

TWO
PLANTS
IN
DIP

Becky Beasley

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My mother is a pinecone.

Interviewee:
What's the Latin for Oak, the scientific name?

Interviewer:
I should know this.

[Laughs]

Um, I don't know.

It's Quercus.

Quercus!

Afterlife



This text originates with the proposition that I would take my mother to Southend for the weekend to talk about the future. I had briefly touched on the idea that in the event of Mum's ageing and later needing any care, we would like to have her come live with us. Without blinking she thanked me and said no, she wouldn't be doing that, she already had plans of her own. I was surprised. She would be moving to a nunnery in West Sussex and would be cared for there until her time came. Mum is a Catholic and her life has been one of love and service to the care of others, in particular to those in most need. She was a nurse by profession and also raised my brother and I, but prayer has always been at the centre of her life. Her clear-cut plans felt like an odd rejection at the time, but I understood and soon after invited her to Southend for the weekend instead.

At 71 and 41 years respectively, the plan was simply to spend some time together alone; something we had not ever really done or not for a long time. To walk through the Pleasure Gardens, descend the Cliff Lift and take the train out to the end of the Pier and back. We meet around the issue of God by way of endless conversations about nature; gardening, botany and dogs in particular, and so I knew the walk would suit us well.

Towards the end of the trip over breakfast, I mentioned in passing my interest in the section on Alien Plants in *A Botanical Investigation of Essex*. I discovered this slim 1920's compendium of historical botanical references to Essex in

Southend Library. Mum was surprised and replied that Eric's specialism was aliens, and didn't I know already?

Eric is Eric Clement; recluse, botanist and member of the Linnean Society, his expertise for membership being alien plants. Eric and mum became acquainted when he occasionally attended the meetings of a group of serious amateur retiree gardeners that she organized for about ten years. He lives in the same small coastal town of Gosport. Dorothy Hollie, also a member of the Linnean Society – with a specialism in Oaks – brought Eric along. She also drove him to Hillier Gardens once a week for ten years while they created a herbarium there.

Eric is very fond of my mum, both for her kindness and for her enthusiasm as a serious amateur gardener, which is how I came to be allowed to interview him in his home, where his own 58 year old herbarium and library are housed.



Alien Plants

Can you tell me how you came to alien plants?

How I came to alien plants? Well...(pauses), I started as a bird watcher and I got interested in birds' nests, like so many children in those days. I liked to write down the description of where it was and then you start to note what plants it was amongst and that's how my interest in botany began. You have to learn the plants. After that when I went out into the field and I saw plants that weren't in the books because they're alien casuals and I thought, Oh! Then I started getting more and more foreign books... it was that quest, to name everything.

So what sort of age were you when you started getting hold of foreign books?

I'm afraid it was just when I was trying to get a degree, so I failed the degree in mathematics and I got into plants.

And so your library's been growing ever since.

It has indeed...

...growing around you in here....

...and it's a huge nightmare (laughs)



Herbarium (Eric's filing system)

So I guess this should have been a dining room of some kind in the house... (sound of a door being opened)

Wow.

I'm reaching the ceiling, to say the least.

[laughs]

There's a garage next door so I could knock through, but I've run out of energy now. I'm 78 next year. This is a worldwide herbarium. Sadly, it's arranged alphabetically, which is not a good idea. You really should arrange it scientifically, by family. So, it starts at A and it goes all the way round there and down here to Z.

So, you've organized it that way because?

...because the families have always been argued about. There are many things where we're not sure to which family it belongs. It depends on which book you read and I got impatient, you know.

It's less reliable than the alphabet?

Yup. Also, you have to remember the family and I remember the generic line, like *Quercus*. I don't have to think which family it was. It's *Fagaceae*¹. It's an extra layer of learning. So in the old days it was all arranged alphabetically which I regretted ever since. So what I've done is, bit by bit, I've gone through and taken families out. I've taken out *Quercus* now. It's under *Fagaceae*, together with some other things. I've taken all the poppies out, *Papaveraceae*², as well. So, when I have the energy, that's what I'm doing. As the files overfill, I have to do something.

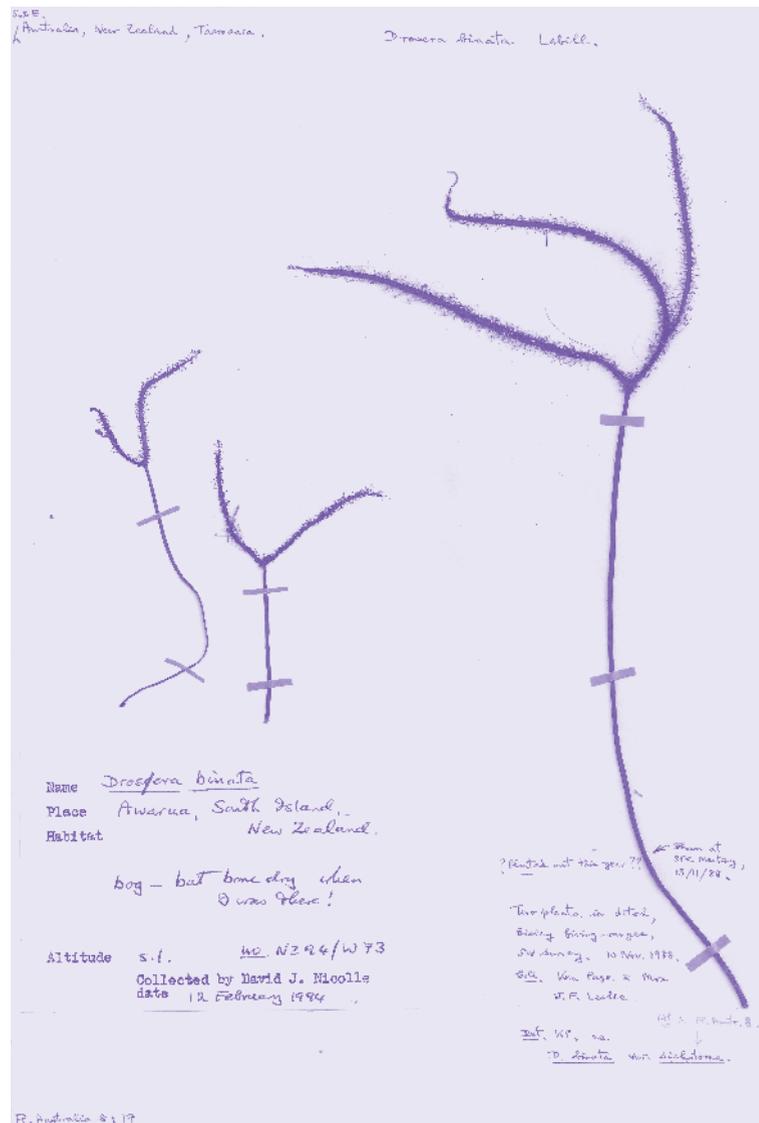
So these ones are going to another archive unit, currently in the boxes on top of the filing cabinet, because they're that now in families?

- 1 **Fagaceae** is a family of flowering plants that includes beeches and oaks, and comprises eight genera with about 927 species. Several members of the *Fagaceae* have important economic uses. Many species of oak, chestnut, and beech (genera *Quercus*, *Castanea*, and *Fagus*, respectively) are commonly used as timber for floors, furniture, cabinets, and wine barrels.
- 2 **Papaveraceae** are an economically important family of about 42 genera and approximately 775 known species of flowering plants in the order *Ranunculales*, informally known as the poppy family. The family is cosmopolitan, occurring in temperate and subtropical climates (mostly in the northern hemisphere), but almost unknown in the tropics. Most are herbaceous plants, but a few are shrubs and small trees.

Yeah. Well, really everything here should go into boxes, yeah. The hanging filing cabinet system is not a good way to store them as the sheets are stored vertically. They do tend to fold under. They get a terrible curve on them. They should be stored on horizontal shelves.

So you need some new storage?

It's just the way I started. Actually you can see how those [two filing cabinets] were bought together. When I next bought them they'd changed the style. And then they changed the style again. [laughs] But they are always absolutely identical in size of course.



Herbarium (Specimens & Strapping)

Can you pull something out for me?

Yes, of course. This herbarium this covers native plants as well. It's not only aliens.

It comprises all your walks and collecting?

Yes. It's also worldwide. I've been abroad an awful lot. When I travelled on those holidays, I went with a case full of newspapers for drying them. It's got so much stricter that you actually couldn't do it very easily now. In the old days they didn't bother at all. I never did tell anyone, but they told me to get on in life you had to specialize. So in plants, I had to specialize. And I was very, very clever there. I specialized in alien plants. (laughs). Do you know what that means? It meant I'd study plants worldwide [laughs] because they're all potential aliens! (sound of filing cabinet opening) You've probably not heard of *Drosera*, but they're insectivorous plants.

So, they eat insects?

Oh yeah, the insects alight on the leaves and the leaves are terribly, terribly sticky and they get stuck, and the plants seem to absorb the moisture from the creature. Anyway, there are quite a lot worldwide. It's quite interesting. That's an Australian one. But you do need good magnification. This is actually covered with sticky hairs.

Yes, I can see the hairs. What's that called?

That's called a *Drosera binata*, and the last name is the author. It's done by Labill.

Have you named anything?

I have, yes³. I'll show you the example in a minute. Oh, that's a standard British one. It's called *Drosera anglica*⁴, which means, of course, 'from England'.

- 3 **Lavatera x clementii** (Named by Eric Clement)
The most widely grown shrubby mallows in the British Isles, introduced from Southern Europe, are the cultivars and hybrids of *Lavatera thuringiaca* and *Lavatera olbia*. Recently they have been classified by Eric Clement as the hybrid *Lavatera x clementii*. Within the British Isles *Lavatera olbia* and *Lavatera thuringiaca* are normally known as *Lavatera*, rather than by an ancient vernacular name, although Hyères Tree Mallow and Gay Mallow are both in use. *Lavatera* is often found on waysides and is a fertile although short-lived perennial which grows into a shrub up to 2.5 metres tall. It is easy to root from cuttings.
- 4 ***Drosera binata***, is a carnivorous plant species belonging to the sundew family, Droseraceae. Commonly known as the forked sundew or fork-leaved sundew, it is a large, perennial native to Australia and New Zealand. The specific epithet is Latin for "having pairs" – a reference to the leaves, which are dichotomously divided or forked. Some populations go dormant in the winter, while others are truly tropical. ***Drosera anglica***, commonly known as the English Sundew or Great Sundew.

So, this is how they catch their prey?

That's right. You can actually see those hairs there. They glisten. You can find them in the New Forest yourself, if you went.

Gosh, it's 120 years old.

Isn't it wonderful? Someone was turning out an attic. They found a number of these plants. I've only kept a few, others I passed on, but that was one I thought that was interesting.

Is that the fixing of the time, or is that more recent?

No, no, it's totally original.

So, it's 120-year old fixing?

Yeah. They tend to call these straps, actually. It's a very, very good way to do it because if the paper deteriorates, or if you have to re-arrange another sheet, you could remove the straps and...

Yes, they're physically not attached to the specimen.

No, it's the better way to do it. Or say, you want to see the underside, you know, on some plants, you sort of obscure bits. To see the other side here, you can then take them off. So, this is *Drosera anglica*...A lot of plants have synonyms. It used to be called *Drosera longifolia*.

So when would that have been changed?

I don't know. It certainly wasn't me. But you'll see this in herbariums a lot. People have annotated and re-annotated the sheets.

So it presents a continuous history of revising and correcting.

Exactly. So that was a *Drosera anglica* taped in 120 years ago and, uh, where is my *anglica*? (pause, background noise)... Here it is.

It's from 1997? So you collected yours 100 years later.

Yes, but that was actually back in 1966, see? (pause) Some plants deteriorate more than others and this one obviously doesn't deteriorate very much. It's the colours that you basically lose.

Presumably that's also to do with how they are stored?

Oh, it is yeah. If these were in a damp place, they'd deteriorate badly.

Pleasure Gardens

We wandered slowly down the paths of the Pleasure Gardens. It was the first time in a long time that we'd had time to do such a thing together, alone. We stopped to look more closely at anything at all which caught our attention. We had time. It was a hot day and the shade of the pines was relaxing, quite dreamy in fact. It was a simple pleasure to be there together, ambling along. As we reached an open grassy area we noticed a homeless figure asleep under a plastic tarpaulin. Mum worried that they would die of heat stroke if we didn't wake them up. So after a moment's deliberation, I was afraid we'd scare them, we woke the man up and suggested he move under the trees, which he did willingly looking bemused.

In John Berger's, *Here is Where We Meet*⁵, a series of city portraits, each of the protagonists meets someone dead. Berger begins in Lisbon, with his mother. She arrives descending the Elevador de Santa Justa, a 19th century lift that transports passengers up the steep hill from the Baixa district to the Largo do Carmo and the ruins of the Carmo church. It is a folly which is also part of the public transport system. The Cliff Lift in the Pleasure Gardens at Southend had reminded me of the Berger when I first thought to take mum to Southend. We bought her a ticket to descend. I was going to walk down and meet her at the bottom but in the event it seemed a little melodramatic and so we descended together.



5 *Here is Where We Meet*, by John Berger, 237pp, Bloomsbury, 2005

Mum is unlike many parents in that she is a devout Catholic and she is looking forward to death when she will meet God. She does not entertain many of the fears one normally encounters. The burden of all this is also released from us around her. I feel quite light generally about her future, whereas I worry about dad. I've started wondering more consciously which of them will go first. My gut instinct is that it will be Dad. He's very tightly wound and I imagine him just falling like a tree one day. The world would be completely different depending on who outlasts the other. I'd feel easier if it was Mum, as she's more practical and she has God for company. Whereas I'd worry about Dad getting lonely, although his being on the outer reaches of the autism spectrum keep him fairly self contained most of the time anyway.

The Lift is operated by the Museums and is run by enthusiastic volunteers. Thus it is only open on certain days according to their availability.

These Weird Plants

I've been to the museum in Southend where they have Parsons manuscripts and specimens and they are currently lost because of the lack of organization of the archives.

Oh yes, they're in a box somewhere! (laughs)

They're un-findable. There was a curator at a certain point who had an interest in botany, but not now.

I'm afraid all the curators of natural history I know are dead. They're gone. They have been replaced by someone who does local histories. It's far, far more popular now.

And so in terms of where your research touches on Essex, is there anything that would come to mind, any point of interest or curiosity or memory, specific to Essex?

The main thing about Essex was the marshes and the Thames. It was all flat and wild.

I've learned that a good hunting ground for aliens would have been ports and dumping grounds along the estuary.

Yes, refuse in general. They dumped all on the way along with the Thames and so up come all these weird plants from households and everything else.

So these places would be an easy starting point if you were an amateur botanist?

Yes, they would have been.

I was also fascinated to read that wool was the major substance of entry for aliens. So, as I understand it now there's more of a tendency with global warming towards exotics starting to be a more powerful influence. Would that be the right information for now?

Yes. Oh, yes. It's very, very obvious if you just go down the local road now you see plants that are common. Only 30 years ago, you had to go to Cornwall, or the Scilly Isles just to see them you know, where it's that bit warmer. So, it's about two degrees centigrade warmer now everywhere, and it's affecting the plants, a number of plants, dramatically.

So you published Alien Plants of the British Isles in 1996, that's 20 years ago now.

Yes. Also don't forget that when it was published I was mostly working from older books, you know, so mostly it's many years from now. From 1976 to '96, and things have altered.

So, could you describe how that book might be different now then? What would be the main tendencies?

Not so long ago, everyone had a budgie in a cage, and they always fed them on seed, actually from southern Spain and north Africa. It's very cheap to get it from there. All that's stopped now. There are not many budgies now about in comparison, I'm sure. If there are budgies about,

unfortunately they feed them on oats and weed and things and honey all sorts of things [laughter] which I don't think they like quite so much, not quite so good for them, but that's what they do. We get none of this mixed seed from the Mediterranean which is a wonderful source, of course, of aliens. These budgies! So all that's stopped. But one or two of those plants which came in there, are now established, and so I'm seeing them everywhere now.

For example?

Um, one is, oh, dear, I only know the Latin name. *Erodium moschatum* is an example and *Conyza* as well.

Pinecone

One pine had grown at a peculiar angle over the walkway and had consequently dropped its cones in a fenced off area out of bounds of the path. We passed under it and then retraced our steps. After a few moments of discussion, we found a couple of longish twigs and attached them together with my hairband to create a longer stick with which I pulled a large pinecone close enough to reach it over the fencing.

Explosive Dehiscence

Are there any examples of plants that explosively scatter their seeds in your Herbarium that we could have a look at?

Well, there are quite a number that do that. *Policeman's Helmet* is one. *Impatiens Glandulifera*. Impatiens means impatient of course. The seeds are impatient to get out and explode.

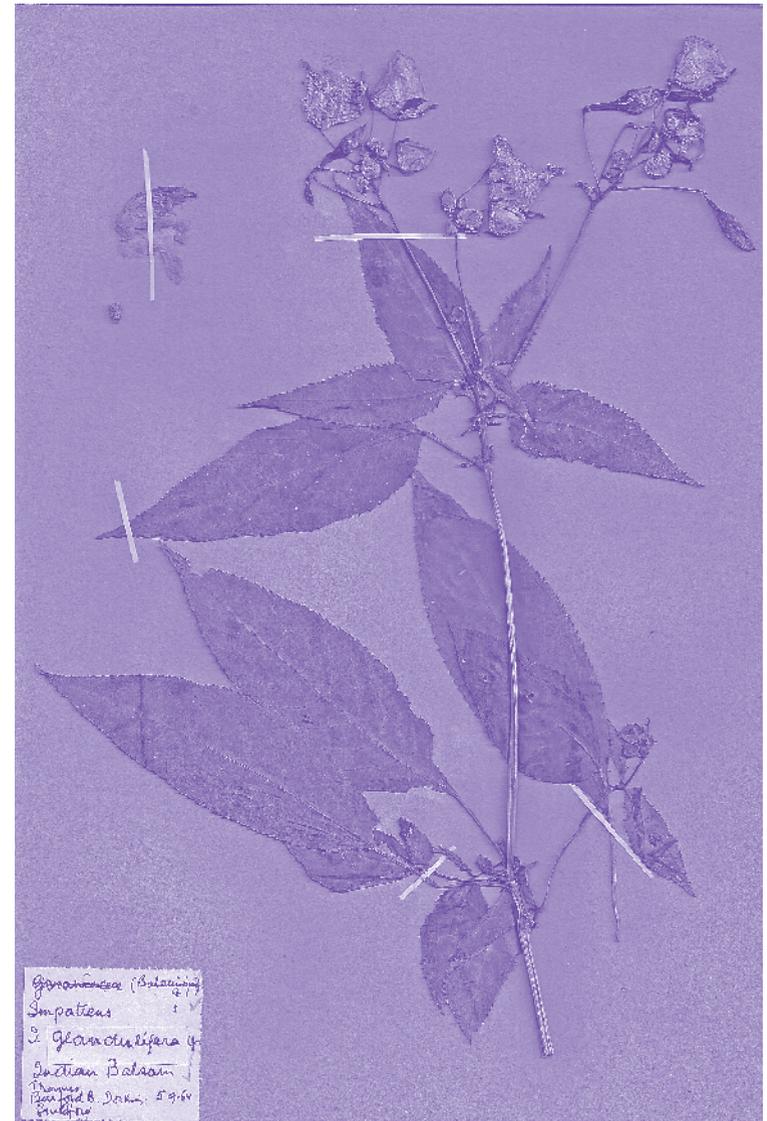
[laughs]

(background noise)...I don't know the position of...You'd have thought after all these years I know where the 'T's' were.

There at the back?

Yeah. It's a small genus, just one or two species. They're all together, but if it's a big one...It's in the G's. Yeah, it will be in here. (sound of filing drawer opening) Yes these are quite pretty. If you get along with the signs, you usually see them about that tall, the big flowers are like this and the bees love them...they're very, very pretty. But of course when pressed, it's miserable. (laughs)

(Pause)



*(reading) 'Himalayan balsam. Beside River Medway,
Tonbridge, Kent.'*

Do you know, I don't recall who Miss Keylock was. [laughs]

Is that who you were with?

No, no. She gave it to me.

*So Himalayan Balsam means what? It's where it originally
came from?*

Yes. A lot of people use Indian balsam these days.

So those are the seeds.

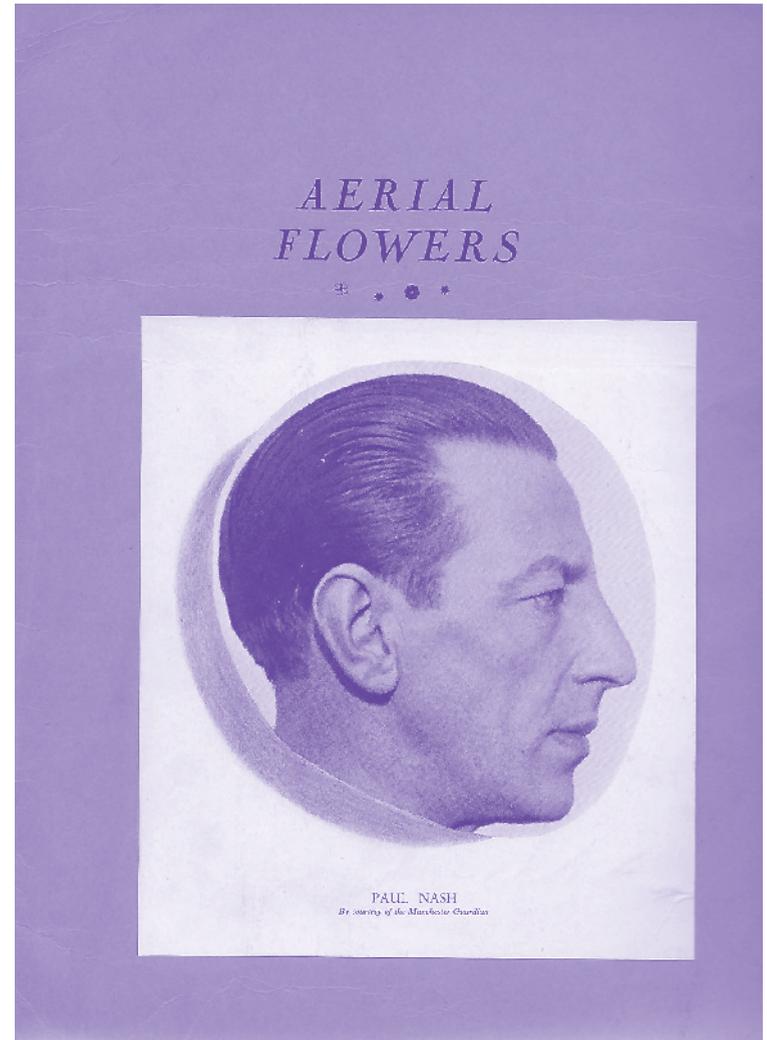
Yes, yes. I can't see where the capsules are but they do break open. Oh dear, since it's a common plant I've only got one sheet of it. That gives you more idea what the thing looks like. It's an invasive plant. We're trying to get rid of it. That's the capsule. It just splits along those lines.

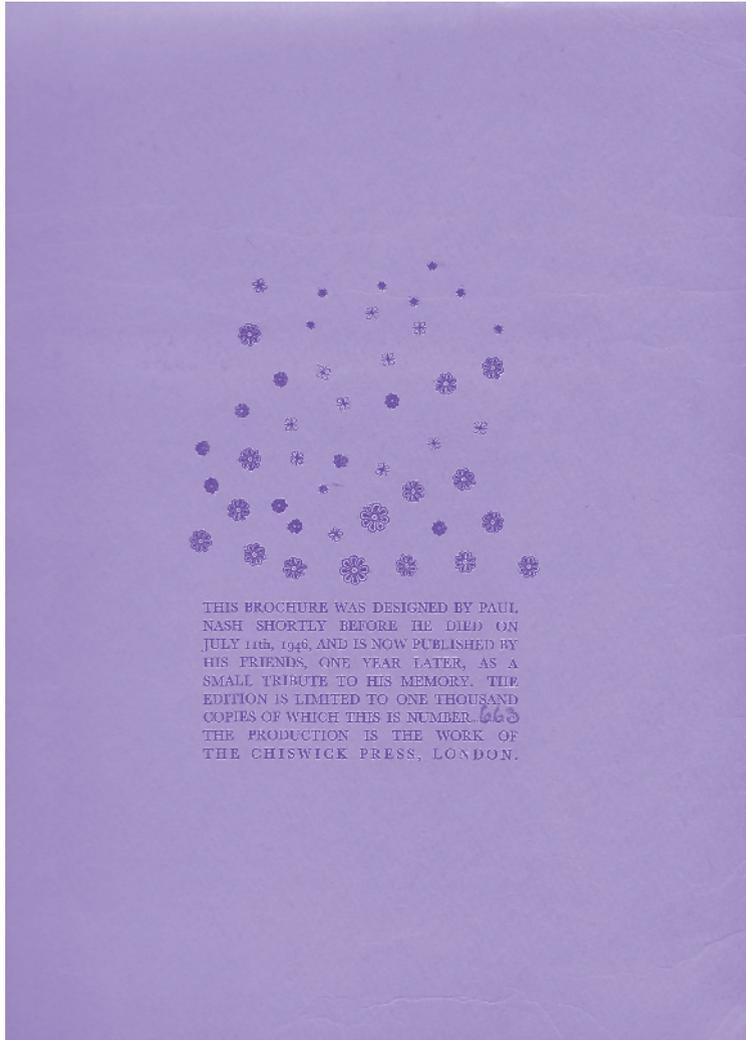
Where are the seeds, then?

They're inside the capsules. The ovary's in the middle here and it expands. The flower was red on the outside where the flower drops off and they pop.

*And so at what point do they explode then? What makes
them pop?*

It's something that builds up inside, some tension.





Aerial Flowers

So I wonder whether you have had chance to have a look at the photocopy of Paul Nash's essay, Aerial Flowers, which my dad put though your door last week?

I read it, totally, yes. It's...it's not my world at all, no, no. I didn't think it was worth reading, to be honest.

Oh?

No, it didn't appeal at all. It's very, very arty. There's no science in it. It's the science I like.

I think there's a lot of poetry in your dedication to alien plants...

Poetry? Is there?

Oh yes, in that adventure into something which might appear for a moment and then be gone.

Oh, yes.

In the introduction to your Alien Grasses of the British Isles you write, 'and this catalogue includes some 50 taxa known to be of alien origin as well as occurring as natives. And about 80 potential probably overlooked and unconfirmed species.'

Oh dear, yes. Yes. There are lots of problems like those in alien plants.

Mmm, exactly. Is it just like an endless puzzle?

It is a puzzle. To be honest we don't actually know which plants are native bred because man came here in such an early stage and brought all these crops and all these weeds and these animals and the like. So some of those which we think are native, in fact aren't. They aren't. The game is usually given away by their habitat. They're usually only in cornfields or the like. They're not actually in natural turf.

The aliens?

Yup. Things like Poppy's are probably not a British wild flower. In fact it's an alien. Because it only grows abroad. It's persisting now, certainly. But it's not a true British wildflower. We don't like to say that, we don't like to admit that because we're very proud in our poppies. Their home is actually the Mediterranean.

You conjured up quite an evocative image of yourself as a child, following birds and then nests and then the habitat, which led you to aliens. There's a kind of poetry in that description.

Oh, dear. (laughs)

In the way that one thing follows another.

Yes, indeed.

In Aerial Flowers, Nash writes of his own pursuit of an image, of flight.

Yes.

He wrote that the aerial flowers are quite ethereal and strange and dream-like, but also come out his real experiences of life during wartime. There is a phrase that came to him one night when he was trying to search for this image of the aerial flower: 'Last night, heavy and medium hellebores bombed the mountains of the moon'.

All right.

So from a scientific perspective, what do you think he might mean by 'heavy and medium hellebores'?

I don't know. It's a puzzle.

I've researched the history of the hellebore⁶ botanically and symbolically. It's a paradox in many ways. On the one hand it's poisonous, on the other it is used as a treatment for depression. It's trouble, but receiving them as a gift is said to ward off trouble. Monty Don describes them as 'heavenly hellebores', which seems to sit with Nash's relation.

The hellebore doesn't seem very appropriate. The only thing I can think of is the seeds are actually black and oval. They're quite big. The hellebores have big seeds and so you could say they were bomb like.

6 **Hellebore**

Helleborus niger, commonly called Christmas rose or black hellebore, is an evergreen perennial flowering plant in the buttercup family, Ranunculaceae. It is poisonous. Although the flowers resemble wild roses (and despite its common name), Christmas rose does not belong to the Rose family (Rosaceae).

The plant is a traditional garden favourite because it flowers in the depths of winter. The black hellebore was described by Carl Linnaeus in volume one of his *Species Plantarum* (1753). The Latin specific name *niger* (black) may refer to the colour of the roots. In the wild it is generally found in mountainous areas in Switzerland, southern Germany, Austria, Slovenia, Croatia and northern Italy and possibly adjoining parts of Slovenia. This plant has gained the Royal Horticultural Society's The Award of Garden Merit (AGM) is a long-established annual award for plants by the British Royal Horticultural Society (RHS). It is based on assessment of the plants' performance under UK growing conditions.

Helleborus foetidus, known variously as stinking hellebore, dungwort, setterwort and bear's foot, is native to the mountainous regions of central and southern Europe, Greece and Asia Minor. It is found wild in many parts of England, especially on limestone soil. Yeasts colonise the nectaries of stinking hellebore. Their presence has been found to raise the temperature of the flower, which may aid in attracting pollinators by increasing the evaporation of volatile organic compounds. It was the first species in which this effect was discovered.

Hellebore seed dispersal

Hellebores must solve a problem common to many plants whose seeds are not wind-dispersed: how to get the seeds out of the shadow of the mother plant. To solve this Hellebores entered into a co-evolutionary relationship with an insect partner: ants. Hellebores evolved elaiosomes, little nutrient-rich packages with a scent that is powerfully attractive to ants. When an ant takes the Hellebore seed back to the colony, the elaiosome is devoured, but the seed is left intact. Ants are extremely tidy creatures, so once the elaiosome has been consumed, a worker ant will move the remaining hellebore seed to the colony's "garbage dump," which is usually close to surface and rich in organic matter. This is a perfect situation for the seed to germinate. I have many "ant-planted" hellebores and cyclamen in my garden, and I can actually map out their relation to the ant colonies that "nurtured" them. (Source: online enthusiasts forum discussion: woadwoman(z7 Oregon)).

And do they blow their seeds explosively? Mum made that connection when we were talking in Southend, between the image of a bomb and plants that explode.

I don't think so, but it wouldn't take much imagination to think they are blown. They have capsules so they may suddenly open up one night. That's a curious thing that he's got there, yeah. The plant is very ordinary, hellebore, yes, that's what I think.

Mmm hmm, I mean because they are a late flower, I guess there's a kind of mood to the Christmas and Lenten period during which they bloom. So, it kind of falls...

Oh, yes. They are very, very early.

...they get caught up in a sort of darkness.

Uh, yeah. [pauses] The seeds are very black and I think the plant goes black when you press it. It's Ranunculaceae. It's related to the buttercup, which sounds most unlikely.

Oh, is it?

[background noise] [page turning]

Oh, sorry. We'll get there. [background noise] [page turning] There are two species that and that's the rarer one. This is the common one you've got. This is the one he would've known. Oh, the seed is much smaller than I thought.

Is that on a life scale, that one?

Oh, dear, they're much, much smaller than I thought they were. Perhaps I was thinking of the capsule. Yes, I'm thinking of the capsule. This one is green.

The Black Hellebore also comes up in here...

[pages turning of *Botanical Investigation of Essex*]

Is it in there?

Yes, it's in the very earliest mentions of Essex: 'The black hellebore that kind of barefoot, they go with every year into the ground whereof growth great plenty in the park beside Colchester'.

It used to be called 'dark'? The green ones are *Helleborous foetidus* and *Helleborous viridis*. We call this one 'stinking hellebore' now, which is not really pleasant.

...it's also known as the Bear's Foot

Yes, I don't quite know why. It's wonderful, to read about the meanings of the names of the plants.

I enjoy the language of things very much. I studied a bit of Latin at school.

You know all the scientific names are based on the Latin.

Yes.

So you must know that viridis means green, I'm sure you do.

Oh yes, viridian.

Yes!

Pier

The low slung train station hangs under the pier at the near end. When I first saw it, it was from below, walking along the narrow shore path between the water and the perimeter fencing of the fun fair. I didn't know what it was and thought it to be strange, Stasi like, hanging offices of some administrative purpose. I made a note to investigate.

The planned pier walk became a train ride. The 1.3 miles was too long for Mum on a hot day and I was glad as I got vertigo just crossing the boardwalk once we got to the far end of the pier. Approaching the end stop, the varied constructions which make up the architecture of the pier head felt like an island, a old fashioned vision of the future. The most recent section, the new café building looked like it had been dropped in from elsewhere, which it essentially had, by crane. The visitor-friendly top deck of the RNLi building which sits aerie like at the furthest, most easterly point of the pier head was where we headed. Dedicated benches traced the perimeter with engraved messages from loved ones to those who had loved the pier. One was from two women to their two mothers who had been life long friends. I showed it to Mum. Mum has one really important girlfriend, Pauline, who is the friend of hers I like the most. Dad is closest to her husband, Brendan, a mysterious and intelligent man. Neither of my parents have many close friendships and their friendships with Pauline and Brendan are very poignant to me. Mum's most important relationships come through her need to care for others. Dad patiently backs her up in these where he's



needed. David Lewis was an alcoholic Mum met at Church and with whom she became friends when no one else wanted anything to do with him. At one point David lived with Mum and Dad for a few weeks after double knee surgery. Later, it was Mum who figured out he was dead and it was Dad who climbed up a ladder to look into the window of his flat and saw him there in a chair. David liked to have two of things, and I inherited a mini-screwdriver kit and later the second one. I have one at home and one at the studio. I like the idea of a bench dedicated to Mum and Pauline where I could go and sit after they're gone. It seems conversational somehow. Pauline and Brendan have three daughters so I guess I'd have to speak to them about it eventually.

The first time Mum had breast cancer I was 16 or 17 and had already become unwell with what we would eventually understand to be depression and an addictive personality. I don't remember much of that cancer, other than that I was immersed in my own relationships and disorder. Mum had a mastectomy. Simultaneous reconstruction wasn't common back then and she's never had one since. I don't really know how Dad coped with all that. I always presumed he was very supportive, but more recently I wonder if he fell apart and they never really recovered. The cancer revisited about ten years ago under Mum's arm. She had radiotherapy followed by five years of pills. I cried a lot at the time as it was quite intense and I was felt I wasn't at all ready back then not to have her around. It was the first time I remember realizing that Mum didn't mind too much. She'd always told us that in certain circumstances we were not to resuscitate, DNR, and we laughed and said, Ok, Mum, we won't. Her attitude around the revisit made it clear to me that she was deadly serious. Along the way at that time I came to understand that her life was one of love and service to God via the care of

others. We, her family, were amongst those. When her time would come, she would welcome it with open arms as the climax of a life well lived. It was off putting personally, as a daughter, but something I've thought slowly about ever since. Full of grace. A happy death.

Estuary (Mainstream)

So, just to return into the estuary. Is it possible to dig back into your memory a bit and just reflect on that place?

Most of that was just before my time, actually. I've read about it in these books.

So what do you mean by before your time?

Well, I started in 1960 and so the 1940s. I suppose was the heyday. Because once they've tipped it and it's flat, they have to move somewhere else. They tended to burn it then.

Oh, okay.

They've burned a lot of rubbish now.

So since 1960s that won't have been an interesting kind of alien place. Is that what you're saying?

Not now. Now it's very, very, very dull now. There's nothing to be seen.

So will that remark then cover all of Essex? [laughs]

Well, alien plants are very hard to find now because they're so tiny. If we do find a hole in the ground, an old gravel pit, we fill it with rubbish and then we immediately put soil on top of it.

We're too tidy of course, that's the big problem.

So, just to go back to Essex, are we saying there's no news?

No recent news...

No news since 1960?

Oh, well, [laughter] yeah, it's a dribble now, a dribble. But there are always a few records. Everything is too pure today. When we sow corn now it's 100% pure. All crops are now. There are no impurities, which is why they don't make exciting aliens.

We're just relying on the wool?

Well, the wool has stopped now too. Unfortunately, the wool is now processed at source in Australia or South Africa so it's all totally pure now. In fact it's made into the garments before it ever comes here now. So you don't get seeds any more in wool. Except possibly in making carpets, but it's very, very rare in wool now.

I guess people go abroad and they come back in on their clothes.

That is possible. It's very hard to prove. Seeds do adhere to clothing, of course. There are a lot of fruits that have got hooked seeds. But finding aliens now, it's quite hard to find anything of interest.

So if you were 20 now...

(laughs) That would be nice!

...What would the future landscape for a passionate alien plant amateur botanist look like?

Oh, dear. I'd have to study something else really.

Really?

It's so poor, I'm afraid. It is very, very disappointing. Have you been in the farmers' fields where they grow a crop? There are no weeds whatsoever.

You're opening my eyes to such a way of looking.

In the old days, a cornfield used to be full of poppies and lots of other weeds, but now to find one poppy, one poppy in a cornfield is a wonderful achievement.

Estuary (Mother)

We stayed two nights at the Park Inn by Radisson Palace on the seafront close to the pier. Formerly called the Palace Hotel and originally named the Metropole, it was built in 1901 and was once the only 5 star hotel on the southeast coast. It had 200 bedrooms, a billiard room and a magnificent ballroom. Several buildings in Southend on Sea were converted into hospitals during World War One, with the Palace Hotel being the most visual example. Dominating the seafront at the head of Southend Pier, it became the Queen Mary Royal Naval Hospital and treated over 4,000 soldiers. As they recovered from their injuries, the soldiers would gather on the balconies of the hotel to look out over the pier and seafront. They became something of an attraction, with dozens of people gathering underneath to pass tobacco, sweets, flowers and even buttons up to the soldiers. As a former nurse, mum liked the hospital history. She was in Intensive Care (I.C) for many years but told me that after returning to work, having had children, she could no longer work in Intensive Care. She found it too traumatic.

There were six tidal movements of the estuary over our 36 hour visit. It was low when we arrived and rose to high tide during the evening. Mum commented on the immensity of this movement. Our hotel room was at the prow end of the hotel and had a balcony from which we could look straight along the length the Pleasure Gardens ahead of us and directly down the length of the Pier to our left. It somehow felt good to be there in this spot with her. We took two rides on the Pier; one around lunchtime when the tide was high and the second was late in the afternoon, timed to coincide with low tide and the last train back. The last train was full.



Vocation

Finally, I want to ask you about how we find ourselves in our passions and vocations. My question concerns being driven by something in particular. I'm curious if you have any thoughts about how your specialism is a part of who you are. Have you reflected on that?

Well, when you bring up children that's what you must introduce to them to. It's...it's EVERYTHING. And eventually they'll find their way to things they really like, but it's very important to expose them to everything, it really is. Then they find what they're good at and they pursue that... something that REALLY interests them.

And then they drop out of college and get into looking for alien plants for the rest of their lives? (laughs)

Well yes, yes, yes (laughs). Yeah, some people do it all their life. A lot of people fade in and out of interests, they move around. I don't do birds now. I've still got a school friend with whom I go out bird watching with twice a year, although it's nearly all talking about old times [laughs]. And the birds all fly away [laughs]. They hear us shouting at one another (laughs). He's spent his whole life looking at birds, which we both discovered at school. He does know a few plants, a fair few. He would know Quercus. [laughs].

Yeah, yeah! (laughs)

But it's fascinating you know how we suddenly get more and more interested in the topic. But you've got to START it, that's the important thing. It's very much influenced by the people around you. I would obviously get more interested in art and poetry if you were nearby.

The Present

Over the recent holidays, in the midst of a short conversation about something else and quite out of the blue, Mum said, I don't really consider myself religious any more. I am in direct communication with God.

I knew she'd struggled a lot with the Church for the last twenty years, with do-gooders and church goers and the like, and that she hadn't had a Parish priest she's really admired for a long time. But this new state of affairs was news to me.

Minimally educated and then trained as a nurse in the 1960's, I've only really begun to understand the fuller picture of how much of my education came from Mum. She studied Spanish at the Open University when I was doing my GCSEs and she also did a Psychology course of some kind when we were young. She spent hours doing Verbal Reasoning with us and loved the two years I studied Latin at school. As a child in Merseyside, Mass was in Latin. Plants proper names are all in Latin.

Since my brother and I left home twenty or so years ago, Mum has increasingly studied spirituality and theology privately. She has a very large library of theological literature in her bedroom. Over the years she has passed me photocopies of all sorts of articles she thought would be useful to me as well as copies of books by Thomas Merton⁷ (1915–1968) William

7 **Thomas Merton**, O.C.S.O. (1915 – 1968) was an American Catholic writer, theologian and mystic. A Trappist monk of the Abbey of Gethsemani, Kentucky. He was a poet, social activist and student of comparative religion. In 1949, he was ordained to the priesthood and given the name Father Louis.

Barclay⁸ (1907-1978) and Richard Rohr⁹ (1943-). I found what I read of these writings helpful because they had questions which they explored that showed me how much room there was for me to find my own relationship to faith outside of my unfavourable experience of religion as a child. Until about five years ago the writings which Mum passed to me were generally intended to be helpful in relation to my surviving my mental health. Prayers to Archangel Saint Michael for his protection, for example. More recently, as I have settled down a bit more and become a mother, her suggestions are more related to her own studies, which I always find helpful.

After the second cancer revisit, when Mum fell out with almost everyone at her local church including the imposing Polish priest with a specialism in Exorcism who she never liked, she spent more time at home reading and out walking on the beach and communing there. I liked that period. It seemed to be better for Mum. She was less angry and I felt connected to this venue less relation. Her

8 **William Barclay** (1907-1978) was a Scottish author, radio and television presenter, Church of Scotland minister and Professor of Divinity and Biblical Criticism at the University of Glasgow. A prolific writer, mum gave me a copy of *The Plain Man Looks at the Beatitudes* which I loved.

9 **Richard Rohr** OFM (born 1943) is an American Franciscan friar ordained to the priesthood in the Roman Catholic Church in 1970. He is a known inspirational speaker and has published numerous recorded talks and books.

fundamental community has always been those she meets in her life and I felt that this was as likely out and about as it was inside the Church itself. She is essentially quite reclusive, the more so with age. She is 72, fit apart from arthritic hands due to over-gardening, spends regular weekends with her three grandchildren, preparing for death now. Full of gravity and grace.

Endnote

Unfortunately my audio file filled up shortly before we'd reached the end of the conversation, but I recall now that our last comments related to the future of his herbarium. Eric was unsure what would happen to it. He said that he was *in conversation* about its future. He was anxious that it needed someone with a large enough spare room in their house to store it in the future, which I didn't think was such a wild idea.

I'd wanted to talk with Eric about death and aging, and his recent gradual loss of vision which currently leaves him with sight in only one eye, but he avoided all mention of these things other than those in reference to his herbarium and its future. Given his bachelor life, his reference simply to children in response to my question about passion was a surprise and a delight. It wasn't reluctance or avoidance I sensed in his responses, just another way of looking at things, as if from a completely different angle to my own. I got to glimpse at the world from his position, without art, without poetry, with science. We bonded over the names of things and the delight to be found in the transitory nature of certain things such as alien plants. As I left his house, his last words to me were, 'All the best with your project. Do try to include some science'.

I think I've lost the pinecone.

What's the Latin for Oak, the scientific name?

I know this now.

[Laughs]

It's Quercus.

Quercus, yes!

Appendix

Carl Linnaeus's botanical paper slips (1767–1773)

Isabelle Charmantier and Staffan Müller-Wille

This extract contains the introductory section of the essay,
abridged with permission of the authors

...How scholars coped with ever-increasing amounts of empirical knowledge presented in print and manuscript – leading to the so-called early modern “information overload” – is now being increasingly analysed and understood. (2) In this paper we will turn to an example at the close of the early modern period. Towards the very end of his academic career, the Swedish naturalist Carl Linnaeus (1707–1778) – best known today for his “sexual” system of plant classification and his binomial nomenclature – used little paper slips of a standard size to process information on plants and animals that reached him on a daily basis. From today’s perspective, these paper slips look surprisingly like modern index cards.

This is surprising, because throughout the early modern period, the medium of choice to cope with information overload was a different one: the commonplace book...Commonplace books usually took the form of bound manuscripts that were subdivided by headings indicating the particular topics under which information was to be subsumed. The collected information was thus brought into a fixed and permanent order, and an index was usually added at the end of the volume to provide access to this information. (3) One of the areas where information overload made itself felt in particular, and for which the commonplace book was adopted quickly, was natural history. As new worlds were discovered, and more species described, the circulation of information grew rapidly, in print and manuscript. Naturalists...engaged in far-flung correspondence networks,

all along developing their own common-placing techniques to process the information thus gained. (4)

In the process, some scholars and naturalists occasionally strove to find more flexible ways of accessing, storing, and retrieving information than the bound and structured commonplace book. One such way was processing and communicating information in the form of simple, open-ended lists of key words or short factual statements. (5) Another, even more flexible way was to keep notes on loose pieces of papers which enabled information to be shuffled around, collated, and readily rearranged. Thus Robert Boyle (1627–1691) kept his notes in a haphazard way on loose sheets and paper slips, apparently to prevent others from making sense of them. Gottfried Wilhelm Leibniz (1646–1716) preferred to order his loose notes according to a contraption invented by Thomas Harrison: an “ark of studies” where pieces of paper were attached to hooks arranged according to a pre-established system of headings, or commonplaces. (6) As the example of Harrison’s “ark of studies” shows, there remained a distinct tendency to literally “file” – the term derives from the practice to use a string (Latin *filum*) to bundle loose papers – notes in the early modern period, and thus to retain a fixed, topical order in their material arrangement. This is what distinguishes Linnaeus’s paper slips from earlier instances, and also from the range of filing systems that he himself had been experimenting with in earlier stages of his career. (7) The paper slips which Linnaeus produced in the last years of his working life, from 1767 to 1773, were strictly of a standard size, used a uniform format for the information contained, and show no sign of ever having been fixed or “filed” in a particular order. It is these features that make them strikingly similar to modern index cards.

In this article however, we do not want to establish whether “Linnaeus invented the index card.” (8) As our analysis will show, there is much that speaks for this claim, but there are equally arguments against it. First of all Linnaeus seems to have turned to the use of loose paper slips for purely idiosyncratic reasons and there is no sign that he ever tried to rationalize or advertise the new practice. Moreover it was only towards the very end of his working life that he began to use the new technology to note the names, geographical origin, and morphological features of newly discovered plant genera and species. Finally, there are many indications that he himself never envisioned his stack of paper slips as a system that would permanently store information for collective use, which is perhaps the feature that is most characteristic of the modern index card. Ironically, as we will show, it was only shortly before and after Linnaeus’s death in 1778 that his slips were used in this way.

Rather than documenting the history of a momentous invention, our case study will throw light on the Eighteenth century as a period of transition – be it in scholarly, literary, medical, administrative, or commercial contexts – towards increasingly flexible media of information processing, such as tables, files, and card catalogues. (9) Studying Linnaeus’s paper slips will not only provide insight into the use Eighteenth century naturalists made of such media, but also reveal something about the dynamics of paper tools as research technologies in general. (10) We propose that it was the sheer amount of new information that fed back to Linnaeus as a result of the success of tried and tested information processing technologies which led to their eventual breakdown and adoption of a new working method. Linnaeus’s “invention” was entirely inadvertent, and it is therefore hardly surprising that he himself did not

realize its full potential. We will make this point in three steps. In the first two sections of our paper, we will look at the contexts in which loose paper slips and cards were used for information processing during Linnaeus's time, explore the reasons why contemporaries – and in all likelihood Linnaeus himself – hesitated to use them for storing knowledge, and finally discuss what motivated Linnaeus to adopt this paper technology late in his career. In the third and fourth section, we will describe Linnaeus's paper slips in detail and reconstruct the way in which he used them. The two final sections will focus on their legacy, partly in the hands of Linnaeus's son and successor Carl Linnaeus the Younger (1741–1783), but mainly through the successful and independent use that his student, Daniel Solander (1733–1782), made of a similar paper technology in the early years of the British Museum.

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Notes (The original numbering has been retained)

- 2 Ann Blair has written extensively on information overload. See in particular Blair, “Reading Strategies”; see also Ogilvie, “The Many Books of Nature”; Müller-Wille and Charmantier, “Natural History and Information Overload”; and Strasser, “Collecting Nature”, on the continuing struggle with information overload in the nineteenth and twentieth century.
- 3 Blair, “Humanist Methods in Natural Philosophy”; Beal, “Notions in Garrison”; Moss, Printed Commonplace-Books; Dacome, “Noting the Mind”; Daston, “Taking Note(s)”; Yeo, “John Locke’s ‘New Method’ of Commonplacing”; Soll, “From Note-Taking to Data Banks”; Stolberg, “Medizinische Loci communes.”
- 4 Blair, “Annotating and Indexing Natural Philosophy”; Pinon, “Entre compilation et observation”; Yeo, “Between Memory and Paperbooks.”
- 5 See Delbourgo and Müller-Wille, “Introduction to ‘Listmania.’”
- 6 Malcolm, “Thomas Harrison and His ‘Ark of Studies’”; Blair, Too Much to Know, 93–102; Yeo, “Loose Notes and Capacious Memory.” On the significance of tailor-made furniture for the organization of knowledge in general, see te Heesen and Michels, Auf – Zu.
- 7 For an overview of the paper technologies that Linnaeus used over his long career see Müller-Wille and Scharf, “Indexing Nature.”
- 8 British Society for the History of Science (16 June 2009), “Carl Linnaeus Invented the Index Card,” ScienceDaily, retrieved 14 November 2013, from <http://www.sciencedaily.com/releases/2009/06/090616080137.htm>.
- 9 Bourguet, Déchiffrer la France; Becker and Clark, Little Tools of Knowledge; Brendecke, “Tabellen und Formulare”; Ogborn, Indian Ink; Vismann, Files; Hess and Mendelsohn, “Case and Series”; Mendelsohn, “The World on a Page”; Krajewski, Paper Machines. For parallel developments in literature that allowed for more personalized note-taking practices see Décultot, Lire, copier, écrire.
- 10 On paper technologies as research technologies, see Heesen, “The Notebook”; Hess and Mendelsohn, “Case and Series”; Müller-Wille and Charmantier, “Lists as Research Technologies.”

**Linnaeus' herbarium cabinet:
a piece of furniture and its function**
Staffan Mueller-Wille

The Swedish eighteenth century naturalist Carolus (Carl) Linnaeus is habitually credited with laying the foundations of modern taxonomy through the invention of binominal nomenclature. However, another innovation of Linnaeus' has largely gone unnoticed. He seems to have been one of the first botanists to leave his herbarium unbound, keeping the sheets of dried plants separate and stacking them in a purpose built cabinet. Understanding the significance of this seemingly mundane and simple invention opens a window onto the profound changes that natural history underwent in the eighteenth century.

Making a herbarium

The *Philosophia Botanica*, a botany textbook that Linnaeus based on the lectures he gave at the University of Uppsala, contains careful instructions on how to create a herbarium [8]. Linnaeus described how plants should be collected, dried, pressed and glued onto paper, including such details as what materials and glue to use. These instructions were an attempt to standardize botanical procedures and erase the habits and whims of individual collectors.

...Compared to earlier collectors however, Linnaeus' instructions contained a decisive innovation. Traditionally, several specimens might be glued in a decorative arrangement on a single sheet of paper. These sheets were then bound into volumes, stored in a library and cited like books. Specimens were thus placed into a fixed order from



Figure 1
Linnaeus' herbarium cabinets. This image shows the cabinets as they were set up inside a large mahogany unit in the meeting room at the Linnean Society, circa 1907. To the extreme right are the publications of Linnaeus. Image reproduced courtesy of the Linnean Society of London.

which they could not be removed without destroying the herbarium or even the specimens. Linnaeus, by contrast, advised readers of the *Philosophia Botanica* to mount just one specimen per sheet and refrain from binding them together.

For storage of the mounted specimens, Linnaeus suggested a purpose built cabinet and gave illustrated guidance on how to construct it. These instructions correspond exactly to the three cabinets that Linnaeus possessed. These are rather plain in design, only one of them was adorned with two rows of leaf impressions on the outside of the doors. The doors open onto two narrow columns of shelves and it appears that at least one of the cabinets that returned to Sweden was also equipped with a dense, parallel series of horizontal slits covering its inner walls, into which the shelves supporting the herbarium sheets could be inserted at variable distances [10]. It is impossible to know if these were part of the original design or were added later. However this detail indicates that the number of shelves and distances between them could be changed easily, either to accommodate new material or to rearrange the collection as a whole. Therefore, although the herbarium of Linnaeus brought his specimens into an order, individual sheets could easily be inserted at any place, removed at any time and reinserted again anywhere in the collection: the herbarium essentially functioned as a filing cabinet.

In contrast to the bound volumes of older herbaria, the order Linnaeus' herbarium cabinet brought to his collection was not fixed and perpetual. It was designed to accommodate the steady arrival of new material and enabled its user, in principle at least, to repeatedly rearrange that material.

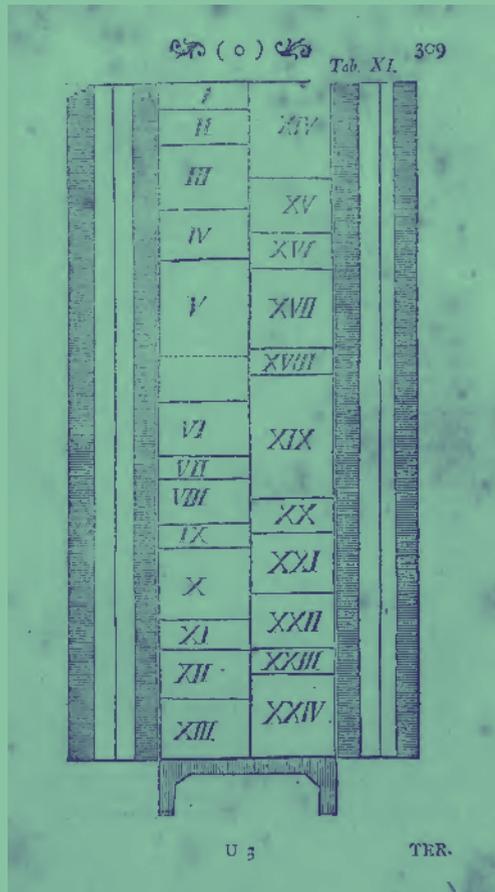


Figure 3. (a) Construction plan by Linnaeus for a herbarium cabinet, reproduced from Linnaeus' *Philosophia Botanica* (1751) (b) Linnaeus' herbarium cabinets circa 1938 – image reproduced courtesy of the Linnaean Society of London.

The natural order of plants

How did Linnaeus use his herbarium? Some clues lie in the *Philosophia Botanica*, where he described how to set up what he called 'natural' definitions of plant species and genera... The method that Linnaeus proposed for establishing natural characters was simple and straightforward. The botanist started with a 'first species' (prima species) represented by a garden exemplar, a herbarium specimen or a drawing, and drew up a full description of its morphology. In a series of further steps, additional representative specimens were gathered one by one. Characters that deviated from the original were then cancelled from the description. What was left was the set of characters that had proved to be 'constant'. In some instances Linnaeus referred to this comparative method as 'collation', a legal term for the word by word comparison of an original document with its copy. This metaphor can be taken literally. Garden exemplars were seasonal and plant drawings often unreliable. The herbarium on the other hand, provided a reliable source of concrete evidence: stable and ready at hand throughout the year. Linnaeus' description of collation enables us to imagine how he actually used his herbarium. In setting up natural characters, he would first take out one herbarium sheet, and then adduce others to compare the mounted specimens systematically, point-by-point, as if comparing two texts.

The design of the herbarium cabinet thus enabled Linnaeus to put together any set of specimens at a time for the purpose of collation. As a result, the relations among plant forms represented by natural characters transcended the local differences exhibited, say, by two specimens permanently fixed on one and the same herbarium sheet. The 'natural system' of plants, as Linnaeus saw it, consisted of a two-dimensional web of relations in which 'all plants

exhibit their contiguities on either side, like territories on a geographical map.’ Each species represented by a specimen in Linnaeus’ herbarium was defined by the affinities it exhibited with respect to all the other specimens in the collection. The potential for a complete permutation of specimens, which the herbarium cabinet offered in principle, enabled a global representation of taxonomic affinities [12]. Accordingly, it was the herbarium in its totality, rather than arbitrary type specimens, which served as a tool in the determination of plant species and genera.

The agitated background of eighteenth century taxonomy

According to some famous remarks that Michel Foucault made in his *Order of Things*, eighteenth century natural history was profoundly shaped by ‘herbaria, natural history cabinets, and botanical gardens.’ These institutions formed the ‘timeless rectangle’ of eighteenth century taxonomies, in which ‘beings presented themselves side by side with their visible surfaces, without any commentary and surrounding language, approaching each other by their common traits, and thus virtually analyzed, bearers of their sole names’ [20]. To some this might suggest an eighteenth century mentality that preferred order and stability above diversity and variation, measurement above experiment: a static and tendentially conservative outlook. Indeed, Carl Linnaeus has often enough been portrayed as the prototypical protagonist of this mind-set [21]. However, Linnaeus’ preoccupation with a taxonomy of ‘constant’ characters resulted from his engagement in a dynamic practice of transplantation and exchange, which had deep roots in the rapid and ongoing globalization of European economies [22].

Abridged with permission of the author by Becky Beasley
Endeavour Vol. 30 No. 2 June 2006, www.sciencedirect.com

References (the original numbering has been retained)

- 8 For a recent translation of this textbook see Linnaeus, C. (Freer, S., trans) (2003) *Philosophia Botanica*, Oxford University Press (Oxford, UK). The instructions on how to make a herbarium are on p. 18 and pp. 329–330 of this edition
- 10 See the photograph of the cabinet reproduced in Dahlgren, K.V.O. (1951) *Philosophia botanica*, ett 200-arsminne. Svenska Linnesällskapet Arsskrif 33–34, p.23. Today the cabinets lack this feature, so it must have been removed during some later restoration work, indicating that it was judged to be a post-Linnaean addition
- 12 Mueller-Wille, S. (2003) Joining Lapland and the Topinambes in flourishing Holland: center and periphery in Linnaean botany. *Science in Context* 16, pp. 461–488
- 20 Foucault, M. (1966) *Les mots et les choses. Une archéologie des sciences humaines*, Gallimard (Paris, France), p. 143; the translation is my own
- 21 Lesch, J.E. (1990) *Systematics and the geometrical spirit*. In *The Quantifying Spirit in the Eighteenth Century* (Frañngsmyr, T. et al., eds), pp. 73–112, University of California Press
- 22 Koerner, L. (1999) *Linnaeus: Nature and Nation*, Harvard University Press (Cambridge, MA, USA)

Carl Linnaeus

Carl Linnaeus (1707 –1778) was a Swedish naturalist who formalised the modern system of naming organisms called Binomial Nomenclature. He is known as the father of modern taxonomy. Many of his writings were in Latin and his name is rendered in Latin as Carolus Linnæus. Linnaeus's last years were troubled by illness. He suffered three strokes, the third of which led to his death on 10 January 1778. His library and collections were left to his widow Sara and their children. In 1783 Sara sold the entire collection to James Edward Smith, an amateur botanist and member of a family of wool merchants. The collection included 14,000 plants, 3,198 insects, 1,564 shells, about 3,000 letters and 1,600 books. Smith founded the Linnean Society of London five years later.

Linnaeus' Major Works

Genera Plantarum (1737). Linnaeus divided the plant Kingdom into 24 classes. One, Cryptogamia, included all the plants with concealed reproductive parts (algae, fungi, mosses and liverworts and ferns).

Philosophia Botanica (1751). A summary of Linnaeus' thinking on plant classification and nomenclature, and an elaboration of the work he had previously published.

Species Plantarum (1753), published as a two-volume work. Its prime importance is perhaps that it is the primary starting point of plant nomenclature as it exists today.

Linnaeus' Trivial Names

Prior to the adoption of the modern binomial system of naming species, a scientific name consisted of a generic name combined with a specific name that was from one to several words long. Together they formed a system of polynomial nomenclature. These names had two separate functions: to label and to describe. It was in his *Species Plantarum* (1753) that Linnaeus first began consistently using a one-word “trivial name” together with a generic name in a system of binomial nomenclature. Linnaeus' trivial names introduced an important new idea, namely that the function of a name could simply be to give a species a unique label. This meant that names no longer needed to be descriptive, so for example, both parts could be derived from the names of people. Thus a bird in the parrot family was named *Psittacus alexandri*, meaning “Alexander's parrot”, after Alexander the Great whose armies introduced eastern parakeets to Greece. Linnaeus's trivial names were much easier to remember and use than the parallel polynomial names.

Linnaeus's Furniture Design

While most of the early herbaria were prepared with sheets bound into books, Carolus Linnaeus came up with the idea of maintaining them on free sheets that allowed their easy reordering within cabinets. Linnaeus is habitually credited with laying the foundations of modern taxonomy through the invention of binominal nomenclature. However, another innovation of Linnaeus' has largely gone unnoticed. He seems to have been one of the first botanists to leave his herbarium unbound, keeping the sheets of dried plants separate and stacking them in a purpose built-cabinet divided into compartments by movable shelves. Understanding the significance of this seemingly mundane and simple invention

opens a window onto the profound changes that natural history underwent in the Eighteenth century. (Staffan Müller-Wille, “Linnaeus's herbarium cabinet: a piece of furniture and its function”, *Endeavour* Vol. 30 No. 2 June 2006)

Linnaeus's Paper Slips

The development of paper based information technologies in the early modern period is a field of enquiry that has lately benefited from extensive studies by intellectual historians and historians of science. How scholars coped with ever increasing amounts of empirical knowledge presented in print and manuscript, leading to the so-called early modern information overload, is now being increasingly analysed and understood. Towards the very end of his academic career, the Swedish naturalist Carl Linnaeus used little paper slips of a standard size to process information on plants and animals. From today's perspective these paper slips look surprisingly like modern index cards. Some years before the publication of *Species Plantarum* (1753), Linnaeus seems to have realised that bound volumes seriously constrained his ability to collect and integrate new information, and moved to a filing system constructed from bifolia. He was probably inspired to do this by the way he kept his own herbarium (see **Furniture Design**). (Isabelle Charmantier and Staffan Müller-Wille, *Intellectual History Review*, 2014, Vol. 24, No. 2, 215–238.)

The Linnean Society of London

The Linnean Society of London is the world's oldest active biological society. Founded in 1788 by Sir James Edward Smith (1759–1828), who was its first President. The Society takes its name from the Swedish naturalist Carl Linnaeus (1707–1778) whose botanical, zoological

and library collections have been in its keeping since 1829. These unique collections are of continuing fundamental importance as a primary reference for taxonomy. They are enhanced by the Society's own rich library which provides key resources for research. Members include professional scientists, naturalists, historians, artists and those generally enthusiastic about the natural world. The Fellowship is international and includes world leaders in each branch of biology who use the Society's premises and publications to communicate new advances in their fields.

Dehiscence is the splitting, at maturity, along a built-in line of weakness in a plant structure in order to release its contents and is common among fruits, anthers and sporangia. Structures that open in this way are said to be dehiscent. Structures that do not open in this way are called indehiscent, and rely on other mechanisms such as decay or predation to release the contents.

Explosive dehiscence is a ballistic form of dispersal that flings seeds or spores far from the parent plant. This rapid plant movement can achieve limited dispersal without the assistance of animals. A notable example is the sandbox tree (*Hura crepitans*), which can fling seeds 100 meters and has been called the "Dynamite tree" due to the loud sound of its explosive dehiscence. Another example is *Impatiens*, whose explosive dehiscence is triggered by being touched, leading it to be called the "touch-me-not."

Impatiens glandulifera is a large annual plant native to the Himalayas commonly known as Policeman's Helmet, Bobby Tops, Copper Tops, and Gnome's Hat Stand. Himalayan Balsam and Kiss-me-on-the-mountain arise from the plant originating in the Himalayan mountains. It is now present across much of the Northern Hemisphere and is considered an invasive species in some areas. The genus name *Impatiens*, meaning 'impatient', refers to its method of seed dispersal (explosive dehiscence). The species name *glandulifera* comes from the Latin words *glandis* meaning 'gland', and *ferre* meaning 'to bear', referring to the plant's glands. The plant was rated in first place for per day nectar production per flower in a UK plants survey conducted by the AgriLand project. The green seedpods, seeds, young leaves and shoots are all edible. The flowers can be turned into a jam or parfait.

Erodium moschatum is a species of flowering plant in the geranium family known by the common names musk stork's-bill and whitestem filaree. This is a weedy annual or biennial herb which is native to much of Eurasia and North Africa but can be found on most continents where it is an introduced species.

Conyza is a genus of flowering plants in the sunflower family know by the common names horseweed, butterweed or fleabane. They are native to tropical and warm temperate regions throughout the world, and also north into cool temperate regions in North America and eastern Asia.

Colophon

Two Plants in Dip
Becky Beasley

An Artists' Research Centre project

Two Plants in Dip is the culmination of Becky Beasley's research project commissioned by the Artists' Research Centre's Creative Libraries Programme in collaboration with Focal Point Gallery, Southend on Sea Libraries and Museums and University of Essex.

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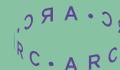
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Rosebay Willowherb or Bombweed

Mainstream / Established Flora

East of London, many of the wastelands are providing refuge for wildlife and plants such as *Chamaenerion angustifolium*, commonly known in Britain as Rosebay Willowherb or Bombweed and in North America as Fireweed. The tall, pink flower spikes of Rosebay Willowherb can often be seen crowding together in thick stands in open spaces such as woodland clearings, roadside verges, grassland and waste ground. A successful coloniser, Rosebay Willowherb has grown in number from a scarce woodland plant to a ubiquitous flower. This expansion occurred as a result of two World Wars clearing huge areas of forest and burning the ground in both town and countryside, just the right conditions for this plant to thrive in. One of its common names in the southeast alludes to this takeover: ‘Bombweed’.

