

J.G. Schneider's *Historiae Amphibiorum*: Herpetology at the Dawn of the 19th Century

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Since the early 1980s, the Society for the Study of Amphibians and Reptiles (SSAR) has been publishing book-length monographs in their Contributions to Herpetology series, under the editorship of Kraig Adler. The series has already included three volumes of *Contributions to the History of Herpetology* (1989–2014). Volume 32 is another historical work, and a very substantial one.

Johann Gottlob Schneider (1750–1822) was a highly regarded German classical scholar, particularly expert in rendering the much copied and error-strewn ancient Greek texts into comprehensible modern Latin. He spent most of his career as Professor of Eloquence at the University of Frankfurt an der Oder, moving later to Breslau (now Wrocław) where he died in post as chief librarian. This may not sound like the potted biography of a herpetologist! However, Schneider wrote on a wide range of subjects (his principal works bibliography runs to 127 items), and natural history, building on the work of the ancients, was one of his main interests from the 1780s until his death.

This was an important period in world history as well as natural history. It included the American and French revolutions and the turmoil of the Napoleonic wars. In natural history, Linnaeus had recently developed his hierarchical binomial naming system for species of animals and plants, his *Systema Naturae* appearing from 1758 to 1767. By the time Schneider became active in the field, Linnaeus' scheme had been widely but not universally adopted, and there was a huge task in progress of devising names and writing descriptions for species, many newly arrived in Europe from wildlife collectors exploring in distant lands. Public museums were rare in this period but many wealthy enthusiasts had established their own 'cabinets' full of exotic specimens.

Schneider was particularly interested in fish, amphibians, reptiles and molluscs, but he did not ignore the warm-blooded groups, birds and mammals. His main contribution on fish was the monumental *Systema Ichthyologiae* (1801)

where Schneider brought to a publishable state the papers of his friend Marcus Bloch who had died in 1799. The book gave names and descriptions, including illustrations, to over 400 species, with about 130 of these names remaining valid to this day. Schneider's *Historiae Amphibiorum*, his main herpetological contribution, appeared as two volumes (in Latin, with minimal illustrations) in 1799 and 1801. So, why has SSAR supported publication of the volume under review?

Bauer and Lavilla contend that, because Schneider wrote in late 18th century academic Latin, and the book has never been translated into English, his contributions have been widely ignored or forgotten. They have not simply provided a readable translation, a significant task in itself, they have also written a helpful biography of Schneider, including a full bibliography. But the most impressive features of their effort are, first, the 1748 fully-referenced footnotes that clarify Schneider's writing and provide information on the current locations of the specimens he described; second, the 275 pages of illustrations, many in colour. Schneider's original included only four plates, black and white illustrations of skeletal parts, but he referred to numerous illustrations already published in other works. Bauer and Lavilla have located all of these and included them in the new volume, meaning that modern readers have an advantage over the originals in being able to link Schneider's text directly to illustrations. They have also compiled three helpful indexes.

A surprise to many may be that the *Historiae Amphibiorum* includes both amphibians and reptiles: the general acceptance of these two taxa as distinct occurred a few years later. Schneider provided accounts of about 70 amphibians and 100 reptiles, with 102 of his descriptions being new to science. He did not include chelonians or geckos, since he had published work on them previously. We currently recognise about 8,000 amphibian species and 12,000 reptiles, so Schneider's compilation indicates what a small proportion of the world's biodiversity was known to late 18th century science.

The book starts with a rather flowery dedication to Sir Joseph Banks, already 20 years into his four decade tenure as President of the Royal Society - and therefore a highly influential figure. Schneider then covers the known amphibians and reptiles grouped under 14 genera (each with a brief diagnosis) and about 170 species. His sources of information included previous accounts: for European

species, these often began with information from the ancients such as Aristotle and Pliny. He then went on to his own observations of museum specimens accessible in Germany: his remarks could be quite critical when he considered a previous account of a specimen to be inadequate or in error. He also had a collection of his own to draw on, and dissected some of these to learn about internal features. Finally, he reported field observations of his own, for example on the breeding behaviour of toads. In total, he named and described 126 species for the first time; 45 of these names remain valid today.

When I began researching the habits of frogs and marine turtles in Trinidad and Tobago, I noticed that several species had first been named by Schneider (1799), so I have been intrigued to read the book where so many names originated. Some of the descriptions are quite brief, especially for non-European species known only from one or a few museum specimens. Others include considerable detail on behaviour as well as gross anatomy. For example, Schneider quotes ancient accounts of the behaviour of toads, said to live only among brambles, sitting in front of beehives with their mouths open, magically attracting bees! I was especially interested in what Schneider had to say about two of the most striking of Trinidad's frogs. The paradoxical frog (*Rana paradoxa* for Schneider, now *Pseudis*) has tadpoles that grow to an exceptional size, then metamorphose to smaller frogs that are almost mature. Schneider had seen specimens of the tadpoles and mentioned "the fabulous information that the common people have about this mythical animal". Sadly, he does not enlighten us further, nor do Bauer and Lavilla in this case. Some had claimed that development was retrograde in this species, from small frog to large tadpole, hence the 'paradox'. Later, Wagler re-named the genus as *Pseudis*, since it represents a pseudo-paradox. Schneider is more helpful on *Rana dorsigera* (now *Pipa pipa*). This species was figured as early as 1719 by Maria Sibylla Merian, described by Schneider as "that glory among women". Merian had spent time in Suriname studying and illustrating a wide range of fauna, especially insects, and she had described parental care in *Pipa*, with eggs incubated on the female's back in individual pockets until metamorphosis is complete.

Schneider gives a detailed account.

Who will find this book interesting? It will attract serious scholars of natural history's origins and progress. My guess is that the book will be of special interest to modern herpetologists who are intrigued by the naming history of the species they work on. I recall my amazement on finding that one of the frogs I worked on in Trinidad had undergone seven name changes. Reading this version of Schneider helps make clear the difficulties the early taxonomists experienced, working with often badly preserved museum specimens whose place of capture was generally poorly documented, and trying to work out if two specimens in different collections belonged to the same or different species. A century after Schneider, the creation of the International Commission on Zoological Nomenclature eventually provided some rules for making decisions on naming disagreements.

Bauer and Lavilla have certainly performed a considerable service to the herpetological community in making Schneider's work accessible and comprehensible to modern readers. Every major natural history library should buy a copy. The book can be ordered from the Society for the Study of Amphibians and Reptiles at a cost of US\$ 85.50 – SSAR members; \$95- non-members; \$120 institutions.

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