close to classical methodology and terminology. In a similarly reconciling way he concludes that "adaptive radiation – when it can be identified as such – requires both morphogenetic (or other intrinsic) innovation and a receptive environment. Yet the appearance of either may serve as an effective cue for the radiation, contingent upon prior existence of the other, acting, so to speak, as an enabling circumstance". In my opinion, this relation of mutual enhancement applies to all sorts of internal vs. external factors of evolutionary transformation. — If a traditional Hennigian systematist would discuss the phylogenetic relationships of "some metazoan phyla" without even mentioning the results of the molecule-based studies she or he would clearly be blamed to violate the rules of good science. James W. VALENTINE describes "The sequence of body plans and locomotory systems during the Precambrian-Cambrian transition" without even mentioning the possibility that the Spiralia are monophyletic. VALENTINE's contribution does not contain any inspiring phylogenetic proposition or hypothesis on constructional novelties which could compensate for its serious flaws.

Naturally, a book containing 24 contributions of different authors from different parts of the world, different schools of thinking and different fields of science, can hardly be homogeneous. In fact, "Constructional morphology and evolution" presents a variety of approaches and topics. Of course there are differences in style and quality. But on the whole, this book can stimulate discussion and exchange of information in "constructional morphology" (if not "Konstruktionsmorphologie"). It might as well offer a valuable source of knowledge to scientists from adjacent and other fields. However, a considerable number of contributors – among them even the editors – do not give the impression that it was their intention to overcome traditional battlefields in evolutionary biology.

Vogel, K. (1991): Konstruktionsmorphologie – Ein Schlüssel zum Verständnis der biologischen Evolution (Constructional morphology – a key to understanding biological evolution). Sitzungsberichte der Wissenschaftlichen Gesellschaft der Johann Wolfgang Goethe-Universität Frankfurt am Main, Band 28, Nr. 2. Franz Steiner Verlag, Stuttgart. 22 S., DM 24,—.

Besprochen von Michael SCHMITT, Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn.

Der Autor unternimmt mit diesem Bändchen den „Versuch, Morphologie in der Biologie wieder ‚gesellschaftsfähig' zu machen". Dies soll geschehen, indem organismische Strukturen in erster Linie als Konstruktionen gesehen werden, die mechanischen (bzw. statischen oder anderen physikalischen) Erfordernissen genügen müssen. Jede Abweichung einer organismischen Form von der unter sparsamsten Annahmen energetisch günstigsten muß unter Energieaufwand erzwungen werden. Der Nutzen eines solchen Energieaufwands wird vom Autor fast ausschließlich in einer Verbesserung des „Internbetriebs" gesehen, im Unterschied zur klassischen Evolutionsbiologie, in der ein möglicher Nutzen fast stets in einer Verbesserung der Auseinandersetzung mit der Umwelt, des „Externbetriebs" also, gesucht wurde und wird.

Der vorliegende Aufsatz enthält – gemessen an vielen anderen Publikationen der Frankfurter konstruktionsmorphologischen Richtung – nur wenige, m. E. unnötige, Polemiken gegen die „klassischen" Denk- und Arbeitsweisen in der Evolutionsbiologie. Dagegen zeigt er überzeugend die Chancen einer physikalisch-ingenieurwissenschaftlich orientierten Morphologie als „Gerüst" für eine Wissenschaft vom Organismus.