Biology Curators Group Newsletter

Title: Book Review: Biological Museum Methods, Volumes 1 and 2 by George Hangay and Michael Dingley

Author(s): Harris, R. H.

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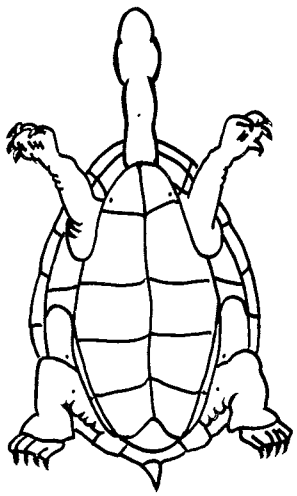
Book Reviews

BIOLOGICAL MUSEUM METHODS, VOLUMES 1 and 2

by George Hangay and Michael Dingley

Published by Academic Press Australia.
Price £95.50. ISBN 0 12 323301 1.

This is a major new work in the field of biological conservation, in many ways an update of the excellent PRESERVATION OF NATURAL HISTORY SPECIMENS by Wagstaffe and Fidler published 31 years ago. Reg Harris, formerly Senior Scientific Officer in the Zoology Department of the BM(NH), has prepared this page-by-page commentary and review of the work.



These two volumes are excellently produced and are a mine of information. To encompass such a wide variety of information is a daunting task and it is only too easy to find items which do not fully reflect the opinions of workers in the field of biological technology. I have listed some of the points I noticed when reading through the text.

Volume 1
On page 3 it is stated that Waterton decried the use of arsenic implying that it was because of the poisonous nature of the reagent. Yet he used almost exclusively during his working life vast amounts of mercuric chloride, not only as a preservative for specimens but to saturate his clothing and headwear to, as he put it, protect against the weather!

On page 5 there is, unfortunately, no reference to Gerrards Biological Supply House of Camden Town, London, who were prominent taxidermists, modellers etc. from the 1880s up to the present day, and were the first commercial business in the UK to prepare material for schools, museums, universities etc. They also pioneered the supply of biological material prepared for teaching.

On page 8 there is no mention of the tanning oil Lankrolene used to prepare skins that have been fluid preserved in alcohol or formaldehyde solutions.

On page 19 Yoshida's work on the use of Vitamin C added to preserving fluids for colour preservation is not mentioned although a reference appears in the source list. Reference should have been made here to the use of pyridine and nicotinic acid for a similar purpose.

On page 123 it is stated that "a solution of formaldehyde can be used if the skin is not to be relaxed". That is precisely why Lankrolene oil was introduced (ref: page 8).

On page 288 reference is made to the conversion of the respiratory pigment haemoglobin in colour preservation techniques. The presence of the converted pigment should be confirmed by spectroscopic analysis otherwise it is simply a hit and miss technique much practiced in medical museums during the past 90 years. The work of Kaiserling, Pick, Jores and many others did much to establish colour preservation in both plant and animal material.

On page 302 the originator of the wax impregnation technique, Hochstetter (1927), is not mentioned.

On page 344 it is stated that "Harris (1959) modified the process of osteological preparation by using sodium sulphide and trypsin etc." I did, in fact, use pancreatin for a different and much better result.

On page 345, with reference to the reagent Antiformin. Its greatest use is in the preparation of skeletal material from hitherto fluid preserved or from sun dried sources. It is possible using this reagent to obtain skulls from reptiles, for example, with ear ossicles intact.

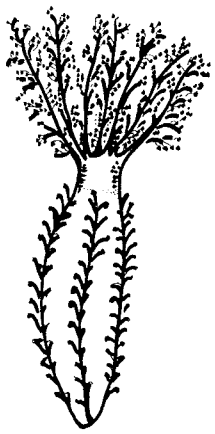
Volume 2
On page 7, with reference to the reagent Dowicil. It is most important to emphasis that this reagent is really a keeping solution prior to fixation. Although UNESCO workers use a fairly high percentage solution (15%) for preservation there is histological evidence that cellular integrity is not maintained and all tissues so treated should be fixed before any final preservation is carried out.

On page 8, with reference to difficulties in the solvency of propylene phenoxetol in aqueous solutions. Attention is drawn to the publication ZOOPLANKTON FIXATION AND PRESERVATION edited by H.F. Steedman, UNESCO Paris (1976), in which details of the use of propylene glycol is given as the solvent for the phenoxetol which also aids the penetration of the fixative.

On page 17 there is no reference to the Traill (1900) technique for preservation of

chlorophyl in plants. It is one of the few solutions which does actually preserve the respiratory pigment and this can be confirmed by spectroscopic analysis.

On page 32 it is stated that freeze drying is not essential for sponges in the dry state. I would suggest that it is essential that freeze drying be carried out to maintain cellular integrity.



On page 37 the authors talk about the preservation of anemones in plastics and are unsure (from the source quoted) whether colour is preserved. The answer is that the colour will not be preserved because of the oxidation effect on the anemone tissues by the polymerising plastic. Freeze drying does preserve colours in coelenterates and they can be kept in plastic boxes or glass jars and can also be wax impregnated.

On page 70 the use of formol-acetic-acid injected carefully into the freshly killed lobster, taking care not to drip the reagent on to the exoskeleton, followed by drying in a warm dry cupboard after positioning will preserve the blue colour of the lobster and any other colour of selected crustacean so treated.

On page 146 reference is made to the microscopical preparation of insects and this is very well demonstrated. It is a pity that the same type of information is not available for the other invertebrate phyla. The authors do recognise this absence on page 3 of this volume.

On page 178 it is suggested that small amounts of liquid nitrogen be applied to a specimen to be positioned etc. On no account should any specimen come into contact with this liquified gas. The vapour only should be used. Failure to do this will result in cracks appearing in prepared specimens months or even years after treatment.

Chapters 10, 11, 12 and 13 are concerned with aspects of display, modelling and diorama preparation. Whether these methods are likely to be used or practiced by curatorial staff in museums to which these volumes seem to be directed is a matter of opinion. The sheer amount of information and illustrations are most attractively presented.

My comments in no way detract from the immense amount of work that has been carried out to produce these two volumes. Whether the price of £95.50 will inhibit the sale of such a work remains to be seen. I think that these two volumes have a place on the shelves on any Area Museums Service Library.

R.H. Harris

A note from Steve Garland (Bolton Museum) about the Ordnance Survey Gazeteer on microfiche.

Having recently purchased the Landranger Gazeteer and found it very useful I thought other BCG members may be interested. It is a set of 34 fiches containing an alphabetically listed, grid-referenced directory of all names appearing on the 204 1:50000 scale Landranger maps of Great Britain. Absolutely invaluable for finding those elusive one word locality names on old specimens. Price £80 + VAT from: Fixed Price Services, Ordnance Survey, Romsey Road, Maybush, Southampton SO9 4DH.

AN ATLAS OF THE CARABIDAE (GROUND BEETLES) OF NORTHUMBERLAND AND DURHAM

by M.D. Eyre, M.L. Luff and S.G. Ball

Northumberland Biological Records Centre, Special Publication No 2, 1986. The Hancock Museum, Barras Bridge, Newcastle upon Tyne. Price £5.50 (inc p+p).

This atlas follows the Special Publication No 1 which dealt with water beetles. It is in the same A4 spiral-bound format and it maps by tetrads 114 of the 210 species listed in the text. It is somewhat difficult to read off the co-ordinates of the tetrads on the computer-printed maps, but excellent distribution patterns are shown due to the remarkably even coverage which has been achieved right across the two counties.

The text includes tetrad records of all non-mapped species (i.e. those recorded from less than ten squares) and post-1950 records are indicated by bold type, although the printing quality does not show this up well.

For anyone working on this beetle family the book provides one of the few available up-to-date assessments of status in northern England and is therefore invaluable. For Northumberland and Durham coleopterists the introduction, with its potted history of collectors, collecting and recording in the counties, is very important and should enable anyone new to the area to find quickly any papers and collections relevant to their studies.

Steve Garland
Bolton Museum and Art Gallery