

## *Hippocampus hippocampus*

# THE SAGA OF THE SHORT-SNOOUTED SEAHORSE

Two morphologically distinct seahorses occur around Western Europe, commonly known as the 'short-snouted seahorse' and the 'long-snouted seahorse'. Their correct scientific names, however, are less straightforward, and even after 250 years debate continues, partly due to the original description.

In the 10th edition of *Systema Naturae* in 1758, Carl Linnaeus described seahorses by a single name (*Syngnathus hippocampus*) based on various accounts from other authors, including the renowned ichthyologist Peter Artedi (1705–35). That Linnaeus may have had his own specimens is evidenced by his meristic counts (examination of countable traits) and the addition of descriptions of structure and colour in a later edition of *Systema Naturae*. Two seahorse specimens do exist within the Linnaean collections housed at the Linnean Society of London, but it is impossible to state with certainty whether they were used in Linnaeus' descriptions. Confusing matters still further, the specimens seem to be two different species, the identities of which are still debated.

Confusion stems from the actual meristic counts given. Linnaeus' own give the number of dorsal fin rays as 20, whereas those from Artedi state 35, the latter being completely outside the normal range for a seahorse and possibly from a pipefish instead. Seventeen trunk rings ('corporis trunci') is also significantly higher than the normal range of 10–12 for seahorses, again suggesting possible confusion with pipefish data.

Authors immediately following Linnaeus continued to treat all seahorses as one



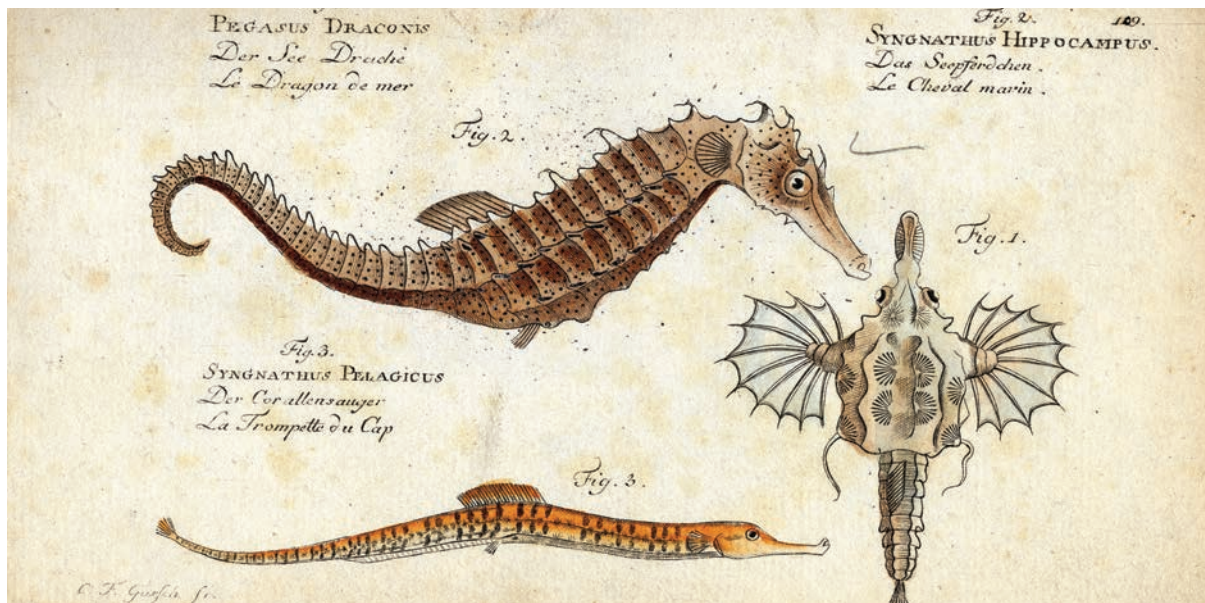
RIGHT The seahorse specimens in the Linnaean collections  
© The Linnean Society of London

species. Marcus Elieser Bloch (1723–99) published an account in his 1785 work *Naturgeschichte der ausländischen Fische*, using the Linnaean name and providing a description and an illustration that very much resembled the long-snouted seahorse. Yet he then listed a range of localities from the North Sea to the Indian Ocean, thus inadvertently including several different species and

failing to restrict the species name 'hippocampus'.

In the 19th century, after the erecting of the genus *Hippocampus* to separate seahorses from pipefishes, things became even more complicated. Some ichthyologists created replacement names for *Hippocampus hippocampus* to avoid tautonymy, e.g. *Hippocampus antiquorum*





LEFT Bloch's *Naturgeschichte der ausländischen Fische*, 1787 edition  
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(Leach 1814), as the Linnaean seahorse specimens are labelled. William Elford Leach (1790–1836) was also the first author to describe different species, splitting them according to their body tubercles (wart-like projections). He stated that *H. antiquorum* was found in the Mediterranean and had poorly developed tubercles compared to another species, which he called *Hippocampus ramulosus*, his specimen of which had pronounced tubercles and filaments protruding from its body, but no locality information. (*H. ramulosus* was never fully accepted, mainly due to the lack of crucial locality data.) As the Mediterranean species with small tubercles is also the short-snouted seahorse, Leach's paper resulted in many subsequent authors using *H. antiquorum* for that fish, ultimately synonymising it with *H. hippocampus*.

A few years later in 1817, Georges Cuvier (1769–1832) distinguished two species of European seahorses, one being "short snouted with white spots and the other long snouted with filaments on the body". He used *Syngnathus hippocampus* for the former but didn't officially name the latter until 1829 when he called it *Hippocampus guttulatus*. It was later synonymised with Leach's *H. ramulosus*, although re-examination of Leach's type specimen does not support this and recent references suggest the specimen may be a South American species.

Prior to Cuvier, Heinrich Schinz (1777–1861) suggested the specific names '*longirostris*' and '*brevirostris*' for the long-snouted and short-snouted seahorses. *Hippocampus longirostris* was based on a 17th-century account by Francis Willughby (1635–72), again without locality information and, like *H. ramulosus*, it is now treated as a junior synonym of *H. guttulatus*. *Hippocampus brevirostris* was proposed by Schinz in

1822 as a replacement name for *H. hippocampus*, presumably again to avoid tautonymy. Throughout the rest of the 19th century other researchers favoured different names and proposed various synonymies, but nearly all of them used *H. hippocampus*, or its various replacement names, to mean the short-snouted seahorse.

In 1937, Isaac Ginsberg (1886–1975) described the systematics of European seahorses as "muddled" and "largely erroneous" and attempted to put the matter straight. He emphatically called the European short snouted seahorse *H. hippocampus*, divided *H. guttulatus* into two subspecies and described a new species called *Hippocampus europaeus* (later synonymised into *H. hippocampus* by some authors).

What remained consistent throughout the 20th century was the use of *H. hippocampus* to mean the short-snouted seahorse. With regard to the long-snouted seahorse, opinions varied, with some authors continuing to use *H. ramulosus* while others preferred *H. guttulatus*.

So it remained until 2007 when a Russian researcher, Ekaterina Vasil'eva turned everything on its head by proposing that the seahorse Linnaeus had been describing had been the long-snouted kind. Linnaeus' own meristic counts support this, particularly the number of dorsal and pectoral fin rays at 20 and 18 accordingly (short-snouted seahorses usually have counts of 16–18 and 13–15 for these fins). Vasil'eva has suggested using the name *H. hippocampus* for the long-snouted seahorse, and resurrecting *H. brevirostris* for the short-snouted seahorse. She states that "this nomenclatural act will not disturb stability or universality of *Hippocampus* nomenclature, since it is not stable or



universal until now". This is debatable—it would mean that virtually every mention of *H. hippocampus* over the last 200 years would now be erroneous. In essence, *Hippocampus hippocampus* would apply to a completely different fish.

ABOVE: Marcus Elieser Bloch  
© The Linnean Society of London

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To view the Linnaean *Hippocampus* specimens online visit  
<http://linnean-online.org/15946/>



## Fellows' Information

### Stay on top of the digital wave

As the Society continues to evolve and expand its facilities, programme and collections, it's of huge importance to be able to easily communicate with our Fellowship. In order to make sure that all of our members' details are up to date, we'd like to request that Fellows advise us with their preferred email address.

You can do this in several ways:

- ✉ email Tom Helps (tom@linnean.org) who can amend it in our records
- ✉ sign in to the Fellows' area on the website ([www.linnean.org/fellows](http://www.linnean.org/fellows)) to amend it personally
- ✉ write to us at our usual postal address (see p. 8)

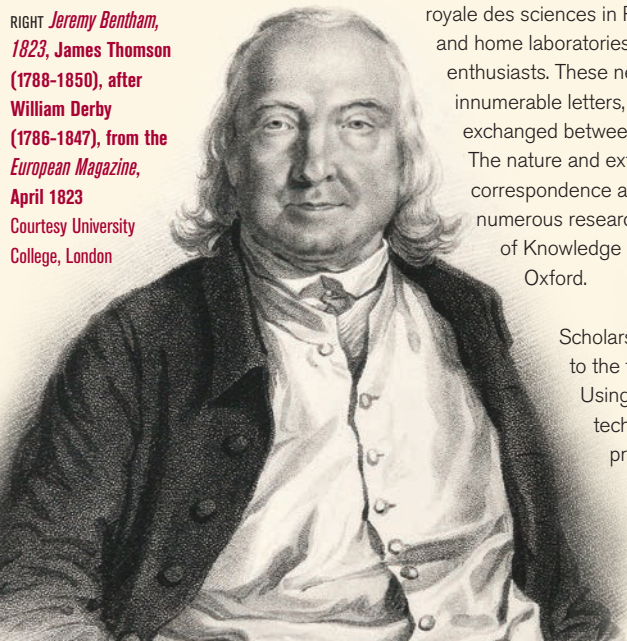
If you have any queries at all don't hesitate to contact Tom Helps on the above email address. Please do take the time to update us with this information—our Fellows are at the heart of the Society—in order to avoid missing out on the latest events, news or alterations.

We also hope to produce a revised List of Fellows during the year, which will be available to all Fellows online via the Fellows' area.



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RIGHT *Jeremy Bentham, 1823, James Thomson (1788-1850), after William Derby (1786-1847), from the European Magazine, April 1823*  
Courtesy University College, London



RIGHT The workshop icon: from Linnaeus' *Notes on the ontogeny of flowers and leaves*  
© The Linnean Society of London

# From Cabinet to Internet

## Digitising natural history and medical manuscripts

**Digitisation Workshop: 27–28 April (1.5 days)**

Organisers: Isabelle Charmantier and Andrea Deneau (The Linnean Society of London), Staffan Müller-Wille (University of Exeter)

Two currents of study have lately attracted historians of science: networks and practices. Beyond the history of new discoveries and achievements, often misguidedly centred around lone practitioners, historians are looking more and more at the networks that enabled these discoveries to be shared, and at the practices that facilitated observations, experiments, and the writing of natural history to take place.

Moreover, such observations and experiments took place as much in the hallowed centres of science such as the Royal Society in London or the Académie royale des sciences in Paris as in the humble houses and home laboratories of provincial physicians and enthusiasts. These networks are encapsulated in the innumerable letters, books and drawings that were exchanged between naturalists and physicians. The nature and extent of these networks of correspondence are being explored through numerous research projects, such as the Cultures of Knowledge project at the University of Oxford.

Scholars are increasingly turning to the tools of digital humanities. Using resources from information technologies, numerous existing projects are cataloguing, editing, indexing and digitising letters and manuscripts, and making

them available to a wide community of researchers and collaborators from the public.

Join us at the Linnean Society as we bring together academics and cultural sector professionals, whose projects specifically involve the digitisation of materials related to natural history and medicine. Talks will delve into the collections and correspondence of Linnaeus and Sir James Edward Smith, as well as the surviving papers of the Board of Longitude from Royal Greenwich Observatory. Discussions will look at transcription—the next step in the evolution of the digitising process. Using the unpublished manuscripts of philosopher and reformer Jeremy Bentham, we will see how transcribing these materials will massively benefit the research process.

Panel discussions will also look at ideas and practices, such as technological issues, collaboration and coordination between partners and related projects, as well as the developing areas of digital humanities, like crowdsourcing.

**With speakers from the University of Oxford, Royal Botanic Gardens, Kew, Würzburg Institute of the History of Medicine and the Wellcome Trust, don't miss your chance to get involved in the future of these historical resources. Registration fees are £30 (£20 for students), with refreshments included. For more information or to register, visit [www.linnean.org/cab2int](http://www.linnean.org/cab2int)**





# Gibbons

‘The aristocrat among apes and monkeys’

© Outrop-Harrington Photography

While the International Union of Conservation and Nature (IUCN) has pulled focus to the plight of the gibbon by dubbing 2015 ‘Year of the Gibbon’, these small apes have been of interest to naturalists for centuries, described as far back as ca. 200 AD by Aelian (Claudius Aelianus), a Roman who wrote about animal classification. In China the gibbon has been known since at least the Zhou Dynasty (1027–221 BC (van Gulik 1967)), where gibbons are described as “the aristocrat among apes and monkeys”. Fast forward to the Victorian era, where Charles Darwin’s *The Descent of Man* (1871) describes siamangs and agile gibbons from Sumatra (Indonesia), chapters 18 and 19 in particular discussing their singing in detail. The first (western) study of gibbons was conducted by Clarence Ray Carpenter in 1937 as part of the Asiatic Primate Expedition—everything we know about gibbons in general has come from this work (Carpenter 1940; Carpenter 1939). Yet, despite the prevalence of records and stories about gibbons throughout history, both in the east and west, we are still learning about these fascinating small apes. Most importantly, we need to learn how to conserve them, as gibbons, being the most diverse and widespread group of apes, are threatened throughout their range.

Currently, 19 species of gibbons in four genera are recognised: nine *Hylobates* species; seven *Nomascus* species; two *Hoolock* species and the single species *Symphalangus* (IUCN 2013). Gibbons occur across a wide range of habitats, predominantly lowland, sub-montane and montane broadleaf evergreen and semi-evergreen forests, as well as dipterocarp-dominated and mixed-deciduous (non-evergreen) forests. Some members of the *Nomascus* also occur in limestone karst forests, with other populations of *Hylobates* inhabiting swamp forest areas (Cheyne 2010). Gibbons occur from sea level to around 1,500–2,000 m above sea level (asl), although this is taxon and location specific. For example, the species *Nomascus concolor* has been recorded as far up as 2,900 m asl in China (Fan *et al.* 2009). Being strictly arboreal (Bartlett 2007), these apes are heavily impacted by the extent and quality of the forests within which they live—with the exception of the rarely recorded behaviour of moving bipedally and terrestrially across forest gaps, or to access isolated fruiting trees in more degraded and fragmented habitats.

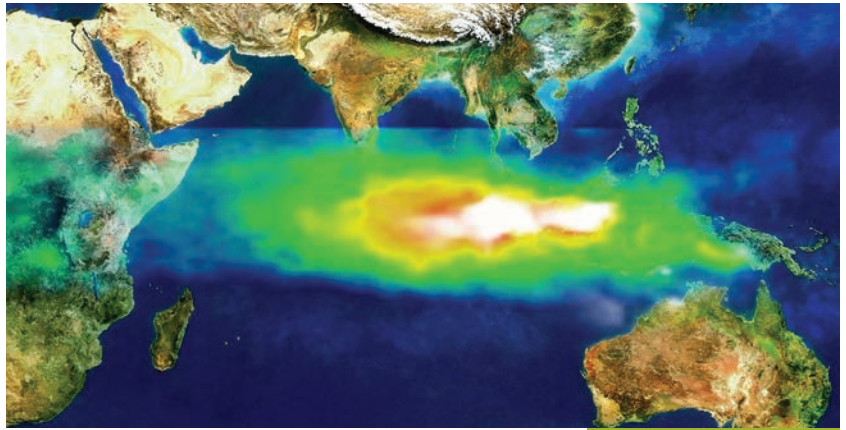
## Threats and Conservation Approaches

The plight of the gibbon is so often overshadowed by their larger ape cousins. Members of the Hylobatidae family, Gibbons have been in decline over the past 30–40 years. This decrease is primarily due to habitat destruction and fragmentation through timber felling, charcoal burning, encroachment cultivation, general bush burning for hunting, and the establishment of rubber, oil palm, acacia and other plantations. Other factors contributing to their demise include the illegal wildlife trade (which involves capturing infant gibbons by shooting the mother), the use of their body parts in the manufacture of traditional medicines, and poaching, with the animals then sold as pets or to bar owners in order to attract tourists. The major forest fires of 1997–98 also devastated a large part of the gibbons’ natural home range in Sumatra and Borneo: it is estimated that 4 million hectares of land, comprising many various vegetation types, were destroyed.

Conservation of the gibbons requires two approaches: (1) management and protection of wild populations and (2) rehabilitation and management of the wild-born, captive-raised population. Due to gibbons’ decline, several conservation projects have been established in South-east Asia, all with the aim of rescuing and rehabilitating gibbons.



Gibbons are often brought to rescue centres when their owners realise that the animal can become too aggressive, when owners become aware of the disease risks or when the gibbon has been actively confiscated by local police/ forestry officials. These centres also provide a sanctuary for abandoned gibbons that may never be rehabilitated, but can no longer be kept with humans. As a result of these efforts to seize illegally traded gibbons by conservation and welfare groups, a large number of gibbons are now housed in wildlife rescue centres across their global range. They represent an important resource for *in situ* conservation programmes for many gibbon taxa, especially those which have small and fragmented populations. Ensuring these animals contribute to the long-term conservation of their species may involve rehabilitation and reintroduction processes to reinforce



ABOVE **The far-reaching effects of the forest fires in Indonesia, October 1997. The central, bright white streak indicates the concentrated aerosols (smoke) that remained as the fires spread.**  
© NASA



LEFT **A young gibbon negotiates its way in Sabangau, Borneo**  
© Bernat Ripoll-OuTrop

existing small populations, or even found new ones. Wild to wild translocation of gibbons is also an emerging tool for managing isolated individuals that can no longer contribute to the conservation of their species.

The IUCN Species Survival Commission's (SSC) Primate Specialist Group (PSG) Section on Small Apes (SSA) has been in consultation with NGOs and Government departments undertaking or proposing to undertake gibbon reintroduction, and as a result, guidelines have been developed to ensure best practice and maximise the success and conservation value of gibbon reintroduction programmes. The guidelines incorporate key elements of gibbon rehabilitation, reintroduction and translocation. They also include additional considerations, such as that of husbandry and veterinary protocols, disease, selection criteria for individuals, release strategies, site selection, monitoring techniques and protection strategies, as well as the standardisation of evaluation and reporting mechanisms. The guidelines have been designed to be a user-friendly, practical document that can be used by all conservation practitioners for gibbons across their global range. The guidelines will focus on ensuring the conservation value of reintroduction efforts as well as the welfare considerations of those gibbons currently housed in rescue and rehabilitation centres. After extensive consultation, these guidelines will be launched at the 2nd International Gibbon Husbandry and Conservation Conference, in Perth, Australia in March 2015.

### **The Orangutan Tropical Peatland Project (OuTrop): a local approach**

OuTrop is delighted to be a partner to the Year of the Gibbon initiative. In addition to these exciting developments for all gibbon species, OuTrop itself reaches a milestone in 2015. In May we will celebrate ten years of our behavioural ecology project on the Bornean agile gibbon in Kalimantan, Indonesian Borneo. This is one of the longest running studies on wild gibbons anywhere in the world and we are understandably very proud of all the work and people who have been involved and shown support throughout the past decade.

This will be an exciting year and OuTrop has many activities planned. Along with monthly blogs, there will be competitions, free downloads and many other events. Please join us in spreading the word about the work being done to support this "aristocrat", and really make 2015 the Year of the Gibbon.

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### **REFERENCES**

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- IUCN, 2013. Red list of threatened species. Available at: <http://www.redlist.org>.
- Further reading:
- The Orangutan Tropical Peatland Project <http://www.outrop.com>
  - 2nd International Gibbon Husbandry and Conservation Conference, Perth Australia. <http://perthzoo.wa.gov.au/whats-on/gibbon-husbandry-and-conservation-conference-2015/>



# SCIENCE SEX AND POETRY

**W**hen we look at flowers and plants we may initially be drawn to them because of their beauty, but equally there is a need to understand these complex organisms that provide us with food, fibres, building materials, medicines and even oxygen—almost everything we need to survive.

It is probably the spectacular displays, perceived frailty, alluring scents and delicate beauty of flora that have made it commonplace to compare women to flowers, and flowers to women. This has been exploited in poetry, from Greece in the 6th century BC (one of Sappho's poems compares her beloved to a trampled flower), to the early modern English poetry—one thinks of William Dunbar (ca. 1460–1520) with his "Sweet Rose of Virtue", Shakespeare (1564–1616) and Robert Burns (1759–96). This tradition is not exclusive to Europe, and can also be found in many other cultures, with Ch'in Kuan's (1049–1100) poetry being just one of many examples in China alone.

In the 18th century, Carl Linnaeus (1707–78) celebrated and utilised man's manifold connotations and relationships with flowers and plants. He transferred some of the more fanciful associations of plants into a scientific context—some poetic, some symbolic and some decidedly risqué!

With his (in-)famous 'sexual system', Linnaeus divided plants into classes and orders according to the number of male and female reproductive organs. Stunningly simple, it provided a standardised, international system which allowed botanists to both investigate and then rapidly progress with the huge task of naming and classifying plants, native or exotic, long known or newly discovered.

## Five Neighbouring Husbands

Although Linnaeus' new system spread swiftly across Europe, it had fierce opponents, often due to its explicit sexual overtones and associations. In a typical passage from Linnaeus' *Iter Lapponicum* (1732) (translated from its original Latin), a plant's sexual qualities are made

**RIGHT** *Chenopodium vulvaria*, a name which clergyman Samuel Goodenough reported to be "disgusting & horrid"



strikingly clear:

*In the tricoloured Violet, it is possible to witness a particularly pleasant spectacle. With the flower having just opened, you will see the maidenly womb – its shape a concave bowl and open on the side, white and beautiful, gaping lustfully. But as soon as the womb is ready to reproduce, her five neighbouring husbands discharge their reproductive dust onto the entire womb, which becomes swollen and soiled by dark colour, while her tube remains clear and translucent.*

Even Linnaeus' supporters were at a loss of how to deal with this 'plant porn', especially in their writings or teachings. Among them was the Society's founder and first President, Sir James Edward Smith (1759–1828). Renowned for his scientific meticulousness rather than flights of fancy, Linnaeus' sexual system placed him in one particularly awkward situation. In a letter to friend and fellow botanist Edmund Davall on 26 October 1792, Smith agonised over his engagement to teach Queen Charlotte and the princesses Augusta and Elizabeth lessons in botany. How was he to instruct these refined ladies using Linnaeus' structure and text? By way of example to Davall, he referred specifically to Linnaeus' description of the violet's reproductive strategies:

*I am engaged to go to Windsor to give the Queen & Princesses regular lectures (or rather conversations) on Zoology & Botany – in which by the bye I cannot be very full on the various structure of the vesicule seminales, not on the "vulva hiaus" of the Viola (see Flo. Lapponica).*

"God knows what it will produce," he wrote cheekily, "I don't mean the vulva hiaus, but my attendance on the Royal family."

Samuel Goodenough (1743–1827), a clergyman and co-founder of the Linnean Society, was horrified by such language, and clearly felt for the teachers and students of botany. He wrote to Smith on 19 January 1807:

*A literal translation of the first principles of Linnean Botany is enough to shock female modesty. It is possible that many virtuous students in Botany might not be able to make out the similitude of Clitoria, & of course might be at a loss to account for the name.*



LEFT So named because of its flower shape, it was thought that, when studying the genus *Clitoria*, more "virtuous" botanical students might be "at a loss to account for the name"...

*The name itself (like *Chenopodium vulvaria*) is disgusting & horrid.*

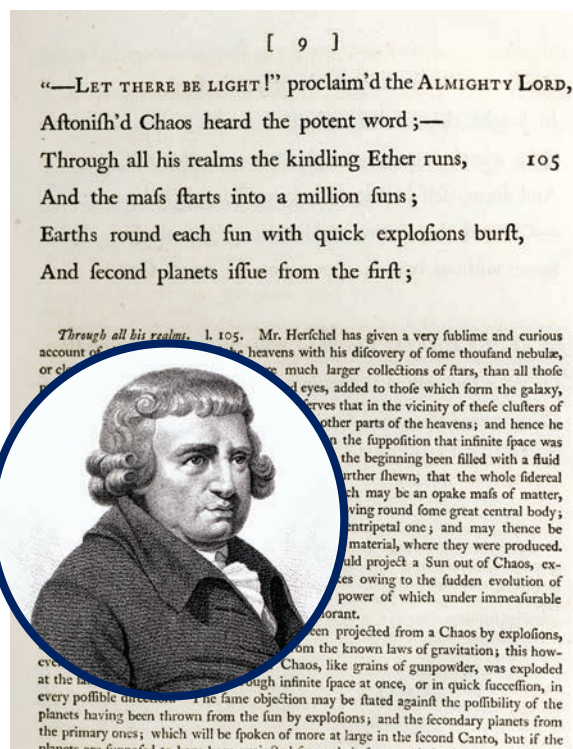
### Beauties Crowd the Blossom's Bell

At the same time as Smith's royal predicament and Goodenough's tirade against immodesty, Erasmus Darwin (1731–1802), grandfather of Charles Darwin, proved himself to be undeterred by Linnaeus's 'earthy' language. He decided to embrace the sexual, fanciful and symbolic, rather than fight it. He wrote poetry in which hard science and soft symbolism happily coexisted to promote science, art, love and sexuality in a way that, one can only entertain, would have delighted Linnaeus.

Darwin's formal poetry may have looked old-fashioned, but his subject matter was excitingly new. While perfecting the vision of a sexualised plant world

BELOW A stanza from Darwin's poem and his 'Big Bang' projections

INSET Erasmus Darwin



(in good Linnaean tradition), the notes that accompany the poetry in his work *The Botanic Garden* (1789) read like a roll-call of revolutionary technologies and advances in science, crafts and engineering. For a short time, Erasmus Darwin became the nation's favourite poet. However, he was also a cutting-edge scientist, anticipating his famous grandson's concept of evolution, and an even more modern concept of a "Big Bang".

He certainly did not shrink from interpreting Linnaeus' sexualised plant world. In fact, in *Temple of Nature* (1803) openly promotes it:

*Hence on green leaves the sexual Pleasures dwell,  
And Loves and Beauties crowd the blossom's bell;  
The wakeful Anther in his silken bed  
O'er the pleas'd Stigma bows his waxen head;  
With meeting lips, and mingling smiles,  
they sup  
Ambrosial dew-drops from the nectar'd cup;  
Or buoy'd in air the plummy Lover springs,  
And seeks his panting bride on Hymen-wings.  
(Temple of Nature, 2, 263–70)*

Whilst the actual beauty of flowers is often due to the need to attract pollinators, it has similarly spawned a true passion in humankind, alternately poetic and artistic, and hands-on and scientific.

A meeting of these "opposites" can be very effective, communicating and popularising science, and in many cases reaching a broader audience than each disparate part. From both an historical and modern perspective, building on this relationship can only aid in the general understanding of our environment, and, in essence, more publicly highlight the need for study and conservation.

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# Professor Niels Kristensen (1943–2014)

In early December last year, the Society was sadly informed of the passing of Professor Niels Kristensen. Professor Kristensen spent a large part of his academic career at the Zoological Museum of the University of Copenhagen (now the Natural History Museum of Denmark), where he was Professor of Systematic Entomology. He made outstanding contributions to systematic entomology, including work on Lepidoptera anatomy and systematics, which led to a better comprehension of the basal evolutionary lineages of these insects. He was also interested in the phylogeny of higher insect taxa, by way of in-depth anatomical examination of key taxa, looking at skeleto-muscular structures and soft anatomy systems.

Professor Kristensen also inspired a generation of students studying deep morphology, and in doing so preserved necessary skills that might otherwise have disappeared. For many entomology students, some of his work is considered required reading. His 1975 landmark paper, *The phylogeny of hexapod "orders": A critical review of recent accounts*, has been referred to by David Grimaldi and Michael S. Engel in their *Evolution of the Insects* as "the single most important paper in systematic entomology".

In more recent times, Professor Kristensen formed part of a group that identified the latest insect order, the Mantophasmatodea. His expertise and analysis of the internal structure of the specimens proved to be essential to the establishment of this new order. He received many academic honours, and was elected as a Foreign Member of the Society in 1998, which he considered to be "one of the greatest distinctions in my professional career". In May last year, the Society honoured Professor Kristensen's incredible achievements by awarding him the Linnean Medal in the field of zoology.



Prof Niels Kristensen received the Linnean Medal for zoology, 2014

## Dragonflies: Book for Review

The Linnean Society of London has a copy of the beautiful *Dragonflies: Magnificent Creatures of Water, Air and Land* by Pieter van Dokkum for review. To be published by Yale University Press, this stunning coffee table book looks in detail at the life cycle of dragonflies. Chair of the Astronomy Department at Yale University, van Dokkum is a keen photographer of insects, with a specific interest in dragonflies.

The book's many macro images depict everything from the larval stage to mating, through to death. The accompanying text informs readers about different species, dragonfly ecology and the metamorphosis of these insects.



If you would be interested in reviewing this publication for the Society, please contact us at [info@linnean.org](mailto:info@linnean.org) for further details.



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## FORTHCOMING EVENTS 2015

### 18 March

Regional Lecture  
18.00–19.00

### Bees, Pesticides & Politics: The impact of neonicotinoids on UK bumblebees

Speaker: **Professor Dave Goulson** (University of Sussex)

Plymouth Linnean Lecture at Plymouth University  
To find out more visit [www.linnean.org/plymouthbees](http://www.linnean.org/plymouthbees)

### 1 April

Lunchtime Lecture  
12.30–13.00

### Linnaeus' Fishes

Speaker: **Ollie Crimmen** (Natural History Museum, London) No registration required

### 16 April

Evening Meeting  
18.00–19.00

### A New Voyage of Discovery: Next-generation Biodiversity

Speaker: **Professor Ian Owens** (Natural History Museum, London) No registration required

### 27–28 April

1.5-day Meeting  
13.00–18.30  
10.00–16.30

### From Cabinet to Internet: Digitising Natural History and Medical Manuscripts

Organisers: **Dr Isabelle Charmantier & Andrea Deneau** (The Linnean Society of London), **Staffan Müller-Wille** (University of Exeter)

Registration essential [www.linnean.org/cab2int](http://www.linnean.org/cab2int)

### 6 May

Lunchtime Lecture  
12.30–13.00

### Sorcery, War Canoes and Sacred Shrines: Field work in the Solomon Islands in 1908

Speaker: **Prof Edvard Hviding** (University of Bergen) and **Prof Tim Bayliss-Smith** (University of Cambridge)

No registration required

### 22 May

Evening Meeting  
16.00–19.00

### Anniversary Meeting 2015

Fellows only event

Registration essential [www.linnean.org/anniversary2015](http://www.linnean.org/anniversary2015)

### 3 June

Lunchtime Lecture  
12.30–13.00

### The Genetic Biodiversity of Farmed Animals

Speaker: **Andrew Sheppy** (The Cobthorn Trust)  
No registration required

Please check our website for other events not listed here