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. 10 Spring 1990
American Society of Ichthyologists and Herpetologists

WET LABEL PAPER IS AGAIN AVAILABLE !!! The long awaited Byron Weston Resistall wet label paper is now available.. write or call for a catalog & price list: University Products, Inc., Phone: 1-800-628-1912 or 1-413-532-9431, P.O. Box 101, 517 Main St., Holyoke, MA 01041. The paper is available in two weights, 28# and 36#, in a variety of precut sizes and continuous rolls and sheets with pinfeed holes and perforations for use with computer printers.

University Products, Inc. carries library, museum and archival quality equipment and supplies. A year or so ago they decided to expand their natural history line and we have discovered that they are very responsive to the needs of the wet collections" community. They sent a representative, Christine Allen, to the 1989 SPNHC meetings where she discovered the need for wet label paper and subsequently researched and determined which formats were most needed. The company has since made the paper available in a large assortment of formats. Dave Magoon, President of University Products took a personal interest in the project as a former employee of L. L. Brown Co. (for those of you too young to know, L. L. Brown paper was the predecessor of Byron Weston Resistall and is the paper that was used for decades in the USNM and many other collections). Mr. Magoon even sent Ms. Allen to the Byron Weston manufacturing plant to oversee the paper production. On behalf of the community I'd like to thank Mr. Magoon and Ms. Allen for responding toour needs and providing us with the paper that we have needed for such a long time! NOTE: For those of you who have been following the USNM's effort to make a bulk purchase of label paper, the effort has been abandoned since we were unable to obtain funding and the above source became available in the interim. As of this time I know of no other source for obtaining Byron Weston Resistall paper.-- S. Jewett, NMNH, Smithsonian Institution.

PH PENS FOR TESTING PAPER ALKALINITY. From the NIC Council Update (Winter 1990): "pH pens, felt-tip pens filled with chlorophenol red, are available for testing paper alkalinity. While not an exact method of determining the pH of paper, the pen gives the user an approximate idea Cost: $2 plus postage and handling. Contact: Abbey Publications, 320 E Center, Provo, Utah 85606. (801) 373-l598. John Simmons, University of Kansas, Museum of Natural History.

HOW PERMANENT ARE THEY?- Recently, several independent efforts investigated the possible use of laser printers for insect labels. Initial tests in our Department showed the output from the Hewlett Packard Laser-Jet Series II is unsuitable. Labels generated by these means quickly disintegrated, as evidenced by the plastic toner flaking off, when submerged in an ultrasonic cleaner.

I began using the Mainframe Xerox 8700 Laser Printer for label production. The turnaround was quick and the results were acceptable. Upon discussion with the technical department of Xerox Corporation, it was revealed that the toner is widely used and is known for its stability in air, water, and alcohol. However, it is

not suitable when exposed to petroleum based products. Also, the toner is bonded to the paper at 390 degrees C. and 300 lbs. of pressure. It appears that the "pressure" component is particularly important for long term use and stability. Sheets of these labels were forwarded to the Conservation Analytical Laboratory of the Smithsonian Institution and further tested. The results were very favorable, although, the report cautioned that sunlight might have an adverse affect on toner stability.

Although this is not the perfect solution, particularly for those collections that do not have access to a mainframe laser printer, it provides assurance that the label will have some degree of permanence. [excerpted from Insect Collection News, 1989, 2(2):26] - Linda L. Sims, Dept. of Entomology, NMNH, Smithsonian Institution.

AN ANALYSIS OF THE SUITABILITY OF VARIOUS LASER AND IMPACT PRINTER GENERATED LABELS FOR WET LABEL STORAGE - The explosion of computer and related technologies have placed new demands on long term storage techniques. Rapid and aesthetically pleasing labels can be generated in less time than it takes to read this article. However, it became quickly apparent that these labels had varying degrees of longevity. Of particular concern, are those labels that for reasons of bulk or collection storage technique are immersed in alcohol. This represents special concerns of abrasion and label integrity.

Recently, a standard wet label paper, Byron Weston Linen Ledger with Resistall paper has become available again after a long history of supply problems (see Insect Collection News, 2(2):26). Given the new technologies and paper quality, a series of label treatments (CAL 5186) were tested by the Conservation Analytical Laboratory of the Smithsonian Institution. These tests were specific to this paper treated with the chemical, resistall. This additional chemical, a melamine, increases the resistance to tearing or fiber separation, however it alters the neutral properties having a pH of 5.5 to 6.5.

The following label treatments were tested: I) Xerox 8700 Mainframe 2) Hewlett Packard HP II 3) Apple Laserwriter II 4) Apple Laserwriter II sprayed with Krylon 5) Apple Laserwriter II heated to 300 degrees F. for S minutes 6) Same treatment as #5, except heated for 10 mins. 7) An alcohol resistant ink (Cove AG8) ribbon on an impact printer. Each sample was subjected to three testing procedures, ranging from 60 degrees C. in water for two days to 70 degrees C. for ten days in 80% ethanol.

It should be noted that desk top laser printer differ substantially from the Xerox 8700 Mainframe Laser Printer. While the latter bonds the toner at 390 degrees C. under 300 pounds of pressure, the Laserwriter II and the Hewlett Packard utilize the standard Canon engine and apply the toner to the paper using a static mechanism (no pressure) and 150 degrees C.

The label most resistant to abrasion was the alcohol resistant ink ribbon used with an impact printer (#7). The label, although not as aesthetically pleasing as some of the others, was further heat treated with no increase in degradation. The two heat-treated labels (#5 & #6), fared almost as well, and were the best of all laser printer generated labels- Of particular note, is that the labels sprayed with Krylon, an acrylic fixative, degraded upon heat treatment, with a notable residue. It can only be assumed that this degradation process has a deleterious effect on label archivability and should be monitored frequently.

In conclusion, the results showed that the stability of the printing on the labels seems adequate as long as there is no abrasion, ie. contact between the specimen and the label in solution." In an environment where

abrasion or high lipid content occurs (another known problem), the special alcohol resistant ink with an impact printer (#7) appears to have the highest resistance to degradation. For more information, please contact Linda L Sims, Dept. of Entomology, NMNH, Smithsonian Institution, Washington, DC 20560 (MNHEN003@SIVM.SI.EDU). Linda L Sims.

FURTHER COMMENTS ON LASER PRINTER GENERATED JAR LABELS. The Division of Fishes, UMMZ, like many other institutions, has been using labels printed with a laser printer (Hewlett Packard Laser Jet Series II) and then sprayed with a clear acrylic spray (Krylon Crystal Clear), for placement in jars of alcohol-preserved fishes (as well as other preparations: e.g., dry skeletons, cleared and stained). The paper used in the UMMZ labels is Domtar Wet Strength Laundry Tag 70#.

Recently conducted tests, in which these labels were placed in extremely oily alcohol, indicate that this spraying procedure only delays the process of "loosening" the print from the paper surface (described earlier by a number of investigators; e.g., the preceding articles by L Sims). Labels were placed in alcohol obtained from different tanks containing sharks, Coregonus, and catostomids, then examined once a week for a period of three weeks. At the end of three weeks, all labels failed an abrasion test similar to that previously employed for unsprayed labels (i.e., a light rubbing with a finger easily removed the print from the paper surface). The recent tests were prompted by a discussion with William Saul (ANSP), who indicated that he had noted failure of these labels, using the same test, after a period of one year.

We suggest that spraying the label with an acrylic spray does not prevent degradation of the printed surface by the oils in the alcohol. Our suspicion, which we propose to test more quantitatively, is that the alcohol chemically interacts with and effectively removes the acrylic finish on the label, allowing the oils to act on an untreated paper surface.

Continuous monitoring of labels placed in jars under initial archival storage conditions (i.e., specimens fixed in formalin, stepped up to 70% ETOH, labels and tin tags inserted, placed on shelf) has revealed no problems to date with the acrylic-sprayed labels. Similarly, we have had no reported problems using these as labels accompanying loans of alcoholic specimens. In addition, the UMMZ has always placed a stamped tin tag in the jar with the specimens to provide a backup information system in the event of loss or destruction of the paper jar label.

Despite the apparent lack of failures under normal operating conditions, we have temporarily suspended our label production using the laser printer while we investigate alternative, cost-effective steps to ensure the integrity of labels produced in this manner and reevaluate the benefits of other label production methods. We strongly recommend that all institutions use a backup system, on a more permanent medium than paper, with at least basic information (catalog number, accession number, field number, etc.) in the jar with the specimens. Such a system will ensure recovery of specimen data despite destruction or loss of jar labels. -- Douglas W. Nelson, Museum of Zoology, University of Michigan.

PRINTER RIBBONS WITH NON-BLEEDING ETHANOL RESISTANT INK; FINALLY A WET LABEL THAT BYPASSES PRESOAKING! -- The Division of Fishes at the National Museum of Natural History has been producing computer-printed wet labels (i.e. data labels placed inside a jar containing ethanol and fish specimens) since 1979. Initially we used the standard MYLAR carbon ribbons because they were readily available and produce a good black print that holds up in ethanol, but it was necessary to presoak the

labels in ethanol to remove the soluble components of the ink before placing the printed labels in specimen jars. The presoaking step is time consuming and inefficient, but no one seemed to know of a better method.

Several years ago I began working with Charles Chapman (a local printer ribbon supplier) to find an ink that would not bleed in ethanol. After several ink formulas were tested without finding a better ink, the ink chemists working on the task produced a non-bleeding (at least there is no noticeable bleeding) ethanol resistant ink. I have not been able to get the chemical formula for the ink, but it is a carbon ink (not a dye). We have been using the ethanol resistant ink to print wet labels for about two and a half years. There has been no noticeable fading of the print and we now use it to print all of our wet labels (15,000 to 20,000 each year).

The possibility always exists that any printing may disappear over time, thus I strongly recommend that some type of "imprinted" numbering system be used in addition to the inked label. In the Division of Fishes, we place an imprinted tag (produced by mechanically pressing the number into a heavy weight rag paper) with a unique catalog number in each jar of specimens. Several other collections use plastic Dymotape type labels. If the inked label becomes illegible for any reason, the catalog number on the imprinted tag can be used to locate all data associated with the lot of specimens by looking up the number in a computer file, or a hard-copy printout of our catalog file, and a new label can then be printed.

The ink can only be applied to nylon ribbons and the cost of the ribbons depends on several factors, including the width of the ribbon, style, etc. The only known source of the non-bleeding ethanol resistant ribbons is Charley Chapman of Automated Data Products. There is no minimum order requirement, but at present they do not stock all sizes of ribbons. They will recycle used cartridges, but have a minimum order of 6 cartridges for recycling. Automated Data Products guarantees that lOO% of the ribbons will work and will replace any defective cartridges.

For prices and ordering information, contact: Charley Chapman, Automated Office Products, Inc., 9700-A Martin Luther King, Jr. Hwy., Lanham, MD 20706, 800-673-8553.

NOTE: A recent batch of ribbons purchased from this company produced labels that bled when placed in alcohol. The company was notified and subsequently informed us that they had received a bad batch of ink They have guaranteed replacement of all defective ribbons and encourage anyone who has purchased defective ribbons to send them back for replacements. -- Jeffrey T. Williams, NMNH, Smithsonian Institution

LARGE GLASS JAR AVAILABILITY. Erno Products Co. of Philadelphia currently carries a 2 ln gallon glass jar with a 120 mm opening. Price as of February 1990 was approx $15 per jar, but vanes depending on the volume purchased. The old 2, 3 and 5 gallon buckets with 132 mm openings are no longer manufactured by Erno. If Interested, call or write: Erno Products Co., 2136 E Tioga, Philadelphia, PA 19134, (215) 831-2660. -- Bill Saul, Academy of Natural Science of Philadelphia.

POLYPROPYLENE LIDS FOR 2, 3 AND 5 GALLON GLASS BUCKETS. Through the courtesy of Larry Page of the Illinois Natural History Survey we have been made aware of the availability of 132 mm polypropylene lids with polyethylene foam liners, identical to those available in smaller (48-120 mm) sizes from such outlets as Kols Containers in Baltimore and Chelsea Bottle Co. (see address below). Traditionally the 132 mm closures have

been available only in metal or bakelite (with cardboard liners); both of these lids have disadvantages, namely rust problems and "backing off which allows evaporation to occur. We purchased the foam-lined polypropylene lids from Chelsea Bottle Co., Inc., l0 Wesley St., Chelsea, MA 02150, (617884-2323, FAX 617-889-1626). Price is $950. per thousand. Delivery was prompt and the lids are performing admirably. -- George H. Burgess, Florida Museum of Natural History.

SPEAKING OF LIDS .... MORE ON BAKELITE - Those of you using bakelite lids may be interested in a comment made by conservator Cathy Hawks at the Fluid Collections Assessment Subcommittee meeting during the 1989 SPNHC Conservation Committee meeting in Tyrrell: "there is an additional reason NOT to use the bakelite lids aside from their tendency to back off and break. Exposure to formaldehyde vapors makes the lids even more brittle and susceptible to cracking, since Bakelite is a phenol-formaldehyde polymer." -- John Simmons, University of Kansas, Museum of Natural History.

AVAILABILllY OF ALL-PLASTIC LIQUIPAKS. Liquipaks are a staple of field operations, but all who have lashed down these invaluable containers on decks of ships where they are subject to waves, salt spray and rain are familiar with the limitations of treated cardboard. Although many of us have taken to painting the cardboard, the lifespan of a liquipak is finite. All-plastic open head drums are now available in 8, 16, 30 and 55 gallon capacities. We have purchased and tested all four sizes over the past four years and are happy to report that all but the 16 gallon model have withstood incredible abuse, including a 20 ft. vertical drop off a boom while filled with fishes and formaldehyde. The 16 gallon container, designed differently from the other sizes, has a poor seal which leaks, and probably should be avoided for use with fluids. Plastic liquipaks are now our standard field containers; our remaining stock of cardboard liquipaks are used solely for loan shipments. Current prices are $21.80, $36.60, $59.60 and $73.30 for the 8, 16, 30 and 55 gallon models, respectively. All are available from Consolidated Plastics Co., Inc., 1864 Enterprise Parkway, Twinsburgh, OH 44087 (800 321-1980, FAX 216 425-3333). -- George H. Burgess, Florida Museum of Natural History

CAPLUGS: PLASTIC INSERT SEALING DEVICES FOR SPECIMEN JARS- In August 1988, I began looking for a sealing device similar to the Abico insert (which is difficult and costly to obtain) described in the report on current supplies and practices used in curation of ichthyological collections 1979 (ASIH Subcommittee report). The product that I found to be most similar to that insert, at least in design, is made of low-density polyethylene by the Protective Closures Co., Caplugs Division, 2150 Elmwood Ave., Buffalo, NY 14207, (716) 876-9855.

Although Caplugs" are not made specifically for our purposes, the characteristics listed in the company's catalog, as well as those reponed for low-density polyethylene in the Cole Parmer Plastic Ware catalog for 1987-88, suggest that they can be used as sealing devices in our specimen jars because low-density polyethylene is fairly chemically resistant and shows little or no damage after 30 days immersion in formaldehyde (lO% and 40%), glycerin, absolute isopropanol or absolute ethanol.

We decided to test Caplugs in jars with mouth dimensions of 58, 89, 110 and 132 mm, filled with 50% and 95% isopropanol and 70% and 99% ethanol, and capped with polypropylene ribbed-edge lids with F-217 polyethylene liners. The sealed jars were placed in the specimen collection under

normal storage conditions. Our decision to experiment with the use of Caplugs was based on the following: 1) Other institutions are using polyethylene in specimen jars as disc inserts and have seen no degradation of the material. 2) Disc inserts alone do not solve the evaporation problem. Caplugs offer a potentially better solution because they are designed to fit into the jar itself, allowing for a better seal. and 3) Caplugs are relatively inexpensive:T-20 @ $34.80 per 1000 (Dec '89 prices), T-53 @ $77.77 per 1000, T-502 @ $145.40 per 1000, T-1072 @ $208.40 per 1000.

We have been running the test for 16 months and measuring evaporation by means of before and after jar weights. No weight loss has been detected to date. We have, however, encountered two problems during our experiment. The Caplugs were put into existing jars in the collection but the jars, having come from a variety of different manufacturers, are irregular in neck dimension causing significant variability in the fit of the Caplug. For example, they fit well in the 5 gallon jars but poorly in the 3 gallon jars even though both have 132 mm mouths. Additionally, some of the Caplugs protrude into the jar more than is desirable, thereby reducing the volume for alcohol and specimens. We were concerned that the red dye that is used in the manufacture of the Caplugs would leach into the alcohol, but no color change has been detected.

Sample Caplugs and a catalog are available upon request from the manufacturer. I would like to suggest that you try the sizes currently available and judge their effectiveness for yourselves.

Our plan is to continue testing the Caplugs to build more conclusive data and to determine if we can get a more consistent fit with newly purchased jars. We are interested in purchasing Caplugs in bulk and in contracting with the manufacturing company to produce a shorter version of one or more of the sizes without the red dye. The latter will require paying one-time re-tooling charges which we can not pay for ourselves, so anyone interested in sharing costs to obtain this product should contact me. -- Ramon Ruiz-Carus, Curator, Florida Marine Research Institute, Division of Marine Resources, 100 Eighth Ave., SE, St. Petersburg, FL 33701-5095, (813) 896-8626, FAX (813) 823-0166.

EDITOR'S NOTE: Several of us using the polypropylene lids with polyethylene foam liners, available in sizes from 48-132 mm, have been so satisfied with the lid that we don't feel the need to use inserts. We encourage exploration into the idea, however, since no one has yet found a completely evaporation-proof lid-jar combination.

MUSE 3.0 NOW AVAIIABLE -- A new version of MUSE is now available which adds a significant number of new features. Earlier versions of MUSE required customized changes to the MUSE program (executable), a lengthy and difficult process. In the current version, all collection specific data are stored in MUSE description files (MDFs). The MDFs contain all information about field sizes, field types, indices, prompts, etc. A separate utility program is available for setting up MDFs. This new feature makes it possible for a non-programmer to set up a MUSE installation.

An additional feature is a new printer database which allows the use of just about any brand of printer with MUSE. This database can itself be customized allowing new printers to be added as needed. Other new features include data compression, longer remark fields, new taxonomic dictionaries, and the ability to add ancillary databases to MUSE.

There are currently 23 collections utilizing MUSE (20 in North America, 2 in Europe, and 1 in South America). We have recently started shipping versions for herpetology collections including the American Museum and the Academy of Natural Sciences of Philadelphia.

The current NSF grant supporting MUSE ends at the end of 1990. We encourage anyone interested in adopting MUSE to write for an application or further information. -- Julian Humphries, The MUSE Project Building 3, Research Park, Ithaca, NY 14850.

ADDITIONS TO REFERENCES FOR THE PREPARATION OF ICHTHYOLOGICAL SPECIMENS" (CURATION NEWS NO. 9, PG. 7) AND PRELIMINARY BIBLIOGRAPHY ON PREPARATION AND CURATION OF HERPETOLOGICAL SPECIMENS (CURATlON NEWS NO. 4, PG. 2):

DIFFERENTIAL STAINING OF TISSUES

Campbell, Stephen C. 1986. A method for clearing and staining small fishes, amphibians, and reptiles. Proc. oz the 1985 Workshop on Care and Maintenance of Natural History Collection. Ed. by Janet Waddington and David M. Rudkin. Life Sciences Miscellaneous Publications, pp. 29-39, Royal Ontario Museum.

Campbell, Stephen C. 1986. A bibliography on clearing and staining small vertebrates. Proc. of the 198S Workshop on Care and Maintenance of Natural History Collection. Ed. by Janet Waddington and David M. Rudkin. Life Sciences Miscellaneous Publications, pp. 115-116, Royal Ontario Museum.

Nishikawa, Kiisa C. 1987. Staining amphibian peripheral nerves with Sudan Black B: progressive vs regressive methods. Copeia 1987 (2):489491.

FIXATION AND/OR PRESERVATION

Crimmen, O. A. 1989. Phenoxetol: an unsatisfactory preservative for fishes. Biology Curators Group Newsletter 5:26-27.

Horie, C. V. (ed.) 1989. Conservation of natural history specimens: spirit collections. The Manchester Museum and Department of Environmental Biology, The University of Manchester, Manchester M13 9PL, UK

Lai, Ya-Ching. 1963. Effects of several preservatives on proportional measurements of the fat-headed minnow, Pimephales promelas. [unpublished M.A. thesis, Dept. of Zoology, Univ. of Kansas]

Scott, Jr., Norman J. and Aida Luz Aquino-Shuster. 1989. The effects of freezing on formalin preservation of specimens of frogs and snakes. Collection Forum 5(2):41-46.

Smith, David G. 1989. Role of museums in studies of early life history stages of fishes. Trans American Fisheries Soc. 118:214-217.

Waller, Robert and Don E. McAllister. 1987. A spot test to distinguish formalin from alcohol solutions. Curator 30(3):240-249.

PREPARATION OF SKELETONS

Bortone, Stephen A. and Camm C. Swift. 1975. Preparing gar chondrocrania. Carolina Tips 38(11):43.

Williams, Stephen L. and Stephen P. Rogers. 1989. Effects of initial preparation methods on dermestid cleaning of osteological material. Collection Forum S(1):11-16.

INKS, LABELS, ETC.

Williams, Stephen L and Catharine A. Hawks. 1986. Inks for documentation invertebrate research collections. Curator 29(2):93-108.

Williams, Stephen L. and Catharine A. Hawks. 1988. A note on "Inks...z. SPNHC Newsletter 2(1):1.

Except where noted, the newsletter written by the committe on Curatorisl Supplies and Practice of the American Society of Ichthyologists and Herpetologists and is intetlded for use by its membeship. Comments are are not to be construed as and endorsement of practices or products by ASIH. Members of the Committee are: George H. Burgess, David A. Good, Karsten E Hartel, Julian M. Humphries, Jr., Susan L Jewett (Committee Chair), Leslie W. Knapp, Douglas W. Nelson, Jose P. Rosado, William G. Saul, Jeffrey A. Seigel, John E. Simmons, Lou Van Guelpen,