

# Some Early Indian Amphibian Illustrations and Their Artists

## Abstract

Amphibian researchers will benefit from examination of early works, including books and papers by Nineteenth Century zoologists, most of which are illustrated with black-and-white or hand-coloured lithographic or engraved images of the subject. This essay deals with selected works from the period, and discusses such artwork and their artists and authors.

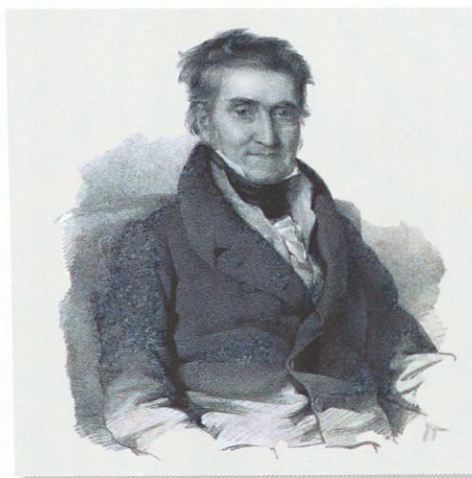
## Introduction

The history of India's amphibian studies dates back centuries, and feature workers, both western and Indian (Adler 2014; Das 2004). In this essay, we discuss images and artists of sketches and paintings of Indian amphibians in selected early (19th Century) works of natural history and taxonomy. These sometimes illustrated works resulted from the efforts of Europeans, either long-time residents of India or those based in European (especially in England or France) museums. The artworks were produced by uncredited local artists (as in 'Illustrations of Indian Zoology', 1800-1835) or by leading painters and lithographers of the day (such as those in the catalogues of the British Museum or in scientific periodicals of the time).

## Gray's (1830-1835) Illustrations of Indian Zoology

Little of the Indian fauna was known to the west prior to the turn of the Nineteenth Century. The administrators and soldiers of the English establishment frequently turned to nature, many of whom made lasting contributions to the Subcontinent's natural history.

Thomas Hardwicke (1756-1835; Fig. 1) joined the Bengal Artillery of the East India Company as Lieutenant Fireworker in 1778,



## Key words

*India, amphibians, literature, bibliography, illustrations, art.*

Fig. 1.  
Major-General Thomas Hardwicke (1756-1835).  
Source: Gray (1830).

rising to the rank of Major-General. However, he is arguably better known as a collector of natural history specimens, especially vertebrate animals. He also collected coloured sketches of plants and animals, which comprised 32 folio volumes, that included over 2,000 drawings. They were based on specimens collected/observed by local artists in Hardwicke's pay around places he was posted, chiefly, Bengal and the United

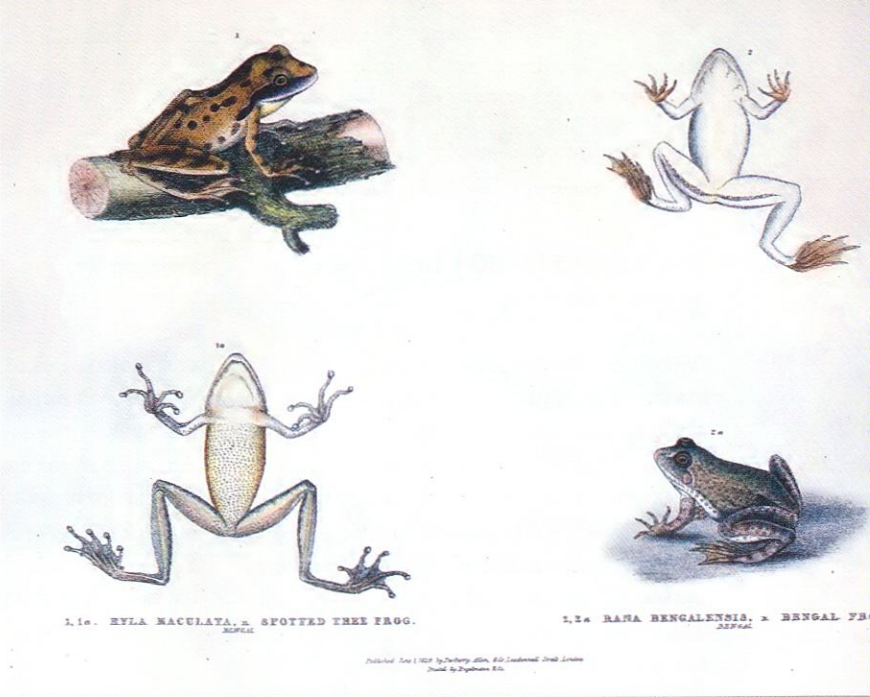
## Indraneil Das<sup>1</sup> & Sushil K. Dutta<sup>2</sup>

<sup>1</sup>Institute of Biodiversity and Environmental Conservation  
Universiti Malaysia Sarawak, 94300, Kota Samarahan  
Sarawak, Malaysia

<sup>2</sup>Indian Institute of Science, Bangalore 560 012, India  
Corresponding author e-mail: [idas@unimas.my](mailto:idas@unimas.my)

Provinces. While other artists who toiled for Hardwicke remain unacknowledged, one-Goordial (presumably a westernized form of the Indian name 'Gurdayal')- was named in discussions by Desmond (1992) on salaries of these naturalist-artists (who drew 30 rupees a month). Nothing else is known about this man, except he was probably from northern India, and therefore, possibly hired during Hardwicke's later years in that part of the country.

Hardwicke's heritage includes his collaborated work with John Gray (1800-1875) of the British Museum, entitled 'Illustrations of Indian Zoology' (Gray 1830-1835; Fig. 2). Apart from his Indian material, the volume contained images drawn from menageries in England, as well as others by the Scottish physician, Francis Buchanan, also known as Francis Buchanan-Hamilton (1762-1829), of Indian and Nepalese species



and by the English tea-inspector and naturalist, John Reeves (1774-1856), of species from China (Gudger 1924).

The text was not published, owing to Hardwicke's premature death and other reasons (see Datta 2015). Of India's rich amphibian fauna, only two were depicted (of 43 herpetological plates; the volume itself containing 202 plates), and herein, we show his two frog plates (Figs. 3-4). Most images were lithographed and coloured by hand, as was prevalent at the beginning of the Nineteenth Century. Lithography was done by Benjamin Waterhouse Hawkins (1807-1894), who also contributed to the Charles Darwin (1838-1843) edited travelogue, "Zoology of the Beagle". However, the images of the reptiles and fishes were engraved, to produce better details of squamation. A total of 101 subscribers received the plates, in lots of 10, usually at intervals of a month.

Fig. 3. Plate 82 from Illustrations in Indian Zoology, showing (left), lateral and ventral views of *Polypedates maculatus* (Gray, 1830: as *Hyla maculata*) and (right), ventral and dorsolateral views of *Euphlyctis cyanophlyctis* (Schneider, 1799: as *Rana bengalensis*).

Fig. 4. Plate 83 from Illustrations in Indian Zoology, showing *Duttaphrynus melanostictus* (Schneider, 1799: as *Bufo carinatus*, left and centre and *Bufo dubia*, right).

ILLUSTRATIONS  
 OF  
**INDIAN ZOOLOGY;**

CHIEFLY SELECTED FROM THE COLLECTION

MAJOR-GENERAL HARDWICKE, F.R.S.

E.C.S., F.Z.S., M.B.A., &c.

BY  
 JOHN EDWARD GRAY, F.R.S.

E.C.S., F.Z.S., M.B.A., &c.

COLLABORING MEMBER OF THE ACADEMY OF NATURAL SCIENCES, AND MEMBER OF THE SOCIETY OF NATURALISTS, MEMBER OF THE NATIONAL SOCIETY OF PARIS, AND OF THE SOCIETY OF THE ANTIQUARIES OF BRISTOL, AND OF THE NATURAL HISTORY SOCIETY OF NEWCASTLE-UPON-TYNE, &c.

VOL. I.



LONDON:

PUBLISHED BY DEBURY, ALLEN, AND CO., 25, STRAND, LONDON, W.C.2. ALSO BY PARSONS, ALLEN AND CO., 7, LEADENHALL STREET.

MDCCCXXXV.

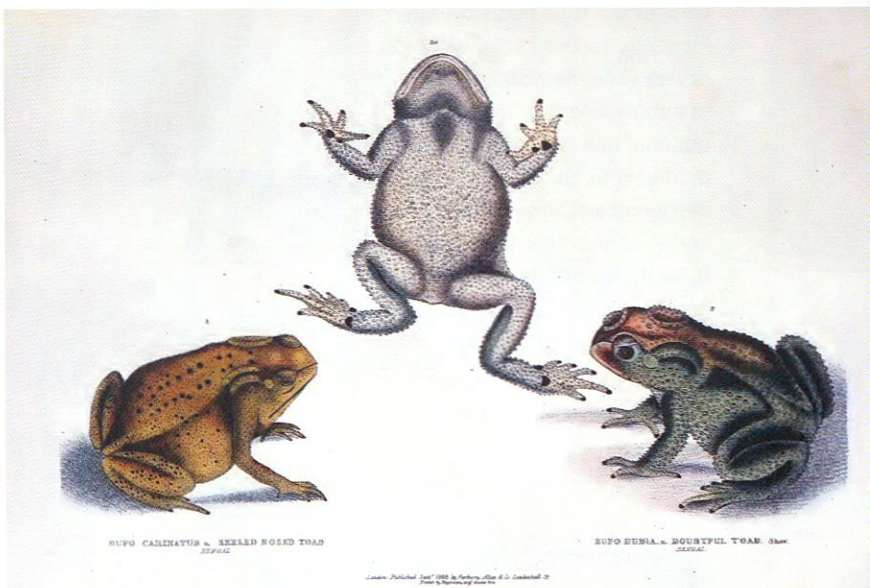


Fig. 2. Title page of Illustrations in Indian Zoology, a work credited to John Gray, but a collaborative venture between Hardwicke and Gray.

## Boulenger's (1880-) British Museum Catalogues

Two prominent European museums started the tradition of printed catalogues of the world faunas in their collection. The tradition of printing museum specimen catalogues for the British Museum was started by John Gray, who amassed a million specimens during his employment at the institution (two earlier catalogues of this institution showing no trace in the Museum's minutes records; Sherborn 1926, 1934). The publisher of the British Museum catalogues, from the middle of 1800s, was Taylor and Francis, a company that survives to this day. The British Museum series includes the amphibian catalogues (1882a; 1882b), prepared by George Albert Boulenger (1858-1937). The proprietors of the company were Richard Taylor, who started the *Philosophical Magazine*, an early scientific journal and William Francis, a chemist, in 1852 (Brock & Meadows 1998). The catalogues were printed with a mass market in mind, the volumes containing black-and-white lithographed plates, executed by leading British artists and lithographers of the time.

Lithography (from the ancient Greek roots, *lithos*, for 'stone', and *graphein*, or 'to write') is a printing technique, whereby printing is from a piece of lithographic limestone, or metal plate (at present, polymer coating applied to plastic or metal plate) that can print both text and figures on paper. Lithographic prints were at the time hand-coloured, a laborious process achieved by semi-skilled artisans working in an assembly line. The lithographic prints of the catalogues were mostly produced by the Mintern Bros, described as Chromo-Lithographers and Printers, with an office in Bloomsbury Mansions, London (between 1870-1905). Other plates were executed by Edwin Wilson (1855-1915) and George Henry Ford (1809-1876). Little information can be found on Wilson, apart from that he was a lithographer and an

entomologist. Ford, who worked for John Gray (see Gunther 1972, for a biography), is relatively better known, and was a South African natural history illustrator, most famous for his plates of Smith's "Illustrations of the Zoology of South Africa" (1838-1847).

Figs. 5-6 show images from Boulenger's catalogues of Toad and caecilians, both lithographed by the Mintern Brothers.

Fig. 5. Lithograph from Boulenger's (1882a: Plate XX) Catalogue by the Mintern Brothers, showing *Duttaphrynus himalayanus* (Günther, 1864: as *Bufo himalayanus*).



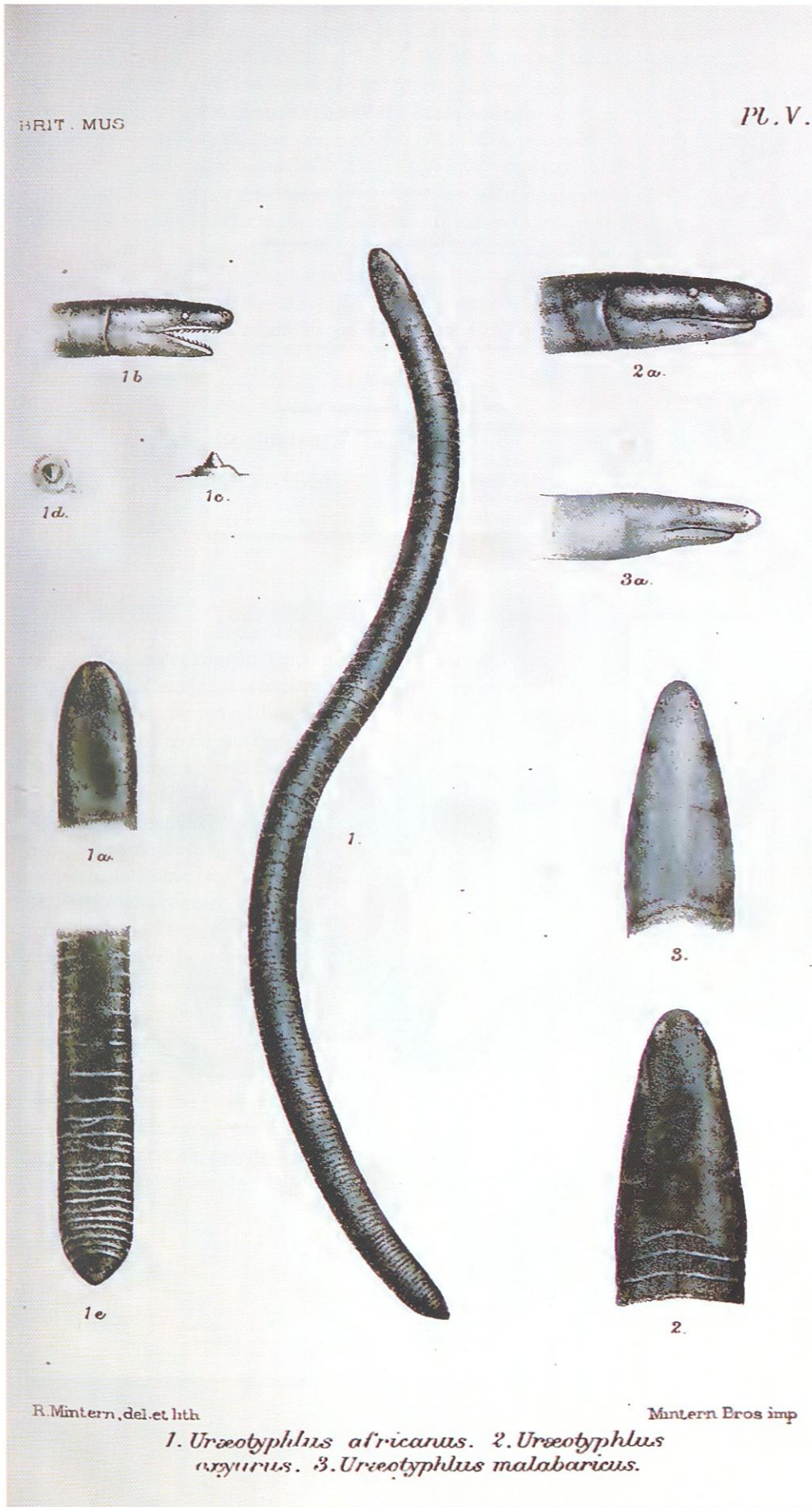


Fig. 6. Lithograph from Boulenger's (1882b: Plate V) Catalogue by the Mintern Brothers, showing two Indian species, *Uraeotyphlus oxyurus* (Duméril & Bibron, 1841) and *U. malabaricus* (Beddome, 1870), as well as the African *Geotrypetes seraphini* (Duméril, 1859: as *U. africanus*).

## Daudin (1802)'s Histoire Naturelle des Rainettes

The French scientist François-Marie Daudin (1776-1803) suffered from paralysis of his legs from childhood, and died short of his 27th birthday. While Daudin was better known for his eight volume French encyclopaedia of reptiles, published between (1801-1802) and described over 500 species), he also authored a significant work of 108 pages on frog taxonomy, entitled "Histoire Naturelle des Rainettes, des Grenouilles et des Crapauds" (Daudin 1802; Fig. 7), with a large number of beautifully reproduced lithographs of frogs (Figs. 8-9). The work was published in 1803 (Adler 2014). Daudin's most well-known Indian frog species description is that of *Rana tigrina* (current name: *Hoplobatrachus tigerinus*).

## HISTOIRE NATURELLE DES RAINETTES, DES GRENOUILLES ET DES CRAPAUDS.

Dédiée à B. G. E. L. LACÉPÈDE,  
Par F. M. DAUDIN, Membre des Sociétés d'Histoire Naturelle et  
Philomatique de Paris.

Ouvrage orné de 58 Planches représentant 54 espèces peintes d'après nature.

DE L'IMPRIMERIE DE BERTRANDET, RUE DE SORBONNE, N° 384.

A PARIS,

Chez LEVRAULT, Libraire, Quai Malaquais.

An XI.

Fig. 7. Title page of Daudin's (1802) unicolored quattro version of Histoire Naturelle des Rainettes, des Grenouilles et des Crapauds

Fig. 9. Illustration from Daudin (1802: Pl. XXXV; p.96) of *Duttaphrynus melanostictus* (Schneider, 1799; as *Bufo bengalensis*); top. On bottom is the African *Breviceps gibbosus* (Linnaeus, 1758; as *Bufo gibbosus*).



Fig. 8. Lithograph from Daudin (1802: Pl. XX; p.64) of *Hoplobatrachus tigerinus* (Daudin, 1802: as *Rana tigrina*) from "Bengale", in eastern India or Bangladesh.



In the introduction, he wrote of a mix-up in the crediting of the artist, some of the drawings being the work of Jacques (sometimes known as Pierre-Paul) Barraband (1768-1809), a French zoological and botanical illustrator, famous during his time for painting tropical birds. He was hired by Napoleon Bonaparte (1769-1821) to decorate the banquet-hall at Château de Saint-Cloud, his preferred residence. In 1807, Barraband was appointed professor at the school of Arts et Dessin de Lyon (Guinot 2002). In the work, these were credited to another artist, Jacques Eustache de Sève (years active: 1742-1788), who was loaned the artwork, and published the same under his name by mistake. Jacques Eustache de Sève (before 1867-1830) was another French illustrator, famous in his own right and Daudin's wife, Adélaïde (?-1803) contributed images for the work. de Sève was the son of Jacques de Seve (before 1727-1790), who was commissioned by Georges-Louis Leclerc, Comte de Buffon (1707-1788), French polymath (naturalist, mathematician, cosmologist and encyclopaedist) to provide the quadruped illustrations for the 36 volume "Histoire naturelle, générale et particulière" (1749-1778), and subsequently, Buffon's "Recueil de Vingtquatre Plantes et Fleurs" (1772) (Benezit 1911-1923).

### Proceedings of the Zoological Society of London (1833-1964)

Issued in octavo format, the Proceedings of the Zoological Society of London commenced publication from 1833, and between 1965 to 1984, was known as the Journal of Zoology: Proceedings of the Zoological Society of London. Throughout the Nineteenth Century, this important English periodical served as the premier venue for publishing papers on taxonomy, especially by workers based at the British Museum and the London Zoo, and by other Anglophone scientists in the colonies. Major illustrators of the journal included the Dutchman, Johannes Gerrardus Keulemans (1842-1912), who concentrated on birds and mammals, while George Henry Ford illustrated most of the text figures of herpetological papers, rendered in both black-and-white lithographic prints, as well as in colour.

A large number of frog species descriptions were published in the Proceedings, and in this section, we illustrate one such work—that of Günther (1875), describing several Indian species, all illustrated by Ford (Figs. 10-11).

Fig. 10. Lithograph from Günther (1876: Plate LXIII) by George Henry Ford, showing (top: left, lateral view; right, ventral view), *Ghatophryne ornata* (Günther, 1876: as *Ansonia ornata*); (middle: left, dorsolateral view; right, dorsal view), *Indirana beddomii* (Günther, 1876: as *Polypedates beddomii*); and (bottom: left, dorsolateral view; right, dorsal view), *Sallywalkerana diplostictus* (Günther, 1876: as *Ixalus diplostictus*).

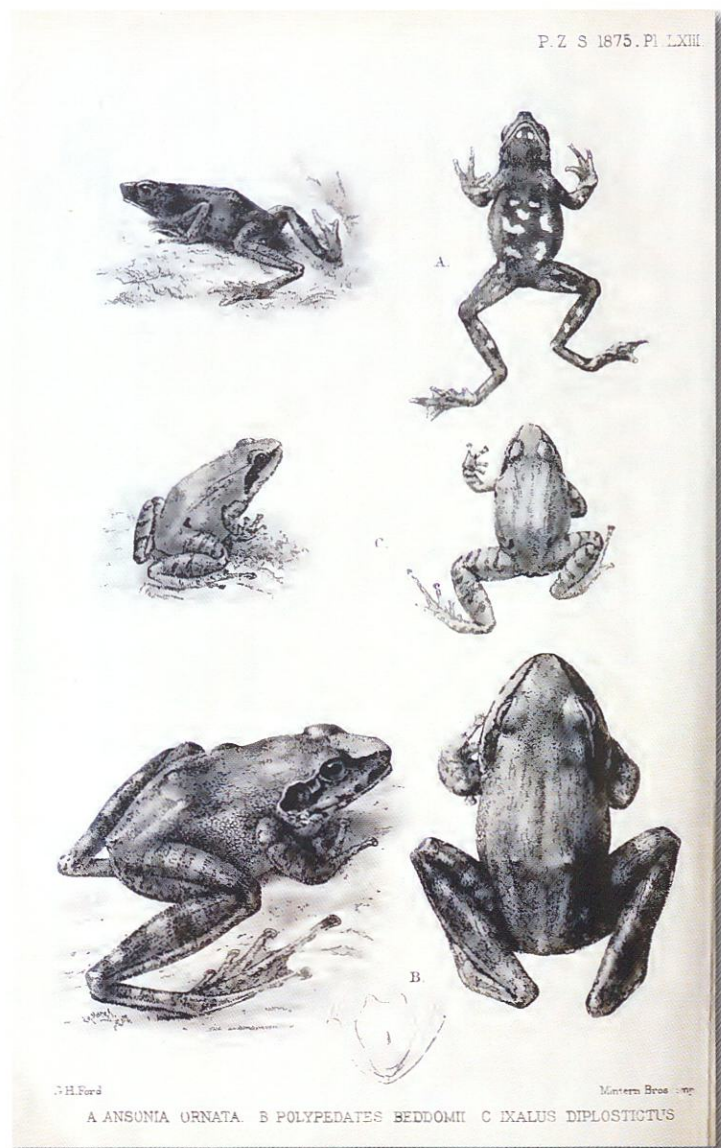
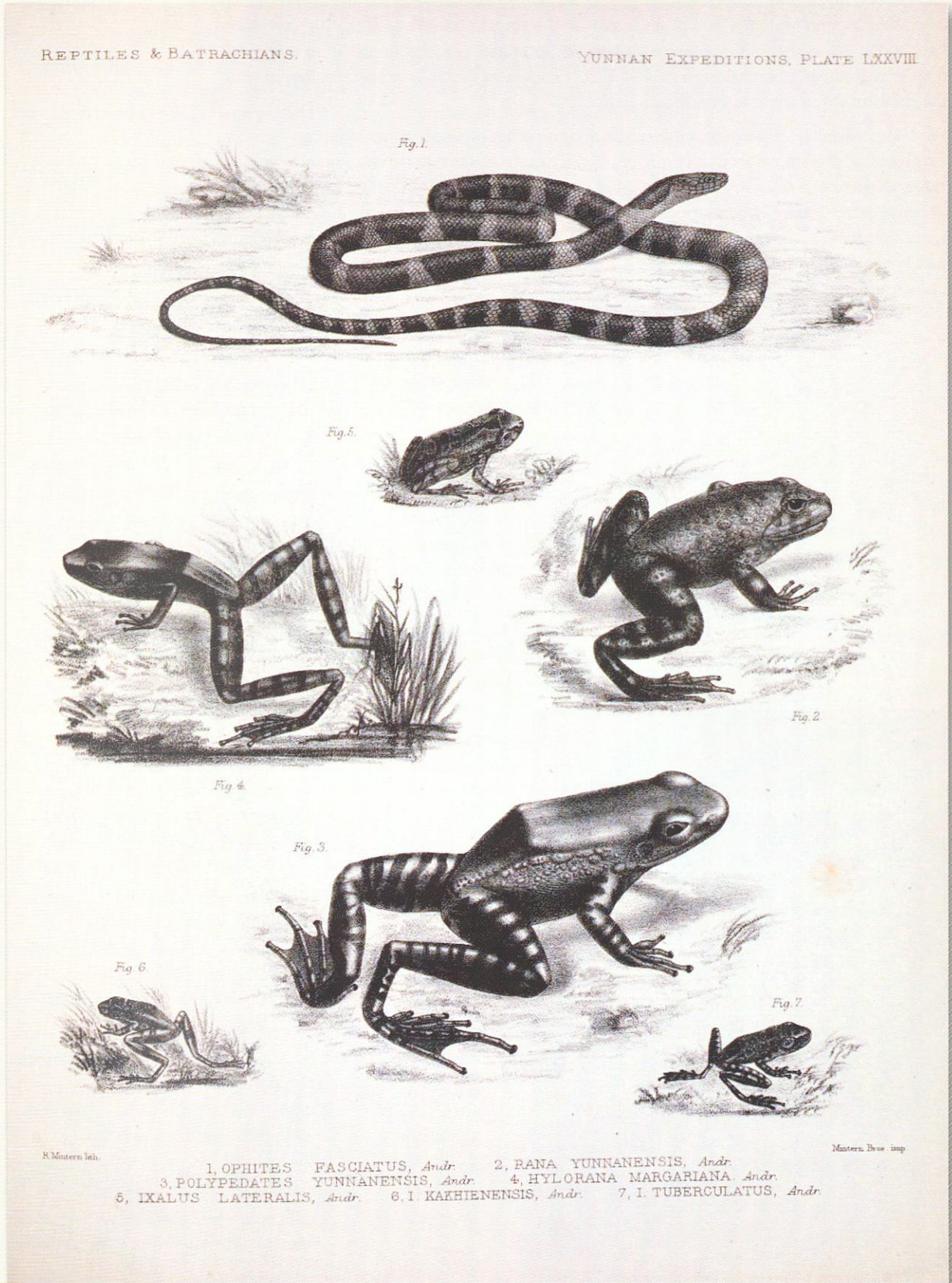




Fig. 11. Hand-coloured lithograph from Günther (1876: Plate LXV) by George Henry Ford, showing (top) *Amolops formosus* (Günther, 1876: as *Polypedates formosus*) and (bottom) *Odorrana chloronota* (Günther, 1876: as *Polypedates chloronotus*).

### Anderson's (1879) The Anatomical and Zoological Researches

Fig. 12. Lithographs from Anderson's ("1878" 1879: Plate LXXVIII) Anatomical and zoological researches: *Nanorana yunnanensis* (Anderson, 1879: as *Rana yunnanensis*), *Odorrana andersonii* (Boulenger 1882: as *Polypedates yunnanensis*), "*Hylarana*" *margariana* (Anderson, 1879: as *Hylarana margariana*), *Leptolalax lateralis* (Anderson 1871: as *Ixalus lateralis*); *Amolops afghanus* (Günther 1858: as *Ixalus kakhienensis*) and "*Theloderma*" *andersoni* (Ahl, 1927: as *Ixalus tuberculatus*). On the top of the plate is the snake, *Lycodon fasciatus* (Anderson, 1879: as *Ophites fasciatus*).



After the natural history collection of the Museum of the Asiatic Society of Bengal was donated to the newly established Indian Museum in Calcutta, John Anderson (1833-1900) was hired from England to be the first Superintendent of the Museum. While a medical doctor, with a position at the hospital in Calcutta, Anderson was devoted to zoology and made extensive collections. He was part of both expeditions to Yunnan (1868-1869 and 1874-1875), and produced a work, in quarto, dated 1878 (but published in 1879) that comprised a monograph on the vertebrate fauna of the Upper Burma-Yunnan region (now in the Chinese-Myanmar frontier region). Containing 85 plates, the single plate (Plate LXXVIII: reproduced here as Fig. 12) covering amphibians (shared with a snake) is a black-and-white lithographed one, executed by Robert Mintern (1840-1908). It shows six amphibian species, four of which are now known to occur within Indian limits.

We briefly reviewed a few original descriptions and other early accounts of Indian amphibians, drawing attention of readers to the wealth of early resources available to researchers on the diversity of images presented in these works. Many frog images may appear stiff and somewhat stylized by today's standards. Nonetheless, one should bear in mind that most of the images were executed by European artists, unfamiliar with the fauna and based on long-preserved specimens, dating to the time preceding colour printing and photography.

### **Acknowledgements**

We thank Vinod B. Mathur for inviting us to write this essay, Abhijit Das for his faith in us to deliver the same, and Kraig Adler for literature. Kraig Adler and Genevieve V. A. Gee read a draft of the manuscript.

## References

- Adler, K. (2014) *Contributions to the history of herpetology*. Vol. 1 (revised and expanded). Contributions to Herpetology, Society for the Study of Amphibians and Reptiles. Ithaca, New York. iv + 172 pp.
- Anderson, J. ("1878" 1879) *Anatomical and zoological researches: comprising an account of the zoological results of the two expeditions to western Yunnan in 1868 and 1875; and a monograph of the two cetacean genera, Platanista and Orcella*. Bernard Quaritch, London. Vol. I (text: xxv + 984 + general index) & II (plates: corrigenda + Plates I-LXXXV + 1-29 pp).
- Benezit, E. (1911-1923) *Dictionnaire de peintres, sculpteurs, dessinateurs et graveurs*. Vol. 12, p. 713. Éditions Gründ, Paris.
- Boulenger, G. A. (1882a) *Catalogue of the Batrachia Salientia s. Ecaudata in the collection of the British Museum*. Taylor and Francis, London. xvi + 503 pp + Pl. I-XXX.
- Boulenger, G. A. (1882b) *Catalogue of the Batrachia Gradientia s. Caudata and Batrachia Apoda in the collection of the British Museum*. British Museum, London. viii + 127 pp. + Pl. VIII.
- Brock, W. H. & Meadows, A. J. (1998) *The lamp of learning. Taylor & Francis and two centuries of publishing*. Taylor & Francis, London. xvii + 288 pp.
- Das, I. (2004) Herpetology of an antique land: the history of herpetological explorations and knowledge in India and south Asia in *Herpetological expeditions and voyages*. Bauer, A. M. (ed.). *Bonner Zoologische Beiträge* 52(2), 215-229.
- Darwin, C. (1838-1843) *The zoology of the voyage of H.M.S. Beagle: under the command of Captain Fitzroy, R.N., during the years 1832 to 1836*. Smith, Elder, London. 5 vols.
- Datta, A. (2015). John Edward Gray. Illustrations of Indian Zoology. Pp. 164-171 in Magee, J. (ed.) *Rare treasures from the library of the Natural History Museum*. Natural History Museum, London and Metro Books, New York.
- Daudin, F.-M. (1802) "An. XI". *Histoire naturelle des rainettes, des grenouilles et des crapauds*. Quarto version. Levrault, Paris. 108 pp; 38 pl.
- Dawson, W. R. (1946) On the history of Gray and Hardwicke's Illustrations of Indian Zoology, and some biographical notes on General Hardwicke. *Journal of the Society for the Bibliography of Natural History* 2(3), 55-69.
- De Sève, J. 1816. *Nouveau dictionnaire d'histoire naturelle, appliquée aux arts, à l'agriculture, à l'économie rurale et domestique, à la médecine*, etc. Deterville, Paris. 597 pp.
- Desmond, R. (1992) *The European discovery of the Indian flora*. The Royal Botanical Gardens/Oxford University Press, Oxford. xii, 355pp; 32 pl.
- Gray, J. E. (1830-1835) *Illustrations of Indian zoology, chiefly selected from the collections of Major-General Hardwicke*. Vol. 1 (Parts I-X). Treuttel, Wurtz, Treuttel Jr., & Richter, London. (1) + (2) + 12 plates.
- Gudger, E. W. (1924) The sources of the material for Hamilton Buchanan's *Fishes of the Ganges, the fate of his collections, drawings and notes*, and the use made of his data. *Journal and Proceedings of the Asiatic Society of Bengal* (new series) 29, 121-136.
- Guinot, R. (2002) *Jacques Barraband: le peintre des oiseaux de Napoléon 1er*. Guénégaud, Paris. 191 pp.
- Gunther, A. C. L. G. (1876 "1875") Third report on collections of Indian reptiles obtained by the British Museum. *Proceedings of the Zoological Society of London* 1875: 567-577.
- Gunther, A. E. (1972) The original drawings of George Henry Ford. *Journal of the Society for the Bibliography of Natural History* 6(3), 139-142.
- Sherborn, C. D. (1926) Dates of publication of early catalogues of natural history issued by the British Museum. *Annals and Magazine of Natural History, series* 9 17, 271-272.
- Sherborn, C. D. (1934) Dates of publication of early catalogues of natural history (post 1850) issued by the British Museum. *Annals and Magazine of Natural History, series* 10 13, 308-312.