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Curatorial Notes

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Curatorial Notes

CURATORIAL NOTES

Museum Jar Closures

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A weak experiment, sans replicates, was conducted to determine the suitability of various closures of jars used to store alcoholic fish specimens. Four different con-

tainers and 10 different closures were used. A description of the closures and the results of the experiment are given in Table 1. Containers 1 through 7 were 4 oz Paragon flint glass jars measuring approximately 48 x 112 mm. Container number 8 was similar but measured approximately 40 x 128 mm, and numbers 9 and 10 were glass vials measuring approximately 21 x 70 mm and 28 x 58 mm respectively.

Each container and its closure was weighed on a Mettler P 162 balance to the nearest 1/100 gram, then partially filled with 95 percent ethyl alcohol, fitted with

Table 1. Description of closure and the amount of alcohol evaporated from various containers over a six year period.

Description of closure	Weight of alcohol in grams		Percent loss
	1981	1987	
1. Bakelite, cardboard liner	28.02	20.52	26.74
2. Bakelite, cardboard liner and shrink band	28.83		100.00
3. Bakelite, hard polyethylene liner	26.41	9.82	62.80
4. Polypropylene, cardboard liner	38.54	38.38	0.40
5. Polypropylene, soft polyethylene liner and shrink band	36.99	34.43	06.93
6. Polypropylene, soft polyethylene liner	31.07	27.52	11.42
7. Polypropylene, no liner, shrink band	37.76	29.80	21.10
8. Bakelite (40 mm), polyethylene cone liner	30.12	30.05	0.32
9. Bakelite (21 mm), polyethylene cone liner	10.99	10.98	0.06
10. Polypropylene (25 mm), polyethylene cone liner	15.74	15.64	0.58

a closure, weighed again, and then placed on a shelf in the University of Alabama Ichthyological Collection (UAIC) range on 22 January 1981. The test jars remained undisturbed until 16 January 1987 when they were weighed again in order to determine the weight loss, which would represent the loss of alcohol due to evaporation from the containers. 3rd year of the test.

Clearly small caps with polyethylene cone liners are superior to those with either cardboard or regular flat polyethylene liners. Polypropylene caps are superior

to bakelite caps. The bakelite caps, subject to greater expansion and contraction as temperatures vary, tend to "back off." The soft (spongy) polyethylene liners probably are better overall than cardboard, although closure number 4 (polypropylene cap with cardboard liner) performed better in this limited test than did number 6 (polypropylene cap with polyethylene liner). In the case of closure number 2, the cellulose shrink band cracked and fell off, the bakelite lid "backed off," and the alcohol evaporated sometime during the 2nd and

3rd year of the test.

The information related herein is of limited value since each test closure was not replicated a number of times with jars of various manufactures. The results do confirm my suspicion that almost any closure is better than the bakelite cap with a cardboard or hard polyethylene liner. I think that much of the problem of "leaky" jars is in the jars themselves. The rims of many jars are not true, i.e., the rim does not have an even contour. As a test, place a 4 oz molded glass jar, open end down, on a hard surface. Press down and try to "rock" the jar. If the rim is not true the jar will "rock." Hard liners, such as solid polyethylene, cannot conform with the irregularities of the rim, and therefore do not become "seated" well enough to form a leak-proof seal.

The cellulose shrink bands, the kind you see on jars containing chemicals, are not a solution to the problem of keeping bakelite caps on jars. They tend, after a few years, to become brittle and loose; thus, offering no protection against the cap "backing off." It may be the expansion of the bakelite cap itself that loosens or breaks the cellulose band.

The closure you select is an important decision as curator of an alcoholic collection. The best containers, I think, are the bail-type jars with rubber gaskets. However, the old red rubber gaskets manufactured for use with Atlas and Ball jars (no longer manufactured) were not made to last for many years. Since they have to be stretched to fit the jar rim, they "rot" rather rapidly. Also, they become "grooved" and should be replaced each time the jar is opened. Since the domestic bail-type jar selection is so limited, and the foreign jars so expensive, we must look for a suitable screw-cap jar. Overall, I think, the most practical closure for 4 oz thru 32 oz jars is the polypropylene cap with the cardboard or soft polyethylene liner.

We at UAIC are in the process of fitting our screw-cap jars with the polypropylene-ethylene closure. It is an expensive move but far less costly than losing specimens to dehydration. At today's prices, I estimate conservatively that the average replacement cost for *each* fish specimen in your collection is two dollars. This estimate is based on my experience with ichthyological surveys and it includes the cost of travel, supplies, equipment, labor, preservatives and containers (but not the cost of storage space, shelves, and the labor for perpetual care).

The value of a zoological object is not the dollar amount that it will bring on the open market, but the cost of replacing it, if indeed it can be replaced at all. The fish specimens in your collection are invaluable and unique documents. A collection of fishes and the accompanying field data are analogous to the books in a library. Each lot is a document containing untold knowledge. Each document deserves the best care we can afford it.

Note: "bakelite" is a trademark for synthetic resin and plastic made from formaldehyde and phenol, and apparently discovered by the Belgian-born American chemist, L.H. Bakelite (1863-1944).

A Painless Way of Detecting Formalin

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In 1948-49 when the University of Alabama Ichthyological and Herpetological Collections were first established, all specimens were fixed and retained in 10 percent formalin. As the economic picture improved, we began in the early 1960's to transfer specimens to 70 percent ethanol. The transfer was done rather haphazardly because the availability of alcohol was inconsistent and our priorities regarding what specimens were to become alcoholic changed frequently. Consequently, relatively few ich specimens and many herps are still in formalin. Since the sight test for formalin is unreliable, and the "sniff" test unhealthy and downright unpleasant, we searched for and found a safe and reliable test for the presence of formaldehyde that can be performed in the stacks. Thinking that other curators may be faced with this problem, we relate herein our suggestion for solving it.

Schiff's reagent, highly sensitive to aldehydes, has not, to our knowledge, been employed by curators of liquid preserved specimens as a test for formaldehyde. A few drops of preservative suspected of containing formalin is mixed with a drop of Schiff's reagent. If formalin is present the mixture will immediately turn pink or magenta, depending on the strength of the formalin. No color change indicates that the test solution is completely free of aldehyde.

Some curators do not attempt to remove completely the original formalin fixative before transferring specimens to alcohol. In fact, we doubt that all original fixative could be removed from a specimen. The original formalin fixative that leaks into the alcohol preservative is detectable, but the reaction takes longer to show the presence of the formalin. We suggest that the user experiment with formalin solutions of known strength before making tests in the stacks.

To avoid the hassle of pipetting preservatives and reagent, you can use filter paper soaked in Schiff's reagent just as you would use litmus paper. Dampen filter paper with Schiff's reagent, place the paper in the refrigerator until it is dry. Cut the paper into chips and store in covered petri dish in the refrigerator. Handle the paper with forceps. As you take a jar suspected of containing formalin from the shelf, splash some preservative on the lid liner, remove the lid and touch the liquid with the indicator paper. The paper will suddenly turn from white to magenta if formalin is present.

A light pink color could indicate residual formalin from the original fixative. Wipe the cap liner clean of the reagent lest you end up with pink specimens. Never introduce Schiff's reagent into specimen bottles.

To make Schiff's reagent:

- 1) Dissolve 1 gram basic fuchsin in 100 ml water. Heat to dissolve.
- 2) Cool solution.
- 3) Add 20 ml 1 N HCl, and 1.7 grams sodium metarsulfide ($\text{Na}_2\text{S}_2\text{O}_5$) and stir for several hours.
- 4) Add about 4 or more grams of charcoal (acid-washed "Norit A"), stir 5-10 minutes and filter. If necessary, add more charcoal, stir and refilter until the filtrate is completely colorless.
- 5) Store reagent in a dark bottle in the refrigerator. Schiff's reagent is stable to storage for several years; however, we have no information regarding the stability of the indicator paper.

MINUTES

1988 Business Meeting Southeastern Fishes Council

The Southeastern Fishes Council meet at Biloxi, Mississippi in the Ship Island Room of the Biloxi Hilton on April 15, 1988. Chairman Robert E. Jenkins presided. The meeting was called to order at approximately 4:24 PM, CDT.

Secretary's Report: The Minutes of the 1987 meeting were read and approved.

Treasurer's Report:

	<u>Balance</u>
Checking account (rec'd from previous Treasurer)	\$ 623.04
Assets:	
1988 dues rec'd at at 1987 meeting	60.00
1988 dues rec'd as of 4/12/88	670.00
Donations as of 4/12/88	<u>120.00</u>
	850.00
	1473.04
Debits:	
Cost of Issue No. 17 of PROCEEDINGS	(385.01)
Service charge on checking account	(1.41)
	(386.49)
	1086.55
Balance in Checking Account (4/12/88)	1086.55
Paine Webber Cash Fund (3/23/88)	<u>1645.74</u>
Total Assets (4/1/88)	\$2732.19

Editors Report:

Mike Stevenson reported that in the past year he had received a sufficient number of manuscripts to produce one issue of the PROCEEDINGS. He distributed information for contributors and requested that individuals submit manuscripts. Upon acceptance of a manuscript for publication the author(s) will receive Galley proofs prior to printing. Reprints are available for a nominal fee.

Mike also indicated that back issues of most issues of the PROCEEDINGS are available. Individuals wishing to receive copies should contact Mike at: Dept. of Biological Sciences, Univ. of New Orleans, New Orleans, LA 70148. Old fish buttons are also available.

Several questions from the floor were heard regarding the type of style which will be employed in the future and the number of typographical errors in issue No.17. Mike indicated that the small type style used in issue no. 17 will be employed for future printings. He also acknowledged some mistakes had been made and noted that steps would be taken to correct these problems.

Old Business:

The subject of a new "Natural History Journal" as an outlet for manuscripts on fishes remains a possibility. Discussion on this topic continued for several minutes. It was noted that the editors of Copeia are investigating the possibility of converting to some form of "Desk Top Publishing." This should decrease the amount of time to get an article published and also reduce costs.

Jim Williams noted that the problem was not one of cost or time for publication. Rather, it is a matter of an outlet for natural history notes. Several individuals commented on the need for a new journal and the apparent views (either real or perceived) of the Copeia editors regarding these types of manuscripts.

At the conclusion of comment of this issue Bob Jenkins stated that he would write to the North Carolina State Museum to inquire if they had any plans regarding publication of such a journal.

New Business:

Bob Cashner informed the members of a letter he received from Steve Plantania regarding a "4th of July fish count." The Desert Fishes Council has been conducting a fish count for a number of years and they would like to request that the SFC begin a similar project. (Following the minutes is a summary paraphrasing Steve's letter.)