EDITORIAL

In this 100th issue of Field Mycology, and my last as Editor, I thought I would indulge myself by having a *Russula* species as the Fungal Portrait opposite. *Russula* has long been my favourite genus since I first began mycology.

As with many such passions it began with a great teacher, in this case the foremost British *Russula* expert, now long since passed, Ronald Rayner. On one of my first BMS fungal forays, still in my teens, my father and I attended a foray led by Ronnie. During the course of the foray he picked up a dark purple *Russula* and proceeded to scratch the base of its stem and demonstrate the striking smell of iodoform that it possessed, it was *Russula turci*. I was hooked from that moment on.

On learning that the genus had over a hundred species in Britain (the current total is now 149 species) and that most required field characters, ecological data, microscopy and chemical tests to determine them I was determined to get to grips with them—a task I am still attempting today.

I have been fortunate, along with my colleagues Mario Tortelli and Claudi V. Soler to discover a few species new to the British list, but none more exciting or beautiful than the species opposite. But we know that there are still more species to discover; this is the excitement and joy of mycology. A.A. Pearson—another *Russula* enthusiast—in his work *The Genus Russula*, published in The Naturalist, 1948, stated it very succinctly: "There is no finality in mycology and least of all in the genus *Russula*".

A report in September (BBC 25th Sept.) recorded a serious case of poisoning after three people in Jersey, including a mother and son, ate Death Caps, *Amanita phalloides*. Apparently they had mistaken them for edible mushrooms although it is not made clear what species they thought they were picking. At the time of the report one of the three remained in hospital.

Whatever your views on the pros and cons of mushroom foraging, everyone agrees that to eat wild fungi without a thorough knowledge of what the distinguishing characters are of the known toxic species is foolhardy at best and potentially lethal at worst. If you are eating wild fungi do please be careful, try and get the opinion of an experienced mycologist and if in the slightest doubt do not eat them.

If you thought that human relationships were difficult then spare a thought for the fungi. A report in *PLOS Genetics* (https://doi.org/10.1371/journal.pgen.1010097) on three *Trichaptum* species looked at two regions on their genome which were thought to control crossbreeding.

These two regions had many different possible alleles and for potential mates to be compatible, both regions must be different from their prospective partner's. The report goes on to state that "This diversity has hampered sequencing efforts. The many divergent alleles make primer design all but impossible, thwarting the use of less expensive, targeted sequencing methods. This hurdle means that researchers wanting to sequence these fungi would need to rely on so-called next generation, short-read genomic sequencing technologies—methods which, given the number of individuals and the depth of sequencing needed to ensure accuracy, have simply been too expensive".

The team managed to overcome these difficulties however using lower cost next generation technologies. The result was that they found that up to 17,550 different combinations were possible. The report continues:
"Why any organism would need so much sexual variation remains an open question, but study author and University of Oslo geneticist David Peris suspects it has to do with the mushrooms' sessile lifestyle: having to be different at two different gene regions makes it less likely for spores released from the same mushroom to successfully combine, thus lowering the odds of inbreeding.

For a nice summary of the research see *The Scientist* (https://www.the-scientist.com/this-fungus-has-more-than-17-000-sexes-69930).