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## Biology Curators Group Newsletter

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At Bristol City Museum, we have been working on a new gallery of British Natural History for several years. It is still not finished and will not be opened until next year (1980) but we thought it would be useful to give an account of our aims and of our experiences so far. We would be very pleased to see anyone who is interested and to show them the layout and construction details. We may also, perhaps get some useful comments from others who have been through the same 'mill' recently.

Our new Natural History displays were scheduled to follow the new displays of South Western British Archaeology which were completed in 1970. For various reasons, a positive start on our gallery was delayed until 1973 when the initial brief was eventually written. This covered the displays proposed for the three inter-connecting galleries running along the northern side of the two ground floor halls in our main, Queens Road, building. The back gallery contains our foreign animal displays. The other two will be used for the British displays. It is the displays in the front gallery, nearest the main entrance, which are under construction at the moment. The aim is to display a selection of British plants and animals in an ecological context. The display areas are based on a series of different habitats relevant to our local area. The displays at present under construction are based on marine and freshwater habitats; the other gallery with British material will cover terrestrial habitats.

We are very aware that our displays will not give a balanced or comprehensive view of ecological relationships in the selected habitats. The most we really hope to do is to show species which visitors might be able to see for themselves, displayed in instantly recognisable settings, with a brief explanation of the constraints of the habitat and an indication of the ways of life involved. To this end, each display area has a large painted backdrop. The paintings were executed for us by a freelance artist, Tim Rossiter, who was able to work for us under a STEP scheme, and was subsequently kept on as a temporary member of the Museum's staff for a further three months. The views shown in the paintings were composed with reference to photographs of appropriate localities, but only in the case of Chew Valley Lake and the Severn Estuary, was the view of a particular place represented.

The principal habitats described are - 'Open Sea', 'Shallow Sea', 'Coastal Birds', 'Rocky Shore', 'Sandy and Muddy Shore', 'Estuary, Reservoir and Lake' and 'Stream, River and Canal'. We have been flexible in defining our local area. Although we have no real sea nearby, only the Severn Estuary, there are many birds to be seen on the estuary which may come from breeding grounds on the North Cornish coast or on (what was) the Pembrokeshire coast (now in Dyfed). The same applies to the occasional young Grey Seal which comes our way.

Accordingly our marine displays encompass the North Cornish coast, which provides the backdrop for our Coastal Birds display and the Welsh side of the Estuary represented by a view based on the Gower Peninsular which forms the backdrop to the Sandy and Muddy Shore case. For the visitor to the gallery, this 'local area' will be defined by a relief map showing the country from Gloucester down to the 'Pembrokeshire' islands and Tintagel on the other side, with the estuary and the Bristol Channel as the central feature. The map will be displayed with transparencies of places of particular interest, named on the map and marked with pea lamps.

The layout of the gallery is essentially a figure of eight with access between the two loops of the eight leading from marine displays in one to freshwater and damp pasture displays in the other. Access into the gallery is from either end though the principal entrance is that near the front of the building and leading into the marine sections, with the relief map in the centre. Eye-catchers in this section are two full-size models, one of a small section of a Cornish cliff, with a view out to sea and the other of a sea cave with a Grey Seal in it. The Cornish cliff scene is set in late winter so we just have a few Guillemots on the ledges 'prospecting' before the breeding season which has saved having to prepare too many mounted specimens. The seal in the cave has its head away from the visitor, pointing towards the mouth of the cave. This gives a very good view of the tail and hind legs and disguises the fact that the head of this old specimen is not as well mounted as might be wished. It is a disadvantage in a display which is meant to be natural that the fur of the animal is of course not wet as it might well be in the wild and wet fur would look a different colour from dry fur. We will, however, be displaying two colour photographs of seals near Skomer to try to show how they would really look (allowing for the vagaries of photographic colour reproduction). The two models were made for us by Derek and Patricia Freeborn of East Horsley, Surrey, who accompanied museum staff on a visit to the Tintagel region to choose suitable coastal rocks (near cliffs with sea bird colonies) from which they took latex moulds (with the permission of the land-owner of course). The making of the moulds took a week, and were used to make fibre-glass models of the Guillemot cliff and the Sea cave and another rock surface on which we will display models of coastal plants in flower such as Thrift and Sea Campion.

These coastal plants and other plant models to be used in the gallery, have been made by Sonia Storey of the Wax Flower Studios at Clevedon, Avon. (Her work was displayed at the 1976 Museums Association Conference at Bristol). The models are scientifically accurate and much more robust than traditional wax ones and are aesthetically very pleasing. The leaves and stems can be moved gently into new positions which they then retain. When we install them in the finished cases we will be able to arrange the leaves in relation to the predominant light source in the case which should make them look even more convincing.

We already have a marine aquarium and freshwater tanks on display and these will be transferred to the appropriate sections of the new gallery. The working area behind the freshwater tanks forms one side of the 'neck' of the figure of eight layout of the gallery and is a triangular space. We had hoped to have the marine tank in one of the other sides of the triangle thus giving an economical, common working area for both marine and freshwater tanks which would face different ways into their respective appropriate display sections but unfortunately we were not

quite able to fit these into the space available in the gallery and the marine tank with its work area is separate.

The central display in the freshwater section will be an oval free-standing unit containing a life-size model of a small section of a 'rhine' - this is the local name for the drainage ditches which provide a rich habitat in the local peatlands of Somerset and Avon. Plant models made by Sonia Storey will be set into the model by Derek and Patricia Freeborn. In the same display unit, there will be a more formal display of animals of damp pasture and a feature of this display will be a cast in fibre-glass of the trunk of one of the pollarded willows which are another, but fast disappearing, feature of the levels. We obtained an actual willow tree from a farmer who wanted it out of the way and an Alder trunk for a model in another case from a local peat firm who were most co-operative and who regularly remove trees (unfortunately) to open up land for further peat digging.

The freshwater section of the gallery will also have a relief map. This map is of a smaller area of country from Gloucester to the foot of the Quantocks. It will emphasise the local wetlands with water courses picked out in blue paint fluorescent under ultra-violet light. This makes a striking exhibit but the clear blue of the Severn Estuary on this map is more reminiscent of one's idea of the Mediterranean in summer than the murky reality of our estuary. It would not be physically possible to mark all the water courses down to all the ditches round individual fields but one might say that we had as many put in as we could afford. Beside this relief map will be a panel of Cibachrome colour transparencies and text which together will draw attention to conservation issues affecting wetlands in a local context. The purchase of this map which (like the other one) was made for us by the Freeborns, was grant-aided by the Nature Conservancy Council.

The construction of the main structures housing the displays was started in 1977. The work has been done by our own carpenters and is now substantially complete although the facias have still to be finished, the glass doors installed and the false ceiling put up. The two central features will be constructed later. The cases have all been built on a continuous platform at a height of 460mm (1'6" - the gallery is being built in Imperial units). The front openings of the cases extend up to 2.29m (7'6") from the floor but the interiors up to 2.9m (9'6") from the floor. The fronts of the cases are curved to follow the line of the figure of eight design. The glass will be straight, in the form of hinged doors and unhinged panels set at angles where they abut on one another. The curved fronts of the cases has made for a great deal of extra carpentry work but several visitors have commented on the peaceful and natural effect that the curves give to the gallery and we feel that the extra effort will have been worthwhile. One point about the construction which we have had to watch concerns fumigation. We plan to fumigate our stores and displays periodically with methyl bromide and for this it is important not to have any 'dead' (i. e. totally enclosed) space in structures and fittings. This is because the gas may not penetrate freely into the space for effective fumigation and, worse still, if it does get in, it may linger on when the rest of the gas has been evacuated at the end of the fumigation process. Also because of the proposed use of methyl bromide, we will not be able to use conventional foam-rubber backed carpet tiles in the gallery. We understand that canvas-backed tiles are available which would be compatible with the gas.

Our gallery displays have, for various reasons, been a very long time in construction. To help us in the co-ordination of the various inter-related processes involved, ranging from design, construction and art work to photography, taxidermy and script writing, our corporation Management Services Department was called in at the end of 1977. Since then we have held progress meetings at roughly monthly intervals involving our Museum Director, Management Services, Design, Construction, Graphics, Natural History Conservation and Natural History curatorial staff. These meetings have made it possible to examine the reasons for various delays which have occurred, though not necessarily to solve them. Management Services drew up (more than once) a network diagram for the entire process of setting up the gallery. This showed the critical path activity, throughout most of the work to be the carpentry effort. The network diagram proved a most useful checklist for our progress meetings and it did set out clearly for reference, the dependence in time of one activity on another. It was much less useful as an indication of progress on the curatorial and design sides since the different jobs tend to be done in small batches. For instance, possible sources of photographs for reproduction were approached but the photographs which were forthcoming were relevant to many different displays in the gallery. This left many gaps to be filled from other sources although the diagram suggested one would collect the photographs case by case. Eventually Management Services produced several successive bar charts which were much simpler and therefore more effective in use.

The main structures are complete now and also the large backdrop paintings. We are now involved in devising the settings for the specimens within the cases. Except in the models already described, the mounting of the specimens and the fittings will be formal, not naturalistic. Nevertheless they have to be sympathetic in colour and shape to the backdrop in each case. Trying to ensure that this is so but that justice is also done to the specimens themselves has necessitated a lot of discussion between curatorial and design staff. Natural History staff insist that the mounted birds and mammals should have accessible fixings so that they can be replaced later on if necessary; in most instances they will be mounted on separate bases which will be recessed into the main display surfaces. We have found that it is much easier to plan arrangements with the actual specimens of say, mounted birds to move around to find the best layout. A 'chicken and egg' problem arose early on when the design staff wanted to know the attitudes in which the birds would be mounted before they designed a case setting and the curatorial staff wanted to visualise the setting before recommending the attitudes in which the birds should be mounted. Probably it is best to prepare the material with a good variety of attitudes, in advance and then an acceptable arrangement can almost certainly be found with a little trial and error.

The specimens we will be displaying include mounted and freeze-dried mammals and birds, freeze-dried reptiles and amphibia and models in fibre-glass of marine and estuarine fish. Some, but not all the birds and mammals, have been mounted in our laboratories but all the freeze-dried specimens have been prepared there.

The fish models have been made by a free-lance model-maker, Avril Johnson, and painted by Tim Rossiter. We shall, of course, have live fish and invertebrates in the aquaria. There will be a few insects on display and mollusc shells, and freeze-dried crustaceans. The model plants have already been mentioned. We also anticipate using seaweeds treated with glycerine. To illustrate soft-bodied invertebrates and the soft parts of molluscs, we have a series of specially painted pictures by another free lance artist Phillip Weave. There are several of these covering marine and freshwater organisms; they will be displayed as Cibachrome backlit transparencies. Diagrammatic pictures of organisms on rocky shore, sandy shore and a pond respectively, by a different artist, will also be shown this way. To further illustrate species not represented by Museum specimens, we have reproduction rights for colour photographs of marine plankton and other organisms and freshwater life, from Oxford Scientific Films Ltd., Heather Angel and Dr. D.P. Wilson. Photographs of nesting sea birds have come from Derek and Marjorie Parrish of Dorset and Studio Jon of Fishguard. Gloucester Museum has kindly allowed us to copy some of their photographs of fishing by traditional methods in the Severn Estuary. Other photographs have been lent by friends in the museum profession. Photographs of suitable quality of local habitats have proved difficult to get. Many were apparently available but so often seemed not quite to show what was wanted or would not have stood enlargement up to 8" x 10" or 10" x 12" which we require. Several of the tourist boards were helpful in sending photographs for approval and some of the photographs were of very good quality but they did tend to have too much 'human interest' for our purpose. We have been surprised at the time and effort involved in assembling suitable photographs and this job is still not complete.

The lighting of the cases has not yet been worked out. It will be mainly by fluorescent tubes mounted on a track inside the front of each case with a limited use of 'spots' to add 'punch' without too much heat. Ideally, of course, the colours of the interiors would have been chosen using the lighting tubes, which would eventually be used and we are hoping that no difficulties will occur when the type of lighting is finally chosen. Ease of tube replacement is an important point in planning the lighting of a display. Our main lighting will be mounted inside the front of the case, so the tubes will be accessible through the doors. However, there will be many backlit transparencies and caption panels to be catered for and access to these needs careful planning. The model of the Guillemot cliff has access, near the back for its lighting and like all the other main cases, it stands against the wall of the gallery. The adjoining display, the section of 'cliff' with plant models, has had to be supported on a rather expensive custom-made support with a very strong piano hinge allowing the whole section to be swung forward to give access to the back of the other 'cliff'. The lighting at the end of the sea cave can be serviced from an adjoining room.

We are in the process of writing scripts at the moment. The interior layout of each of our cases is different and this means that the layout and length of the captions for each case have to be discussed individually with the design staff.

We are insisting that we have the name of each specimen on a label close to the specimen but we will be grouping individual captions together for tidiness though we are anxious that in the largest cases, some of the captions may be rather far from the specimens. In the 'cliff' case and other models, names will not be written near the specimens but a keyed diagram will be used. In some cases notably the 'rocky shore' there will be a large number of species displayed and here we have decided to provide a continuous text with key words in bold type and with few, if any references, to individual species. However basic information about their mode of life, feeding habits and position on the shore will be given in coded form with a series of symbols which have been devised with the help of the design staff. These symbols have been made up commercially as transfers which can be rubbed onto the art work for the graphics. Whether visitors will find these too laborious to decipher remains to be seen.

Perhaps inevitably the gallery is turning out a little differently from what we envisaged when the brief was written. We think that there is a pleasant and appropriate feeling of space which is right and proper for displays dealing with 'outdoor' subjects. (It will be interesting to see if we lose any of this when the canopies of the partial false ceiling are up). Our large cases contribute to the feeling of spaciousness and will also be easy for children of all sizes to look at but they do not lend themselves to the display of smaller specimens. These will mostly be mounted on panels within the cases but we wonder whether they will be sufficiently near the glass for details to be appreciated. We also intended to mix specimens from different taxonomic groups in each or most of the cases but we found that in this gallery, birds with mammals are best displayed separately from invertebrates; this necessitated the shuffling round of specimens on our lists and the renaming of some of our display areas. We had also hoped to display numerous photographs of local examples of habitats dealt with in general in the actual displays but it has not been able to accommodate these in the positions and numbers which we had hoped.

Finally I might add that when I have said 'we think' in this article I have been implying that my opinions are shared absolutely by the other Natural Historians in my section, namely Charlie Copp and Sue Swansborough and until this year Don Stewart; no doubt they will be explaining to me shortly that that is not strictly true.

Anne Hollowell  
Bristol City Museums

#### STORAGE FACILITIES FOR THE NATURAL HISTORY COLLECTIONS AT BRISTOL CITY MUSEUM.

From 1972 to 1974, Bristol City Museum and Gallery undertook a major reorganisation and re-fitting of the basement storage areas in the main Queens Road building. The project has been described in general terms by Paul Elkin in the Museums Journal, Vol. 75, September 1975, but what follows may give some idea of the advantages and problems we have experienced since then with storage of the reserve collections in Natural History.