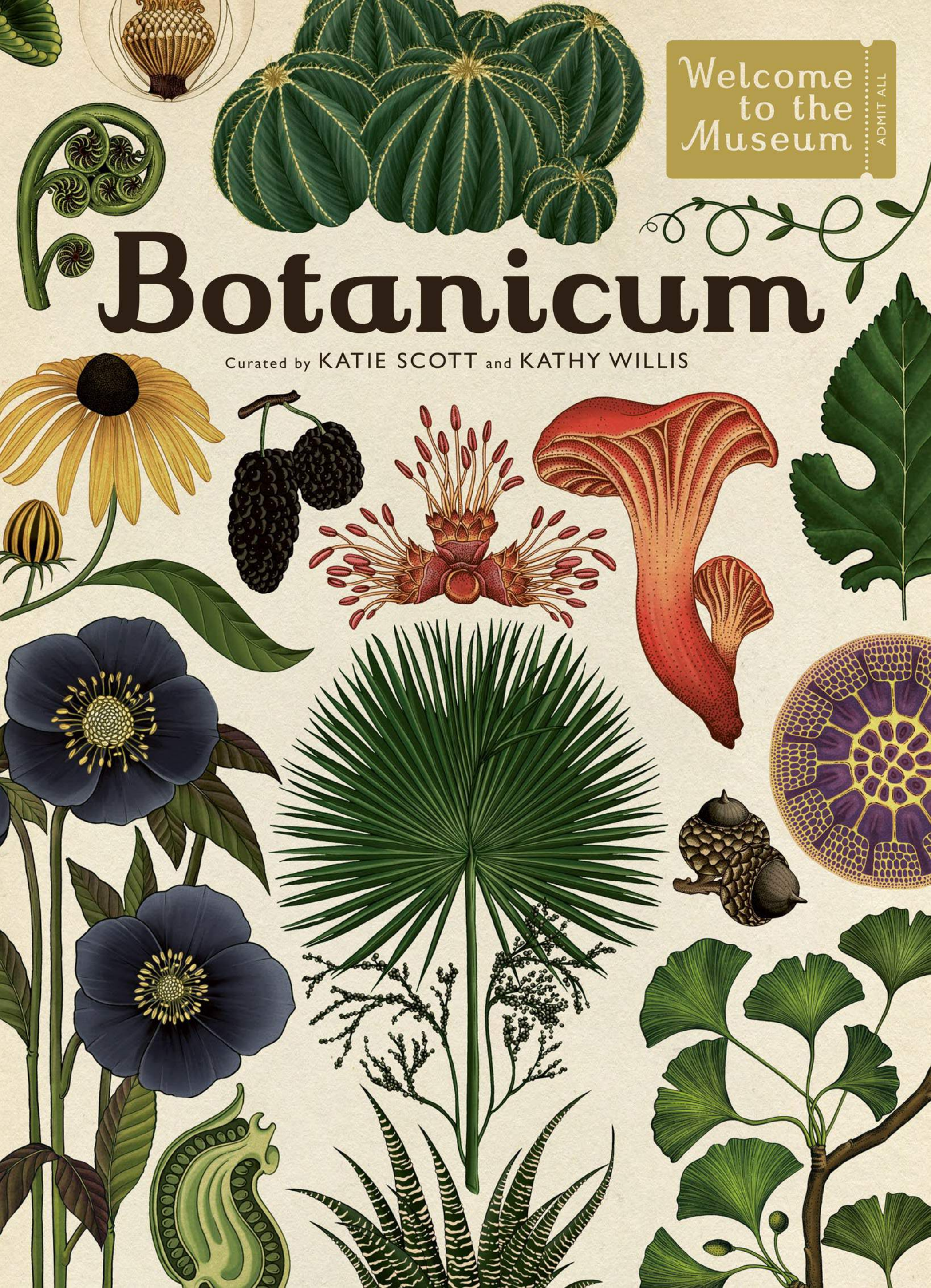


Welcome  
to the  
Museum

ADMIT ALL

# Botanicum

Curated by KATIE SCOTT and KATHY WILLIS





1

Entrance

Welcome to Botanicum;  
The Tree of Life

7

Gallery 1

## The First Plants

Algae; Bryophytes; Fungi and Lichens;  
Club Mosses, Horsetails and Whisk Ferns; Ferns;  
Environment: Carboniferous Forests

21

Gallery 2

## Trees

Conifers; The Giant Sequoia; The Ginkgo;  
Temperate Trees; Tropical Trees; Fruit Trees;  
Ornamental Shrubs; Environment: Rainforests

39

Gallery 3

## Palms and Cycads

Cycads; Palms; The Oil Palm

47

Gallery 4

## Herbaceous Plants

Flower Structure; Wild Flowers; Cultivated Flowers;  
Bulbs; Below-ground Edible Plants;  
Vines and Creepers; Environment: Alpine Plants

63

Gallery 5

## Grasses, Cattails, Sedges and Rushes

Grasses; Crops;  
Cattails, Sedges and Rushes

71

Gallery 6

## Orchids and Bromeliads

Orchids; The Christmas Star Orchid;  
Bromeliads

79

Gallery 7

## Adapting to Environments

Succulents and Cacti; Aquatic Plants;  
The Amazon Water Lily; Parasitic Plants;  
Carnivorous Plants; Environment: Mangrove Forests

93

Library

Index; Curators;  
To Learn More





BOTANICUM

*Gallery 1*

# The First Plants



*Algae*

*Bryophytes*

*Fungi and Lichens*

*Club Mosses, Horsetails and Whisk Ferns*

*Ferns*

*Environment: Carboniferous Forests*

# Algae

Earth was formed around 4600 million years ago. Within 800 million years, fossil evidence indicates the presence of the first plants on Earth; the algae. Algae range in size from single cells to giant seaweeds. The features that link them together as a distinctive plant group are that, although they use sunlight and carbon dioxide from the air to make food (a process called photosynthesis), they don't have roots, stems or leaves and they lack a layer of cells surrounding their reproductive cells.

Algae are most commonly found in water, with different species adapted to live in freshwater and saltwater environments. Some species live on land, often in inaccessible locations like rocky crevasses in the highest mountains or buried in the soils of the deepest valleys. This fondness for living in out-of-the-way places, and their often very small size, makes it difficult to count how many different types of algae there are on the planet. Estimates vary hugely – from 36,000 to 10 million species. Algae are split into 12 groups or algal divisions, called phyla. The three most successful and abundant are red algae, green algae and diatoms.

## Key to plate

### 1: *Amphitetras antediluviana*

Width: 0.125mm

This is a marine micro-alga called a diatom. Diatoms are often tiny, and usually single-celled. They are important because they are incredibly good at photosynthesis and play an important role in regulating the amount of carbon dioxide in the air.

### 2: Fossil segment of red algae

*Bangiomorpha pubescens*

Length: 0.225mm

This fossil filament was found in sediments from Arctic Canada and has been dated to around 1.2 billion years ago. It shows characteristic disc-shaped cells surrounded by a sheath, which are features also seen in the filaments of modern-day red algae.

### 3: Fossil segment of green algae

*Cladophora* sp.

Length: 0.075mm

*Cladophora* are one of the earliest recognisable green algae in the fossil record and are very similar in shape to their modern counterparts. They have been found in fossil deposits dating to around 800 million years ago. These green algae were the precursor to all land plants.

### 4: *Lyrella hennedyi* var. *neapolitana*

Length: 0.06mm

This marine diatom is called *lyrella* because it looks a bit like the musical instrument, the lyre.

### 5: *Rhaphoneis amphiceros*

Length: 0.06mm

This is often found attached to sand grains in shallow marine waters.

### 6: *Acetabularia acetabulum*

Height: 0.5–10cm

This green alga is found in subtropical marine waters and, although it is a single-celled organism, it is very large in size and has a complicated structure. It has a lower section resembling roots, which anchor the plant to rocks and a long stalk with umbrella-like structures at the end.

### 7: Red seaweed

*Bangia* sp.

Height: 6cm

The earliest red alga in the fossil record is similar to the modern-day algae, red seaweed, in the algae family Bangiophyceae. This marine algae has long red filaments.

### 8: *Pediastrum simplex*

Width: 0.06mm

This green alga has its cells arranged in a distinctive genetically determined shape, known as a coenobial colon. It resembles a flattened star.

### 9: *Licmophora flabellata*

Height: 0.5mm

Found in shallow marine environments such as estuaries, this diatom has distinctive fans and branching stalks. A sticky substance is secreted from the base of the main stalk to enable this diatom to attach itself to rocks.

### 10: *Asterolampra decora*

Width: 0.08mm

A round- and saucer-shaped marine diatom most commonly found in tropical waters.

### 11: *Micrasterias rotata*

Width: 0.18mm

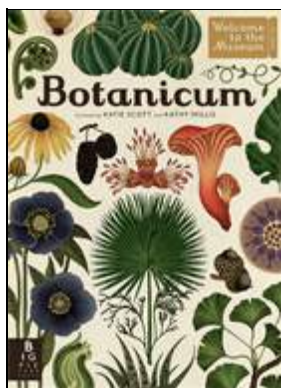
This is a single-celled, fresh-water green alga that is often found in acidic peatland environments. These algae are usually highly symmetrical in shape.

### 12: *Asterolampra vulgaris*

Width: 0.08mm

Another marine diatom in the *Asterolampra* family (see plate 10) but distinguished by its different patterning.





# Botanicum

**Katie Scott**

**Katie Scott**

## Keynote

**Discover more than 160 exhibits in this virtual museum, open all hours**

## Description

The 2016 offering from Big Picture Press's Welcome to the Museum series, *Botanicum* is a stunningly curated guide to plant life. With artwork from Katie Scott of *Animalium* fame, *Botanicum* gives readers the experience of a fascinating exhibition from the pages of a beautiful book.

From perennials to bulbs to tropical exotica, *Botanicum* is a wonderful feast of botanical knowledge complete with superb cross sections of how plants work.

## Sales Points

- Over 100 full colour, immaculately detailed pages featuring plant species from all over the world
- Illustrated by Katie Scott, this beautiful book will follow on from the phenomenal success of *Animalium*,
- The large, high quality format makes this the perfect gift for book lovers
- Created in consultation with The Royal Botanic Gardens Kew, this title has been created with world-class experts and advisors
- Written by Kathy Willis, Kew Gardens' Director of Science

## Author Biography

Illustrator: Katie Scott graduated from University of Brighton in 2011. Her work draws influences from traditional medical and botanical illustration, both in aesthetic and subject matter. Her work plays with the ideas of scientific uncertainty and speculation, fabricating the inner and outer workings of the world. Her illustrations depict a familiar yet fantasy vision of plants, humans and minerals.

Author: Professor Katherine (Kathy) J. Willis is Director of Science at the Royal Botanic Gardens, Kew, where she spearheaded the launch of Kew's *Science Strategy 2015-2020*. Kathy is also Professor of Biodiversity in the Department of Zoology, University of Oxford and an adjunct Professor in Biology at the University of Bergen. She previously held the Tasso Leventis Chair of Biodiversity at Oxford and was founding Director of the Biodiversity Institute. Kathy's research interests focus on the relationship between long-term ecosystem dynamics and environmental change. Kathy has published extensively and has authored or co-authored over 100 scientific publications, including the landmark book *The Evolution of Plants*, now in its second edition. In August 2015, Kathy was awarded the prestigious Michael Faraday Prize from the Royal Society for her excellent work in science communication.



**Pub date** 01 Sep 16  
**Price** £20.00  
**ISBN** 9781783703944

**BIC 2.0**  
 Botany & Plant Sciences (PST)  
 Atlases & maps  
 (Children's/Teenage) (YRW)  
 Gardening (Children's / Teenage)  
 (YNPG)  
 Educational Material (YQ)  
 Botanical Art (AGNB)

**BIC 1.0**  
 Botany & Plant Sciences (YSST)

**CBMC** D5H79  
**Age** 9-11 years  
**Subject** Non-Fiction  
**Type** Treasury/Gift  
 Anthology

**Character** Non-character  
**Tie In** Non Tie-In

**Binding** Hardback  
**Format** 370mm x 272mm  
**Extent** 112 pages  
**Series** Welcome To The  
 Museum

**Territory** World  
**In-House Editor** Katie Haworth,  
 Katie Haworth

**Backlist**  
**Title** Animalium  
**Pub Date** 01/09/14  
**Price** 20.00

**Title** Historium  
**Pub Date** 01/09/15  
**Price** 20.00

**Title** Story of Life:  
 Evolution  
**Pub Date** 01/10/15  
**Price** 12.99



**Orders to:** GBS, Trent Road, Grantham, Lincolnshire,  
 NG31 7XQ, 01903 828500

**Sales Office:** The Plaza, Floor 2.08, 535 King's Road,  
 London, SW10 0SZ, UNITED KINGDOM