COMMENT: This electronic version of the newsletter was created by scanning the original copy and then editing as needed. Apologies for any scanning errors that have not been corrected. Karsten E. Hartel, MCZ January 1994. hartel@mcz.harvard.edu

CURATION NEWSLETTER No. 9 Fall 1987
American Society of Ichthyologists and Herpetologists

BYRON WESTON RESISTALL LEDGER AND OTHER PAPERS USED FOR LABELS IN AQUEOUS PRESERVATIVES -- Locating a durable label paper that readily accepts and holds markings made with pencil, India ink or printer ribbon, is suitable for long-term use in aqueous preservatives, is available in small quantities at a reasonable cost, and can be adapted for use with computer generated data is the subject of this article. Much effort has been expended in recent years to find a paper that meets all of these criteria. Several institutions have run out of or are dangerously low on their supply of paper and the problem has been compounded by the fact that many are using paper purchased years ago. When supplies are exhausted, some discover that the paper they have been using is no longer available or is only available is quantities larger than are within their means to purchase. The Curatorial Supplies and Practices Committee has investigated this subject during the past year and our findings are summarized herein.

L. L. Brown Resistall paper (the old standby at the USNM and many other museums) ceased to be available in 1974 when the Byron Weston division of the Crane Paper Co. bought out L. L. Brown. However, the right to manufacture the Resistall paper using Brown's formula was also obtained. The resulting product is Byron Weston Resistall which is said to be essentially the same as the former L. L. Brown product. The paper is 100% cotton rag and comes in several different weights, 24, 28 or 36 lb. ledger (sometimes called "linen ledger") and 110 lb. index. The rag content affects durability and longevity of the paper. "Resistall" refers to the incorporation of a wet-strength additive during the manufacturing process. One has to be careful to specify "Resistall" when ordering; paper that is not "Resistall" does not hold up well in fluid preservatives. The National Museum of Natural History (NMNH) experienced a problem with a bad batch of paper a number of years ago (see Curation Newsletter no. 1, June 1980), but since that time has had no problem. The NMNH routinely uses BW Resistall 36# ledger, and has been fully satisfied with the product.

This paper, when available, can be purchased through any number of paper distributors although it is a special-order product and is not routinely stocked. It is manufactured by the Byron Weston Division of Crane & Co., Dalton, MA 01226 (contact: Ed Driscoll, 413/684-1234). We have purchased it in cut sheets and in rolls, the latter further modified to incorporate holes and perforations for use with sprocket-feed printers when producing computer-generated wet labels.

The problem with Byron Weston Resistall is that the company will not manufacture the paper unless it has a large enough order (minimum 6,000 lbs.). The Smithsonian's Fish Division estimates usage at less than 100 lbs. per year, thus it is unlikely that any one museum can meet the minimum order requirement. Most of us have purchased the paper from local distributors who have obtained excess from large runs that were ordered by commercial enterprises. The last run manufactured by the Byron Weston Company was in 1985, but even that was a "special situation" done at the request of the parent company. The last standard run was in 1981. As of November

1986, they still had some remnant rolls of 8" wide, 24# Resistall ledger paper available (contact Driscoll for updated information on this).

Another possible solution to the problem of obtaining this paper is for museums to join forces and do a combined purchase. Les Knapp of the Smithsonian's Sorting Center has offered to handle such a purchase if there is enough demand for it and he can get assistance from SI's management. ANYONE INTERESTED IN PURCHASING BYRON WESTON RESISTALL 36# LEDGER, AS PART OF A BUYING CONSORTIUM, SHOULD CONTACT ME AS SOON AS POSSIBLE, at the address given below.

An alternative approach to the label paper problem is to buy a different paper. The ichthyological section of the National Museum of Natural Sciences in Ottawa has been using a "wet strength paper" for a number of years with good results (see label paper article by Van Guelpen, et al., this issue). A survey of the Curatorial Supplies and Practices Committee members has revealed that a number of people are impressed with the quality of this paper and are considering purchasing it. I do not know the rag content of the paper, nor how its manufacturing process compares with that of Byron Weston.

Byron Weston makes two other wet-strength papers that might be useful for museum purposes. One is a 25% rag, 110 index, high wet strength paper (used commercially for wrist labels on hospital patients) and the other, a "field book paper" (used by people in oil production) that is 100% cotton rag and comes in 20 and 24 lb. weight. Both of these papers are more readily available than BW Resistall since there is a greater demand for them.

Two synthetic papers have been tried for wet labels, "Tyvec" and "Texoprint". Although the papers are very durable, they do not hold ink and pencil equally well and do not withstand use with laser printers (they essentially melt). This, combined with their high cost, makes them undesirable for general purpose labels, but should be considered for special uses (see Van Gulpen, et al. article for note on Tyvec).

We will continue to coordinate information on label papers and will provide updates in future issues of Curation Newsletter. I urge all readers to share with us their experiences and preferences for different label papers. Those of you who have an interest in a joint purchase should contact me immediately, if you have not already done so. ---- Susan L. Jewett, Division of Fishes, NMNH Rm. WG-12, Smithsonian Institution, Washington, DC 20560.

ADDITIONAL LABEL PAPERS FOR SPECIMENS IN AQUEOUS PRESERVATIVES - The matter of a suitable replacement for L. L. Brown Resistall Linen Ledger has previously been addressed in the ASIH 1979 CURATION REPORT and in ASIH CURATION NEWSLETTER No. 1 (June 1980). The recommended replacement was Byron Weston Resistall Linen Ledger, substance 36, short grain (Byron Weston Co., Dalton, MA, 01226, telephone: 413-684-1234. In Canada this paper is sold by Domtar, P.O. Box 2000, N.D.G. Station, Montreal, Quebec, H4A 3R3, telephone: 514-483-8000-8036. Domtar's U.S. address is Domtar Industries Inc., 600 Summer St., Stamford, CN 06901, telephone: 203-359-1160). At the Atlantic Reference Centre (ARC) we have had negative experience with Byron Weston's "500 Year Paper" (Linen Record, substance 36, long grain, extra #1-100% rag), as was reported for this company's non-Resistall paper in CURATION NEWSLETTER No.l. Such paper is unsuitable for labels to be immersed

in aqueous solutions. It disintegrates readily and rapidly in water, formalin, alcohols, and also when frozen. Even in the dry state, this paper shows little resistance to tearing. Based on testing of various papers at the ARC and discussions with other museum and field workers we have found some promising papers suitable for wet labels when Resistall paper is not readily available.

Two good papers are "Wet Strength Laundry Tag" (70 lb.) and "Suture Label" (102 lb.) (both manufactured by Domtar). These papers (and others not recommended herein) were tested in 10% formalin, 95% ethanol, and 50% isopropanol for durability, and ink (Pelican Drawing Ink Z, black) ar.d pencil (medium, No. 2) retention after abrasion (rubbing) and over time (one, four, and seven weeks). Ink labels were allowed to dry only briefly before immersion. India ink and pencil (graphite) retention results are summarized below.

AQUEOUS PRESERVATIVE	WRITING MEDIUM	LABEL PAPER Laundry Tag	Suture Label
10% Formalin	ink	good	good
	pencil	fair	poor
95% Ethanol	ink	very good	very good
	pencil	good	good
50% Isopropanol	ink	good	good
	pencil	very poor	very poor

Although Suture Label was a heavier paper, both papers showed excellent durability and resistance to handling. Writing on Laundry Tag with a drawing pen was relatively more "scratchty" than on Suture Label, probably due to the high matte finish on the latter. There were no changes in the general quality of either paper over time; neither has any tendency to disintegrate. In formalin both papers lost some ink (minimal and acceptable); smearing was negligible. Pencil tended to rub off somewhat on Laundry Tag, and to a more pronounced extent on Suture Label. However, pencil labels prepared on both papers remained legible. In ethanol there was very little ink loss from either paper. Light smearing was evident on Laundry Tag paper; this was more pronounced with Suture Label. There was some pencil loss by both papers in ethanol, though labels again remained clearly legible. In isopropanol there was light ink loss, but more substantial smearing on both papers. Pencil rubbed off both papers easily in isopropanol, resulting in illegibility. Overall, Laundry Tag performed slightly better than Suture Label, but is approximately 20% more expensive (at least in Canada). New labels at the ARC will be made from Laundry Tag paper stock since our local printer can only process sheet stock (Suture Label paper is available in roll stock only, except upon special order).

Extremely durable wet labels can also be made from "Tyvec" (a Dupont product). "Tyvec" is a laminated synthetic material that is almost impossible to tear. "Tyvec" labels are relatively expensive, but virtually indestructible. A colleague using labels of this material has reported that India ink remains perfectly intact even after three hours in boiling water. However, writing on Tyvec with pencil is unsatisfactory; little graphite is transferred and the information is difficult to read. Writing with a drawing pen may give less than desirable results, since ink sometimes tends to spread out along the fibers of the label material. Nonetheless,

"Tyvec" ring-tag labels, intended for field collection use and coffin-specimens (tail tags for immersion), appear superior to those made of any conventional paper currently available.

For computer printout of specimen data onto immersible labels, a material that may prove satisfactory is "Wet Strength Laundry Tag" label/index card paper (off-white 65M) (manufactured by E.B. Eddy Forest Products (3 Eddy St., Hull, Quebec telephone: 819-595-5211). The Ichthyology Section of the Canadian National Museum of Natural Sciences uses this paper, perforated for separation and traction feed, for preparation of catalog index cards. Although apparently originally intended for dry index cards, testing and general use of this paper at the ARC has proven it quite satisfactory for long-term immersion. This paper has also been tested at the Canadian National Museum by S. Laframboise, who has reported that durability and India ink retention of this paper in 50% isopropanol were excellent. A potential drawback of Laundry Tag index card paper is its stiffness. The ARC was originally optimistic about using this paper to generate computer printed labels for immersion. However, the paper proved too stiff to feed properly through our Epson LQ-1500 printer. Lighter-weight stock might alleviate this problem. ---- LOU VAN GUELPEN, JAMES F. McELMAN and KENNETH J. SULAK, Atlantic Reference Centre, Huntsman Marine Laboratory, St.Andrews, New Brunswick, Canada, EOG 2X0, 506-529-3945.

SOCIETY FOR THE PRESERVATION OF NATURAL HISTORY COLLECTIONS -- The Society for the Preservation of Natural History Collections (SPNHC) is a multidisciplinary organization composed of persons who are interested in the development and preservation of natural history collections. Natural history collections comprise specimens in the fields of anthropology, zoology, botany and geology, and supporting documentation, such as audio-visual materials, labels, library materials, field data, and similar archives. Preservation refers to any direct or indirect activity providing continued and improved care of these collections and supporting documentation. The Society publishes a biannual journal called "Collection Forum." Membership is open to individuals and dues are $12.00 (U.S.) per year (contact: SPNHC, Box 6520, Sta. J, Ottawa, Ontario, Canada K2A 3Y6). ---- JULIA GOLDEN, Curator of Paleontological Collections, University of Iowa; Chair, Liason Committee, SPNHC.

POLYETHYLENE LINERS FOR SCREW-TOP JAR CLOSURES -- The Atlantic Reference Centre (ARC) has been unable to locate a Canadian supplier of "Polyfoam" type lids for our standard museum jars. Instead, we are using flat polyethylene liners (similar to those previously used at the MCZ and USNM, Division of Fishes), which appear to provide an excellent seal, are relatively cheap, and can be inserted into existing lids. The ARC has arranged with a local firm to manufacture polyethylene liners of 0.55 mm thickness with approximate unit costs as follows:

Nominal Jar Opening	Actual Liner Diameter	Canadian Price *	U.S. Price *
45 mm	43.5 mm	$0.04	$0.024
48 mm	47.0 mm	0.04	0.024
58 mm	55.5 mm	0.06	0.036
70 mm	68.0 mm	0.08	0.048

*: per each (plus tax, any applicable duty, and shipping); orders in units of no less than 1000 liners per size.

The ARC would be interested in arranging cooperative orders to help offset our initial cost for the punchpress dies. Other sizes could be manufactured (including diameters up to 132 mm nominal jar opening), as required. We would appreciate feedback on what nominal jar sizes are in common use in other museums, and whether other museums might be interested in participating in group orders for liners. ---- LOU VAN GUELPEN, JAMES F. McELMAN and KENNETH J. SULAK, Atlantic Reference Centre, Huntsman Marine Laboratory, St.Andrews, New Brunswick, Canada, EOG 2X0, 506-529-3945.

MORE ON SCREW-TOP JAR CLOSURE LINERS -- A note pertaining to the suggestions made by Van Guelpen et. al. (above) regarding polyethylene screw-top jar closure liners, is worthwhile. Inside dimensions, hence liner dimensions, vary greatly within a single screw top closure size, depending on the style of closure and the manufacturer. The 58 mm closures purchased from the Atlantic Glass Co. by the UMMZ in 1975 accommodate a 55.5 mm diameter polyethylene liner. The fine-ribbed 58 mm closure presently available from Mack-Wayne (the lids used by the MCZ) uses a 54.0 mm liner. Similar differences exist for 63 mm closures (and, presumably, other sizes). Most of the inside dimension differences appear to be due to the greater wall thickness and increased thread depth of the Mack-Wayne lid.

The ASIH Committee on Curatorial Supplies and Practices encourages cooperative orders of materials among institutions. Caution must be exercised, however, in ensuring product compatibility - in this case, closure and liner. ---- DOUGLAS W. NELSON, Collection Manager, Division of Fishes, Museum of Zoology, University of Michigan, Ann Arbor, MI 48109.

DISCOLORATION OF ALCOHOL BY RUBBER GASKETS -- The National Museum of Natural History has experienced a problem with a dark color leaching into the alcohol from the gaskets used on bail-top "canning" jars. The Division of Fishes has conducted a "controlled" experiment in which all gaskets in stock were tested. The gaskets were placed in 75% ethanol and allowed to sit for a period of time. The results were disappointing; usually within 24 hrs. the alcohol had become discolored from a leaching pigment. Unfortunately a single gasket on a sealed jar with virtually no contact with the alcohol can significantly discolor the alcohol.

In an attempt to solve the problem, we contacted two rubber companies and briefly described the problem. Manufactured Rubber Products Company of Philadelphia, who supplies MCZ and ANSP, sent samples of EPDM and Buna-N. Both materials leached. Karsten Hartel at MCZ, however, sent a sample gasket from their stock, which when tested did not leach. The problem, therefore, may be compounded since the amount of leaching may vary with different batches of rubber.

Our supplier, Potomac Rubber Company of Washington, D.C., has been unable to give us detailed information about the composition of their rubber. Both black and white samples are purported to be Buna-N with Parcel-OZO as another component of the compound. The black gasket leached badly but the white caused barely perceptible discoloration. Since we were in immediate need, we purchased the gaskets made of the white "Buna-N" material, however, there is concern since the gasket's performance over time is not known.

It may be beneficial for inquiries to be made directly to rubber manufacturers. This way a type of rubber known to withstand the effects of alcoholic collections could be tested and experimented with to avoid the leaching problem. Unfortunately, due to staff shortages, we can not

explore this problem at the present time. ---- MARTHA NIZINSKI, National Marine Fisheries Service, NMNH, Smithsonian Institution, Washington, DC 20560.

NEWLY AVAILABLE ICHTHYOPLANKTON COLLECTION -- The Gulf States Marine Fisheries Commission (GSMFC) wishes to announce the establishment of a new curated collection of ichthyoplankton collected from the Gulf of Mexico. These specimens are available for loan to qualified researchers. Samples have been and are being collected for SEAMAP (SouthEast Area Monitoring and Assessment Program), a multi-year state/federal/university program of the GSMFC. Neuston and bongo nets were employed for specimen collection in a one degree latitude/longitude grid over the entire Gulf north of 24 30' North latitude. At present, samples from 1982 (7057 lots, 93 families), 1983 (8351 lots, 106 families) and material from one summer cruise in 1984 (4155 lots, 75 families) are available for loan. Lots of unsorted fish eggs are also available from these years. Most samples are sorted to the family level, although many have been identified to the generic or species level. Specimens are available for loan on a six-month renewable basis. Researchers interested in obtaining additional information should contact me or Tom Van Devender, SEAMAP Coordinator, Gulf States Marine Fisheries Commission, P.O. Box 726, Ocean Springs, MS 39564. ---- JOHN V. GARTNER, SEAMAP Ichthyoplankton Curator, Florida Dept. of Natural Resources, Bureau of Marine Research, 100 8th Ave. S.E., St. Petersburg, FL 33701; (813) 896-8626.

REFERENCES FOR THE PREPARATION OF ICHTHYOLOGICAL SPECIMENS -- JAMES F. McELMAN, KENNETH J. SULAK, and LOU VAN GUELPEN, Atlantic Reference Centre, Huntsman Marine Laboratory, St.Andrews, New Brunswick, Canada, EOG 2X0, 506-529-3945.

[EDITORIAL NOTE: The Curatorial Supplies and Practices Committee will coordinate additions to this reference list and will publish them in future issues of Curation Newsletter. Please contribute useful references to Susan Jewett, Div. of Fishes, NMNH Rm. WG-12, Smithsonian Institution, Washington, DC 20560.]

The following list represents a compilation by the Atlantic Reference Centre (ARC) of laboratory techniques that have been found useful in preparing fish specimens for study. Included are references to preparation methods appropriate to gross and microscopic study of preserved fish eggs, embryos, larvae and adults. Also included are publications dealing with vital staining of live fishes, and those giving information on proper handling of live material prior to fixation or staining. This list was compiled for reference purposes at the ARC, and subsequently published herein as a useful resource for colleagues. As such, the list does not claim to be comprehensive.

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ABOUT THE CURATION NEWSLETTER -- The Curation Newsletter is prepared by the Committee on Curatorial Supplies and Practices of the American Society of Ichthyologists and Herpetologists. It is a means by which we share information concerning ichthyological and herpetological collections with the scientific and museum communities associated with these collections. It is published on an irregular basis, usually once a year. We welcome input from readers and encourage those who have information pertaining to curatorial practices and supplies to share it with others by means of this newsletter. All submitted material is subject to review and editing by members of the committee. When a reasonable amount of material is assembled, a newsletter will be issued.

The mailing list for the newsletter is intentionally of limited size. We try to include all ichthyological and herpetological collections of significant size but do not attempt to include all ASIH members or persons associated with such collections. Instead, we ask that the newsletter by circulated or duplicated by the curator or collection manager who receives the newsletter, and distributed to all pertinent staff. We make this request in an attempt to keep the duplicating and mailing expenses within reasonable limits. Please notify me of any additions, deletions or corrections to the mailing list. ----- S. JEWETT, Committee Chair.