This is a monographic study written on very good paper, and including 32 colour plates with eight photos on each, and 20 additional black and white plates with between two and six photos each. Besides these there are 60 drawings and 28 maps. The book gives a very nice and proper impression. It contains an enormous amount of information and data, and it is not possible, or necessary, to comment on it all here. For any student of these snakes this is a rich source of knowledge.

A total number of 34 taxa of Agkistrodon and related genera are thoroughly discussed, and of these 11 have been described by the authors during the years of work with this group of snakes. Actually the two authors have each got one subspecies named after him in credit by the co-author, Agkistrodon bilineatus howardgloydi and A. piscivorus conanti respectively.

The book is divided into a number of sections where the major part is devoted to the descriptions of the different genera, species, and subspecies. A major part is devoted to the American species of Agkistrodon for natural reasons. These are the taxa that are most familiar to the authors, and on which the authors have spent most of their time. The number of specimens available for examination to the authors vary considerably. It is a little bit difficult to see the exact numbers of examined specimens as different numbers of individuals are listed in the different character Tables, but A. contortrix (about 2700 specimens) and A. piscivorus (1200 specimens) are clearly the best examined taxa. A few species (A. bilineatus, A. intermedius, Calloselasma rhodostoma, and Hypnale hypnale) are represented by around 100 to 200 specimens in this study while A. catininosus, A. himalayanus, A. halys and Deinagkistrodon acutus are represented by around 50 or slightly more specimens each. The remaining species have only been available in smaller series. About 20 specimens of H. nepa, 18 of A. strauchi, seven of A. monitocela and six of H. walli have been examined. Also some subspecies have been available only in small numbers. All the different subspecies of A. halys (halys, cognatus and caraganus) as well as A. intermedius stejnegeri and A. bilineatus howardgloydi have been examined only in about ten or slightly more specimens. Agkistrodon affinis is considered as Incerta Sedis in this work and it seems that the authors do not really consider this taxon as valid. When only species or subspecies with such a large range in Asia as A. halys as well as its different subspecies only have been available in comparatively few specimens local geographic variation certainly remain hidden and additional taxa will most probably remain undiscovered. This is also the opinion of the authors as is stated in several places in the text.

A large section of the book is devoted to the Asian taxa, but for political reasons it has not been possible for the authors to examine a comparative amount of museum specimens from this part of the world. The material deposited in museums in the USSR and Chine was not available until the last decade or so. The senior author, Gloyd, died 1978 and Conant has recently celebrated his 80th birthday so there has only been a short time of use material from these countries. The authors put a deadline for gathering data to December 31, 1980 for old world taxa. However, fortunately Conant continued to include information published after that date and this information has mainly been included in a ‘Postscript’. This section includes a description of two additional taxa described after the first deadline. The final cut off date was set to December 31, 1986.

For me as a European and involved in studies of old world herpetology one of the very great contributions
to our knowledge of the biology of the genus *Agkistrodon* is the work done on the *halyz/intermedius* complex and related taxa. These snakes have at times created much confusion in taxonomy, and species definitions and borders have been subjectively defined in most old literature. Gloyd and Conant have tried to create a proper taxonomy for this group using new and reevaluated interpretations of characters, and come up with a fairly good picture of what the taxonomy and systematics look like for these snakes. It will definitely help many other students of these snakes in their work when systematizing Asian *Agkistrodon* in the future. With such a large group and with so many difficulties in obtaining material, a study like this can never be total or final; as the authors state in their ‘Postscript’ there are undoubtedly populations and taxa yet to be discovered and described in remote places. But this work definitely gives a very prospective platform for future studies of the group. As the authors foresightedly expressed it in their own writing — a platform for investigators in Asia “to finish the job”.

The snakes of the genus *Agkistrodon* illustrate very good examples of sibling species. Snakes mostly recognize their own species on chemical communication such as pheromones, behaviour etc rather than on external morphology. This does not select for unique colour-pattern but rather for selection towards a similar pattern which we know as Muellerian mimicry. The morphologically variable subspecies *Agkistrodon h. halyz* and *A. i. intermedius*, which have a similar distribution in large areas of central Asia, show an extreme morphologic similarity at sympatric localities. The authors also raise the question in the ‘Postscript’ section about the true taxonomic subspecific division of these two polymorphic species and point to the necessity for future studies to solve these taxonomic difficulties. In fact there are areas of true sympathy between several taxa which may suggest that taxa here treated as subspecies actually are good species. However, more documentation about this phenomenon must be presented before further conclusions can be drawn.

The authors point several times to the possibility of the occurrence of additional sibling species, and stress that caution must be taken in future taxonomic studies in this difficult group. One such possible case of siblings may be the two taxa *Agkistrodon caliginosus* and *A. intermedius assurinensis* which have recently been put together in one species, *A. assurinensis*, by Toriba (1986). Gloyd and Conant discuss this interpretation and stress the possibility that this may be another case of sibling species, but leave the question open for future studies.

The book is an impressive source of knowledge and this is also the case with the reference list which contains almost 1900 references on the subject and with an additional list of references on venoms and envenomation at the end of the book, written by D. L. Hardy and published as one of nine ancillary papers. The other eight ancillary papers include one on behaviour by C. C. Carpenter and J. C. Gillingham, one on chromosomes by C. J. Cole, one on the fossil history on North American taxa by Roger Conant, one by Howard K. Gloyd with a discussion on palaeartic *Agkistrodon*, one on skull, muscle and bone variation by K. V. Kardong, one on hemipenial structure by E. V. Malnate, one on immunological relationships by S. A. Minton, and a final paper on Pleistocene copperheads by T. R. van Devender and Roger Conant.

Although each of these ancillary papers is good and contributes in an important way to the main text, they constitute just a minor part of this monograph. But in the last of these ancillary papers an interesting and convincing discussion of the phylogeny the American species of *Agkistrodon* can be read. This is preceded by a chapter in the main text about the phylogeny and zoogeography of the old world taxa of the group. All phylogenetic discussions are by their nature more or less hypothetical, as they more or less must be based on assumptions depending on how much fossil material is available or to what degree various more or less sophisticated methods have been applied. Almost no fossil material is available of the old world forms of *Agkistrodon* and related genera. Thus the phylogeny has been based on available information from recent taxa. The authors have analysed the material in the traditional “old-fashioned way” and cladistic methods have not been used. Much of this section was written by Gloyd long before his death and Conant has chosen to include many of these thoughts unchanged in this section. Although no cladistics have been used the authors base their discussion on polarized character states, and a phylogeny based on cladistics and parsimony methods could have added phylogenetic information to this work. Now as it seems, this “old-fashioned” phylogeny still most certainly results in a proper phylogenetic theory also of the old world taxa, albeit two of the species, *intermedius* and *blomhoffi*, are paraphyletic as figured in the drawing of the phylogenetic tree on page 448. By using a phylogenetic species concept several of the various subspecies, defined by apomorphic character states, could be treated as full species.

Type specimens and type localities are unsolved problems for many taxa in the *Agkistrodon* complex. Partly this is because no type-serises or holotypes have been selected, or that the type series include specimens from different sources and localities. This may sometimes be a source of confusion. When Strauch described his *intermedius* (*Trigonoccephalus intermedius*) he used material which includes several taxa, including *A. i. saxatilis*. Book review