

What's in a Face Paul Harcourt Davies

Sooner or later any ardent orchid lover will sit on a hillside where there are swarms of *Ophrys* and be able to marvel at what a genetic rag-bag can go past under the guise of a single supposed 'species'. The images that accompany this piece include varieties and hybrids of *Ophrys fuciflora* and *Ophrys apifera*. The *O. apifera* pictures are from various sites in 'Europe' in the widest sense. Some of those of *O. fuciflora* are from a wonderful hillside in the French Jura where there were countless spikes and little else except the occasional *Himantoglossum hircinum*. Some are orchids that grow 'just down the road' from where I live in Umbria. It is my attempt to reveal the extraordinary diversity within single 'species' and maybe make people wonder a little about 'names' given to species and the putative parentage of what is so unusual that it seems to be a 'hybrid' – or is it?

After about four decades of serious study, wandering over hillsides throughout the Mediterranean and Central Europe, I am circumspect about what I see. Yet, I read articles from so-called (and self-appointed) orchid experts (in English, French, Italian and German) who state confidently there are clearly genes of this or that *Ophrys* species present. Really: what is the evidence, how do you know what controls which bit of a labellum pattern or shape? Have those authors watched the same orchid populations over many years or even tried to hybridise artificially under lab conditions to see the result? Conjecture is one thing, but in the world of European orchids seemingly anyone can make claims and, without 'peer review', the claims pass into the literature. Utterly missing is any sense of proportion, for driven by a desire to find 'new' species, many fail to realise the potential for variation within a single, so-designated, *Ophrys* 'species'.

It is worth looking at the 'stable' ones: *Ophrys apifera*, the Bee Orchid, will often be remarkably consistent in flower morphology in one population but then in another scarcely two individuals seem identical. *Ophrys fuciflora* is a far bigger offender in this sense when it comes to finding identical individuals. I cannot claim to be a geneticist of any sort but, at one stage of life, the maths that makes up the probability theory that underlies genetics was meat and drink and a residual 'impression' remains in the few functioning brain cells left! The reality is that the portion of genetic material controlling and dictating such visually obvious characteristics as colour and shape must be very small. The named varieties *Ophrys apifera*, with sometimes extreme changes in lip morphology, reoccur in different populations suggesting that a single genetic mutation is responsible. The subsequent persistence of such variants is probably associated with the tendency of the species to self pollination, a phenomenon that probably contributes to the generally consistent morphology found in some populations. Even with a handful of mutations the potential for

variation is massive. Think of it this way – pairs of characters for light/dark, red/blue, with border/without border speculum and apex /no apex provide four sets of characters with an on/off choice. This gives $2 \times 2 \times 2 \times 2 = 2^4$ or 16 distinct variations within a lip. Yes, this is simplistic of course but I want to try and encourage people to stop, think and be less ‘definite’ because in a DNA structure there are innumerable entities that ‘control’ and offer choices.

Since this piece was originally penned two years ago numerous new *Ophrys* have appeared. Most recently I was sent a paper that made me groan for it split (again) the *Ophrys fuciflora* populations of the Central Italian mountains. Proliferation just does not help. Why oh why do so many within the wonder-world of European orchids never think of elegance and simplicity? It really might be time to revisit the idea of *pluralitas non est ponenda sine necessitate* or ‘plurality is not imposed without necessity’. The idea is attributed to a 14th century friar, Father William D’Ockham and is known as *Occam’s Razor*. It is, in fact, a much earlier principle but it has lasted and was later proposed in slightly different ways by both Sir Isaac Newton and the philosopher Bertrand Russell. It is not to be taken as an absolute rule – it is a guide, an heuristic principle to be used when faced with various paths to follow. As a photographer obsessed with small things, the more I look the more I find that Nature is often wonderfully ‘elegant’ with its symmetries and structures. But humans tend to complicate matters for reasons more social than scientific.

Back in the 1990’s Dr Philip Cribb and I talked at length about preparing a joint monograph on the genus *Ophrys*. It was not a great time for publishing ventures and we both had a great deal to do besides. What has deterred me since is a culture that surrounds the genus *Ophrys* that goes against every fibre of my scientific and philosophical training – that of the need to complicate. I welcomed ‘*Ophrys: the Bee Orchids of Europe*’ by Henrik Ærenlund Pederson & Niels Faurholdt. However, in a complete monograph the Turkish species need to be included as well because interesting things happen at the edges of the range. I have the images – maybe an ebook iconograph in the future, who knows?

Varieties of *Ophrys apifera*

Fig. 1: *Ophrys apifera* var. *chlorantha*

Fig. 2: *Ophrys apifera*

Fig. 3: *Ophrys apifera*

Fig. 4: *Ophrys apifera* var. *trollii*

Fig. 5: *Ophrys apifera* var. *trollii*

Fig. 6: *Ophrys apifera* var. *chlorantha*

Fig. 7: *Ophrys apifera* var. *jurana*

Fig. 8: *Ophrys apifera* var. *friburgensis*

Fig. 9: *Ophrys apifera* var. *bicolor*

Photos by Paul Harcourt Davies





The more I visit somewhere like Gargano (36 times and counting since 1974) the more I am convinced that, given strong populations of hymenopteran pollinators (themselves open to variation and very difficult to identify unless you work with a microscope – if you can catch them, that is) one is often looking at a snapshot. It is evolution in action, plant entities in transit. To give some small population a specific status on the basis of flimsier and flimsier character differences stretches the species concept. Hans Sundermann had the sense of this when he proposed the idea of praespecies. No, for strong philosophical and scientific reasons, I am not a fan of proliferation of species. Funny thing is I have never talked with ‘real’ botanists such as Dr Phil Cribb, Jeff Wood, Dr Alec Prigeon and Prof Richard Bateman ever to discover a secret splitter. Philip Cribb summed it up admirably in one of our many conversations over the years: Anglophone botanists tend to look for similarities and those on the continent for differences.

Interestingly, each and every one of the gentlemen mentioned is not only an orchid expert but has a profound knowledge of other aspects of botany and, moreover, the natural world. At the Glasgow WOC in 1993 I had a private contest with Alec Pridgeon to see who could get the most unlikely picture into a talk on orchids at the plenary session – he won with shots of whales. Many continental orchid writers have an interest solely

Variation in *Ophrys fuciflora*

Ophrys fuciflora in Jura (Figs. 12, 13, 15 & 16)

Ophrys fuciflora in Central Italy (Figs. 10, 11, 18 & 20)

Fig. 15: semi-peloric form of *Ophrys fuciflora*

Photos by Paul Harcourt Davies



in orchids. Their papers are often published in journals they themselves edit and there is none of the ‘peer review’ that is traditional and absolutely essential practice in scientific journals, where papers have to stand scrutiny before they appear in print and are thus given credence. We live in a day and age where too much can appear on the Internet and be cited as ‘source’ material. In many areas of ‘pseudoscience’, charlatans are treated as experts because they are ‘quoted’. I hope rigour will triumph, for out of sloppiness come ghoulies, ghosties and all sorts of witless therapies for the gullible. Sorry, it is a pet gripe, a hobby-horse but it is driven by a background in analytical methodology.

In fact, I would propose a universal return to the idea of botanical referees and, unless these species are certified by a ‘genuine’ orchid authority e.g. a University or Botanic garden by people with a known track record, they should not be adopted. It really does any orchid enthusiast a power of good to see how one ‘species’ can vary before joining the rush to put names to each supposedly ‘distinct’ taxon and raise them to specific status. In recent years, what are little more than hybrid swarms have been thus elevated and this does not serve to clarify or simplify in any way the understanding of orchids.

When I knew I was off to Cyprus in 1978 I had no intention of returning to the UK to teach and so, with some glee, extracted what I had put into the Teacher’s Superannuation Fund. It went to buying a Bolex 16mm cine camera with which to make natural history films and a set of books. The latter were volumes by Erich Nelson and the most prized is still an autographed copy of the *Ophrys* volume – those who have seen them will know of the marvellous paintings of rows of *Ophrys* faces from different localities. Dr Nelson was not a splitter but those who came after read his books, noted the sites and went off hunting. This volume was a ready source of material and suddenly each face of *Ophrys arachnitiformis*, *Ophrys sphegodes* or *Ophrys fuciflora* became a new species and the rest is history.

Eric Nelson’s beautiful paintings of orchids first appear in a work with text by Dr Herman Fischer in 1931 on the *Orchids of Germany*. His own volume on *Ophrys* appeared in 1962 – over thirty years later when all the walking, searching and metic-

Hybrids involving *Ophrys fuciflora* and *Ophrys apifera*

Fig. 21: *Ophrys fuciflora* × *bertolonii*

Fig. 22: *Ophrys apifera* × *fuciflora*

Fig. 23: *Ophrys fuciflora* × *sphegodes*

Fig. 25: *Ophrys apifera* × *bertolonii*

Fig. 24: *Ophrys fuciflora* × *bombyliflora*

Fig. 27: *Ophrys fuciflora* × *sphegodes*

Fig. 26: *Ophrys apifera* × *fuciflora*

Fig. 28 & 29: *Ophrys fuciflora* × *tenthredinifera*

Photos by Paul Harcourt Davies



ulous painting led to this superb monograph. He had a synoptic view of the genus gained from vast field experience: it was never a case of “Hey chaps, where shall we go for our hols this year - whoops another five orchid species”.

Just to establish a point about the capriciousness of orchids, I once took a box of slides with me as an addition to a talk I gave in Germany where I had made a number of good and knowledgeable friends. I explained that I wanted to run a little quiz and put up a series of pictures of *Ophrys sphegodes*: the task was to say which taxon they were. These were orchid folk ‘*par excellence*’ and some were much published. Their answers were consistent: *Ophrys hebes*, *Ophrys araneola*, *Ophrys aesculapii*, and so on. In fact, the pictures were all taken on the same afternoon on a well-known hillside near Dover in a very good orchid year. No one was angry, I had touched a common chord. With orchids you never stop learning they are the great deceivers and they humble us all.

As I write this in my study with a good 20cm of snow outside and rising. I gain comfort from the fact that, last week, I saw lots of orchid leaves at one local site. And now it is February and the MWGs (morons with guns) have stopped their determined slaughter of anything that flies. Hope springs eternal!