

which drove him out of his reason and life; it was that misplaced ‘well-nourished optimism’ which darkened for ever his ‘patch of blue sky’.

But if facile optimism can lead to disaster, I hope it is not misplaced to find some consolation in the Linnean Society, of which Edward Bunyard was a Fellow, and the Brogdale Trust of Kent, Bunyard’s own county, choosing him as the subject of this year’s Lecture.

## NOTES

1. All quotations are identified in the text. Further documentary evidence and support for the arguments advanced will be found in *The Downright Epicure: Essays on Edward Ashdown Bunyard (1878-1939)*, ed. Edward Wilson (Prospect Books, Blackawton, Totnes, 2007).

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## The importance of Bishop Gunnerus for Linnaeus

As a preparation for a lecture to be given at the Royal Norwegian Society of Science and Letters (DKNV) in Trondheim, where Linnaeus was made the first foreign member in 1767, I read the total correspondence between him and Bishop Gunnerus, which has survived *in toto*. This is a most remarkable case where it is possible in detail to follow their exchange of ideas and observations. Since it is not likely that anyone outside Norway knows who Gunnerus was, some presentation of him may be necessary, though I believe most British members know plants of the impressive genus *Gunnera*, which Linnaeus dedicated to him. A splendid, very personal presentation of his life and activities in English was published a few years ago by our member Gertrude Marsh (Marsh, 2002).

### Who was Gunnerus ?

Johan Ernst Gunnerus (fig.1) was born in Christiania, Norway in 1718 as the son of the city medical officer Erasmus Gunnerus (the family name is a latinization of Gunner, and it has been claimed that the family originated in Scotland, a fact I have been unable to prove unequivocally – Erasmus was born in Sweden).



Fig. 1. Bishop Gunnerus from a contemporary engraving

Already as a child, he showed great talent, and he did well at school. However, his father's early death (when Johan was fourteen) put economic difficulties in the way of his education. He managed, though, to finish by the help of benefactors, and wrote a Latin exercise for his final exam which was so excellent that it was reported to the King, who upon his inscription at the University at Copenhagen awarded him a scholarship for studies in Halle, Germany. There he stayed for one year and thereafter moved to Jena where he took a doctoral degree in theology, but also taught logics, metaphysics and international law. The King finally called him back to Copenhagen



Fig. 2. The first page of Gunnerus' pastoral letter from 1758.

where he became so popular with the students as acting professor at the University, that some of the ordinary colleagues complained to the King, who promptly and most unexpectedly appointed him Bishop of Nidaros in his native Norway. Gunnerus was himself surprised by this, and not at all happy for Trondhjem was a marginal place, outside the scientific world he cherished. He went there, however, with the determination to show that Norwegians were as able in science as any other people. It was rather by accident that he turned to biology, one of the few subjects he had not studied at the universities that he had visited. The accident was caused by the visit by Chr. Oeder to Trondhjem in the autumn 1758, a German who was preparing the publication of the (later) famous “Flora danica” which was planned to contain Norwegian plants as well (in fact fig.1, *Rubus chamaemorus*, was unknown in Denmark proper). It certainly felt like a kick to someone who wanted to prove that Norwegians were able to do their own science. Gunnerus also got hold of *Species Plantarum* by Linnaeus, which was just the book for someone starting to get to know plants. In 1760 he had started the learned society which developed into the first academy in Norway, with royal approval from 1768 on. He also issued a pastoral letter in 1758 to the clergy (fig.2), urging them to study the natural resources of their parishes, as part of their religious activities – to understand God’s creation. This letter was most unusually also published in German, certainly to show that science was taken seriously in Norway. The very influential royal physician, Chr. Struensee, who disliked the organisation and scientific direction of the university, in 1771 asked Gunnerus to make a plan for its reorganisation and renewal, which he did. On his way to Copenhagen in 1772 to discuss this plan, Gunnerus got the news that Struensee had been arrested and beheaded as a traitor. The terrified Gunnerus at once returned home and never recovered fully from the shock, according to contemporary sources.

In 1773, on a visitation to Møre, he experienced a violent storm at sea, and refused to go under deck, as he wanted to observe the forces of nature. Afterwards he developed serious pneumonia from which he died on the 25<sup>th</sup> of November in Kristiansund. He certainly was the most important intellectual in Norway in his time.



Fig. 3. The frontispiece of *Flora Norvegica*.

Fig. 4. *Veratrum album*, a plant new to Scandinavia, as illustrated in a letter to Linnaeus.

### The Linnean connection

Gunnerus first wrote to Linnaeus on the 24<sup>th</sup> of April 1761, a long, twelve page letter, mainly concerning animals from the ocean, a habitat for which he had a lifelong interest. Linnaeus' reply after a year was brief, but most friendly. He said that he needed to see specimens in order to answer Gunnerus' many questions, and strongly recommended that Gunnerus continued his study of boreal organisms, which Linnaeus claimed God from the beginning had reserved for Gunnerus.

It was only in May 1764 that Gunnerus informed Linnaeus that he was working on a "Flora norvegica".

He admitted that this was bold, but he had to make one since "no one of my contemporary, learned compatriots are willing to do so" (once more showing patriotism!). Linnaeus was more than willing to assist him, certainly since this would enable him to get specimens from parts of Norway which few visited. And indeed, soon Gunnerus provided Linnaeus with a botanical gem, *Veratrum album*, from Finnmark (fig.4) – new to Scandinavia (though originally discovered by Lilienskiöld just before 1700 and illustrated by him in his unpublished "Speculum boreale").

To begin with Gunnerus acted as the student taking knowledge from the master. However, as his self-confidence grew, he dared to question Linnaeus' opinions, though in the most polite way possible. They disagreed most about the taxonomy in the genus *Saxifraga*. Quite clearly Gunnerus had understood the plants he collected better than Linnaeus who had not seen them in the field, a fact Linnaeus freely admitted. Linnaeus, to my surprise, actually asked for seeds so that he could grow them side by side, a most modern approach. Their greatest disagreement is, however, how to interpret names in the older literature, above all the drawings in 'Flora danica'.

Another plant under discussion was a largeflowered *Arenaria* which according to Gunnerus could not be identified with any species in "Species plantarum". Linnaeus was uncertain and admitted this. The plant reminded him of *Arenaria balearica* though he doubted that this species was able to grow so far North and again he required seeds, which unfortunately failed to grow. Gunnerus finally described the species as *Arenaria norvegica*, a name it still carries.

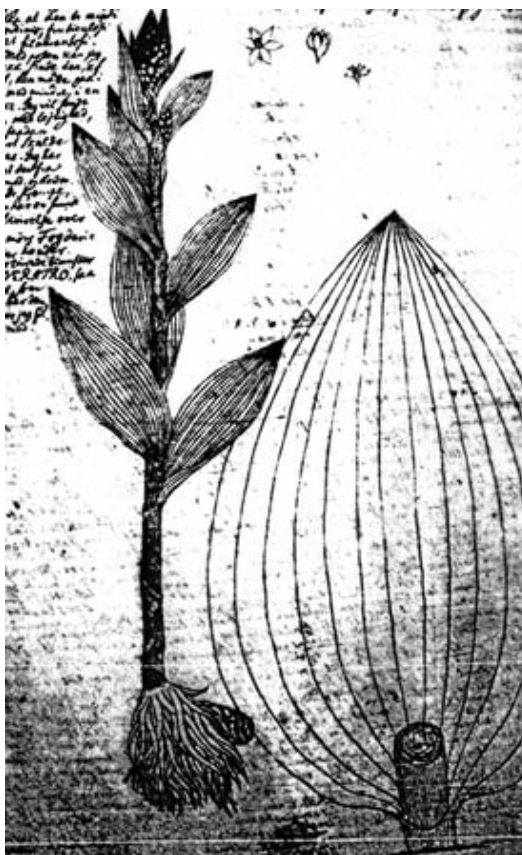




Fig. 4. A letter from Linnaeus.

Linnaeus was even more generous in relation to a lichen which one of Gunnerus' vicars had collected and which Gunnerus believed to be new, but could not with certainty distinguish from a Linnean species. They discussed this matter in some letters, but finally Linnaeus concluded: "Your Grace, who has sufficient material available, is best suited to make the final decision."

### Conclusion

I regard Gunnerus and Linnaeus as twin souls, eagerly trying to understand God's creation and organizing it. Undoubtedly, Gunnerus would not have achieved so much without Linnaeus. However, Gunnerus was also of great importance for Linnaeus, not

only because he provided him with specimens of rare plants and animals from the North, but also since he without any preconceived opinion on systematics (he had not studied the subject at any university!) tested the usability of the Linnean system and reported on this to Linnaeus. To my knowledge the frankness of their discussion is unparalleled in the Linnean correspondence. It is obvious that they trusted each other and valued the observations and opinions of the other highly. Linnaeus most nobly praised Gunnerus in several of the letters, most obviously in a letter from March 1764 (fig.4 above). What a pity that they never met!

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## Bumblebees – changing fortunes

Linnaeus' bumblebees<sup>1</sup> are amongst the oldest surviving bumblebees in Europe and his collection has a number of familiar species. In this world of diminishing species the collection is an increasingly important reference for species that are declining, becoming extinct or changing populations through climate change or man-made factors.

His bumblebees are part of three boxes of Hymenoptera (Boxes 33, 34 and 35) of mixed genera, curated by Mike Fitton, assessed by M.C. Day<sup>2</sup> and more recently by Paul Williams at The Natural History Museum.

Of particular interest to me is the paucity of *Bombus* species in the tropics,<sup>3</sup> for the genus is more typical of the Northern Hemisphere whilst exploitation of tropical habitats is much reduced or absent in some places such as



Boxes 33 (above) and 34 (right) of Linnaeus' Hymenoptera.