The Biology Curator

Title: Making Plants Displayable

Author(s): Comley, R. & Noble, K.

Source: Comley, R. & Noble, K. (2000). Making Plants Displayable. *The Biology Curator*, *Issue 17*, 5 - 8.

URL: http://www.natsca.org/article/417

Our policy

In addition to the large collections detailed above, many smaller donations have been accessioned in the last five years. We welcome, and actively seek, material accompanied by scientific data and/or published research, regardless of the size of the collections, and we endeavour to make all this material accessible through the NMS loans scheme. In many cases access has been the donor's primary concern and reassurance that their samples will always be available both to themselves and others has been sufficient to secure the donation.

Louise Allcock
Curator of Mollusca
louise@nms.ac.uk
Susan Chambers
Curator of Marine Invertebrates

Birds of Essex – A Request for Information

Research is in progress for a new book of the birds of Essex. We are investigating all historic collections of birds, especially where these have been donated to museums. A recent visit to the Saffron Walden Museum was very successful (special thanks to Sarah Kenyon) with an American Bittern specimen shot in 1826 at Wendens Ambo — a new species for Essex!

If your museum should have any bird specimens collected in Essex, we would be grateful for any information and we will visit the museum to confirm identification and all associated details. Full acknowledgements will of course be given in the book.

Contact: Simon Wood (Chief Editor), 18, Memory Close, Maldon, Essex CM9 Tel: 01621 841061

e-mail: simmel@maxwood.freeserve.co.uk

Nick Green, 40, Gloucester Crescent, Chelmsford, Essex CM1 4NG

Tel: 01245 283507 e-mail nick7green@aol.com

BCG Web Site

BCG now has a web site **www.bcg.man.ac.uk**

As the URL indicates, the site is hosted at Manchester University on behalf of the Group. Bill Pettitt has set up the basic site, and will continue to advise and help, but the ëWebmasterí is Lindsey Loughtman at Manchester.

However, we will need a deputy Webmaster to back up Lindsey. Anyone who has easy web access can help maintain the site and they can be based anywhere in the country. If you are interested, please contact Bill or Lindsey for more information.

Do have a look at the new site, and give the Webmaster your views. We especially would welcome suggestions for improving or extending the web site.

Bill Pettitt (c.pettitt@man.ac.uk) and Lindsey Loughtman

Making Plants Displayable

Rotherham Museum, Clifton Lane, Rotherham, S65 2AA

Trial Plant Drying & Preservation

In 1995, the existing natural history displays at Clifton Park Museum had been in existence for 21 years having been set up in 1974, so were well over 20 years old, well beyond any reasonable life expectancy of such a display. Not surprisingly, the plant material in the displays were dead, brown and helped to make the displays rather drab. It had been noted that in other museums this was also generally the case. The 'better' displays tended to have freeze-dried specimens that had been painted to preserve their colour, which though achieving what was expected, the results were usually very obviously artificial. In the Museum of today, finance and skilled manpower are in short supply, so solutions to display problems must be cheap, easy and efficient to implement. At the same time, museum customers have a high expectancy of excellence.

The immediate and obvious question was, could fresh-looking plant material be displayed. This was investigated, and the well known answers found. Wax models can be good, but are very expensive and extremely delicate. Plant material can be freeze dried but the colour is lost and again the specimens are delicate and very expensive. An impression of colourful plant can be made by use of photographs but they are two dimensional only, limiting the viewpoint of the visitor and degrading the exhibit.

To fulfil the criteria of cheap and simple, sand drying was considered to be the best practical method of plant preservation. What was less clear was what subsequent treatment could be applied to deter pests and moulds and what would be the rate of colour loss.

The finer the sand, the better. The finest found, and used, was chinchilla dust, which is an extremely fine sand that was purchased from a pet shop in Bakewell and costing £2 per kg bag (two bagfuls were used). This sand is so fine that when poured on and around the most delicate plant parts, there is no deflection of those parts. Another problem found with builders 'sharp' sand is that the edges of the crystals of silica frequently become embedded in the plant surface, marring that surface and need to be removed after drying; this is not a problem with chinchilla dust.

The following specimens were selected and taken from Richards garden and immediately placed in 'Chinchilla dust'. To contain the sand and plants, small cardboard boxes were used as permeability was considered a useful property. There were 2 specimens of Geranium robertianum (Herb Robert) and one each of Epilobium montanum (Broad-leaved Willowherb), Lysimachia nummularia (Creeping Jenny), a

Bramble after drying

terminal fragment of Dryopteris dilatata (Broad Buckler Fern) and a tuft of the grass Holcus lanata (Yorkshire Fog).

Four days later, the following specimens were taken; Geranium robertianum (Herb Robert) and one each of Epilobium montanum (Broad-leaved Willowherb), Lysimachia nummularia (Creeping Jenny), terminal fragment of Dryopteris dilatata (Broad Buckler Fern) and Rubus fruticosus (Bramble).

These specimens were picked in the morning, put in a plastic bag and taken immediately to the museum where they were placed in cardboard boxes with a mixture of Chinchilla dust and 5-10% silica gel granules.

It was decided to leave both sets of specimens in a cubby hole by what was the bird store (now the Museum library) for 4 weeks, so they would be dry by 20th August for the sand only specimens and 24th August for the sand with silica gel. It was not determined at that time what final treatment would be appropriate. The actual drying time was unknown as there were far too many indeterminate variables, not least of which was our lack of experience in this activity. It was deemed best to leave the specimens undisturbed rather than have a periodic inspection; in any event this time will vary with temperature and relative humidity. At some future date, it might be useful to experiment on drying times using these materials in various places.

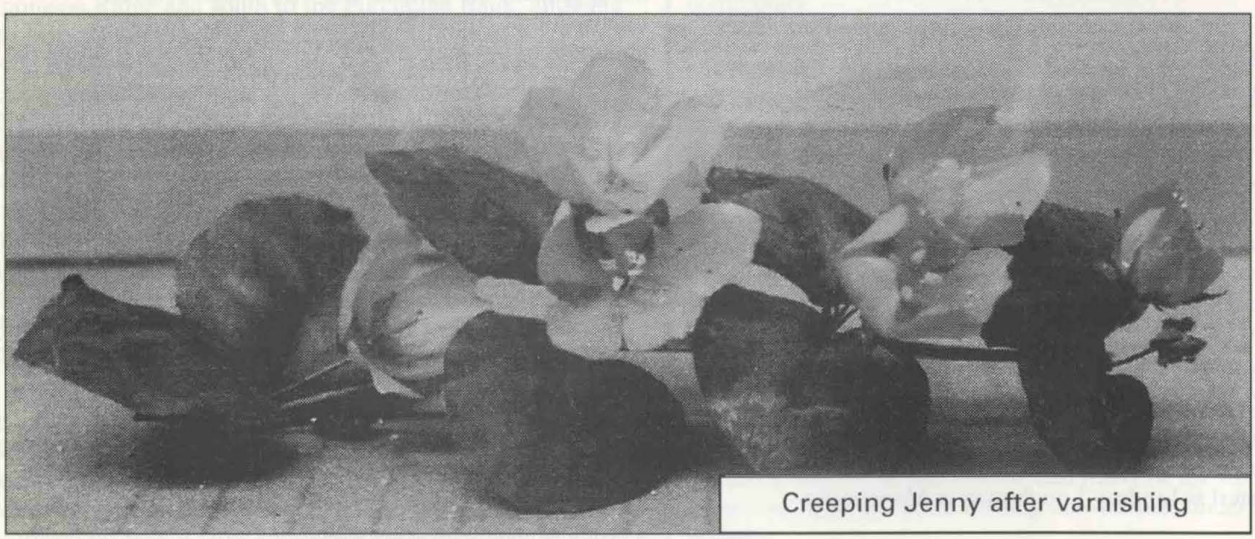
In the event, due to pressure of work, it was 25th September before the specimens could be removed from the sand. It was found most successful to remove the sand from the boxes by allowing it to 'drain' out of a hole in the bottom of the box; this does not disturb the specimen. This part of the process is easier with sand only rather than sand plus silica gel, as the gel crystals, being largish pieces, tend to knock the delicate parts of the specimen and occasionally block the 'drain' hole. Note that this is an added advantage of using cardboard boxes rather than something more substantial.

After drying, there was no discernable difference in the quality of specimens with or without the silica gel. It may be that a much larger proportion of silica gel would speed drying and help preserve yet more colour. However, there was little or no noticeable loss of colour during the drying process. Since the drying time was not determined experimentally, the use of silica gel was questionable.

Heating the sand prior to use would speed drying. The optimum temperature is not known, but should be as hot as possible avoiding scorching the specimen, perhaps 50 to 80 degrees centigrade. This would be a useful exercise for future study. The effect of such heat on delicate petals may well make this idea suitable for only the more robust specimens.

The specimens were separated into two groups, one set to be stored on a cupboard by a south-east facing window and the other in a cupboard in almost complete darkness.

Photographs were taken of the specimens after mounting them on Blu-tac.



Creeping Jenny after varnishing

Each specimen was liberally dosed with 3% Paraloid B72 in acetone, using a paintbrush. The purpose of this treatment was to penetrate the dried fibres of the plant with this volatile mixture, yet have sufficient B72 in it to coat all surfaces reached. This should kill organisms and render the plant unpalatable to them in the future.

The somewhat curious result of the B72 treatment was that the whole surface so treated, upon drying, changed to an uneven 'frosty' white finish.

To provide a tough, totally encapsulating coat, all surfaces were treated with two coats of 'Citadel' matt varnish. This varnish is produced by 'Games Workshop' of Chewton Street, Eastwood, Nottingham (tel: 01773 769731).

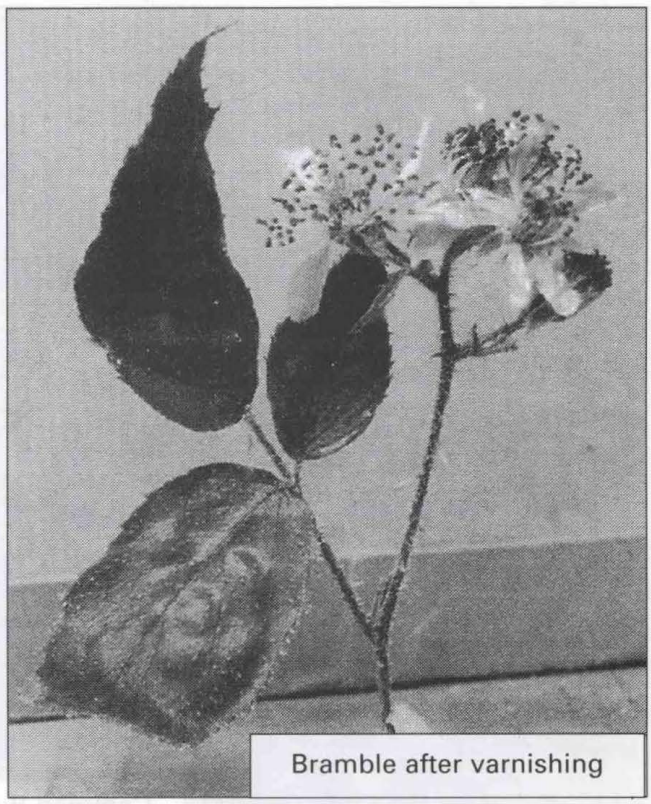
The result of the above treatments was quite satisfactory. When the matt varnish was applied, the white 'frosting' disappeared and the real finish was between eggshell and semi-matt, which is a reasonable approximation of a good deal of plantlife. It must be admitted that this gave unnatural uniformity of finish to all the plant specimens but this is a better finish than most alternatives already mentioned. The idea of so encapsulating the material in a varnish was not only to protect the plants from pest attack, but also to give additional mechanical strength to delicate structural parts such as thin stems. In this, the trials were very successful; the plants could be treated quite roughly without damaging them.

The finished specimens were photographed again for the record. These photographs were in paired groups, with the silica gel dried specimens on the right.

Four months later, in January 1996, the specimens in constant strong light had lost a great deal of colour, particularly the Epilobium specimen. In contrast, the specimens kept in darkness had no discernible colour loss. A further year of storage saw the specimens stored in light really 'washed-out' and not displayable but the ones in darkness were fine. After a further year, the specimens in darkness were just starting to fade a little. The effect of light on colour loss was, of course, no surprise, but the time taken to become unacceptable for display was useful.

It is clear that for temporary displays of a few months in bright lighting conditions, this approach is quite practical. For longer term displays of a year or two, it would be practical if the gallery had subdued lighting, as it would be in a woodland diorama perhaps. Two important aspects were the cheapness and relative ease so replacing faded specimens after a year would not be onerous. Any such replacements in a long term display would, of course, have to be planned so the plants concerned were in season. Selecting species with a long flowering period might be useful.

The process costs are minimal, particularly if B72 and acetone are already in store. Later work was done. Anemone nemorosa (Wood Anemone), Taxus baccata (Yew), Tilia europaea (Lime) and Ranunculus ficaria (Lesser Celandine) were successfully dried using builders' silver sand purchased in the kiln dried state. The robust specimen of Yew are quite unaffected by the coarser sand but the berries were shrivelled and had lost their waxy bloom. This effect on fleshy plant parts is unavoidable in this type of drying process. The Wood Anemone was somewhat distorted; chinchilla dust would have been gentler and provided more fine support for this species.



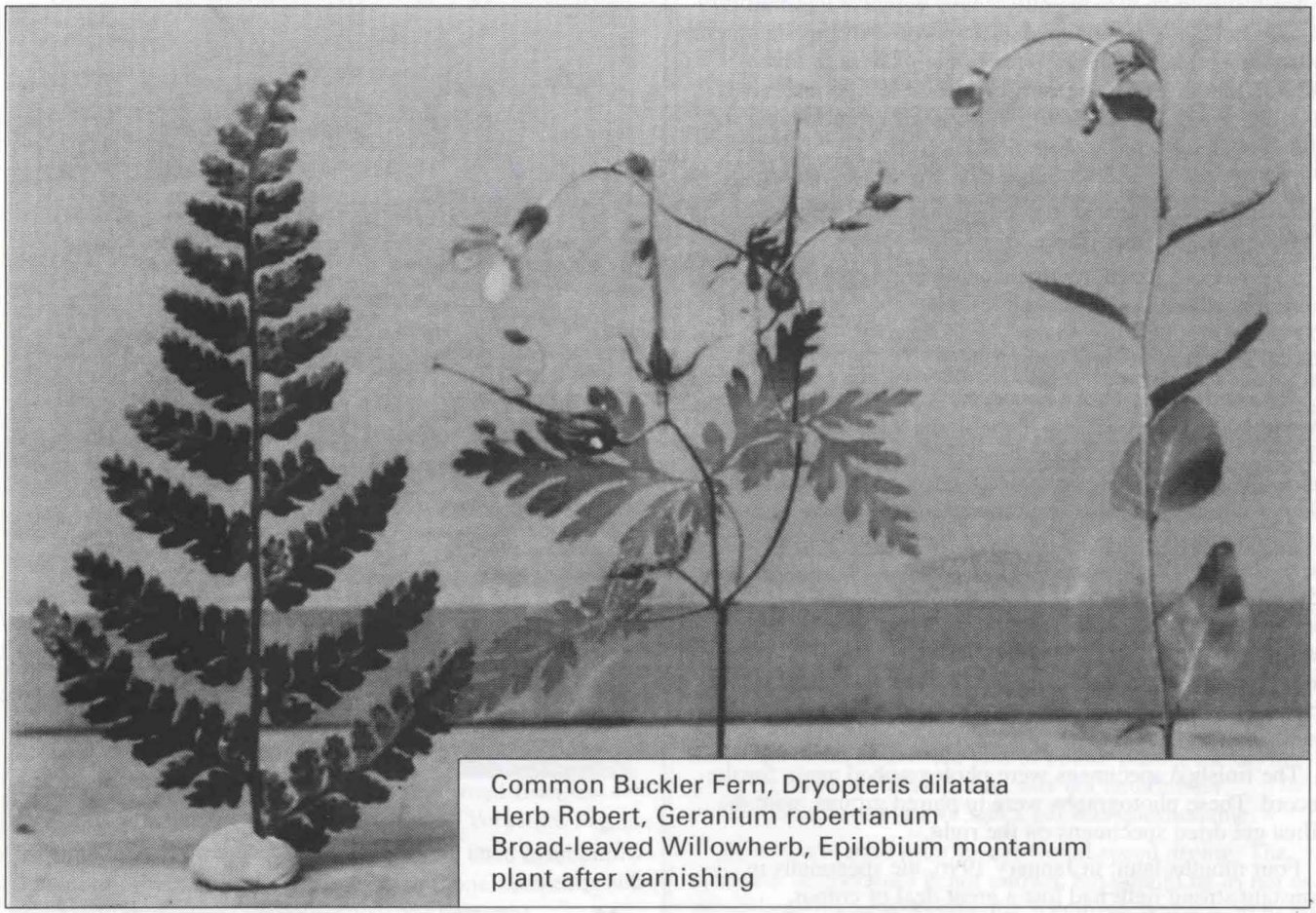
Bramble after varnishing

Mosses and dead leaves were treated by putting them in a micro-wave oven at full power for two 30 second periods. This rendered them quite dry, after which they were treated in the same way as the previous plants with B72 in acetone and finished (encapsulated) with matt varnish.

Ronseal (and perhaps others) manufacture an outdoor satin finish varnish, which is an alkylid resin in white spirit with an ultra-violet filter component. This might be an ideal material, so long as it isn't too viscous for the rather delicate plant parts (petals and plant hairs). In the event of the varnish being too viscous, it may be possible to thin it with white spirit so it can be spray applied.

Plants for successful drying must be carefully selected. Thick, fleshy leaves or stems are not suitable, so bluebells, stonecrops and the like are not possible. They result in withered brown specimens with very little residual strength. The plants that were best preserved were Bramble, Celandine and Herb Robert, though the grasses and mosses also worked very well indeed.

There are several aspects to the above experimental work that could (should?) have been more rigorously controlled, such as accurate drying time, light measurements and pigment change monitoring. These were, however, practical experiments done quickly and cheaply in a working environment to obtain quick and usable results. Within these constraints, the results were promising. The plant material was rendered mechanically stable fairly quickly and cheaply. There was never any hint of attack by animal or fungus. The



Common Buckler Fern, Dryopteris dilatata
Herb Robert, Geranium robertianum
Broad-leaved Willowherb, Epilobium montanum
plant after varnishing

limitation of plant types suitable for drying in this manner still leaves a good selection.

The plants used were either from Clifton Park or 'weeds' from Richards garden. It is important to note this last point and observe the BSBI code of conduct for taking plant material from the wild. It might be worth while cultivating good relations with people who hate gardening as their wild flower (weed) collections can be useful.

Richard Comley- Assistant Museums Officer (Natural Sciences)
Karl Noble- Conservator

Correction to e-mail address:

Sarah Kenyon at Saffron Walden Museum: e-mail — **museum@uttlesford.gov.uk**

The Biology Curator is published and printed by Northern Whig Ltd., Belfast for the Biology Curator's Group.
Editors: Patricia Francis and Kathryn Berry
Contributions should be sent to: The Editors, Biology Curator's Group, Natural History Section, Bolton Museum and Art Gallery, Le Mans Crescent, Bolton BL1 1SE. Tel: 01204 332197. Fax: 01204 332241. E.Mail: bolnathist@qn.apc.org.
(Please send on disc using Word for Windows or ASCII-file with hard copy).
Copy Dates: 8th January for March, 8th May for July and 8th September for November
Acting Chairman: David Carter Tel: 0171 938 9452
Secretary: Steve Thompson Tel: 01724 843533
Treasurer/Membership Secretary: Kathie Way Tel: 0171 938 8892
 ISSN 1355-8331