

Time Capsules Old and New

South Carolina Department
of Archives and History

**Archives and Records
Management Division**

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Introduction

During the nineteenth century it was a popular custom to lay a cornerstone at a public ceremony to celebrate the commencement of a large construction project. Local dignitaries would address the crowd; the event was blessed by the clergy; and representatives of the Masons solemnly sealed the stone in place. Very often, the community leaders would seal a time capsule inside the cornerstone. As the twenty-first century begins, many of these older buildings are undergoing renovations or destruction, and the people working on such structures have to deal with these time capsules. The officials tearing down or opening the old cornerstones often feel compelled to replace the old time capsule with a new one. This leaflet deals with both the retrieval of old materials and creation of new time capsules.

Recovering an Old Time Capsule

Before dismantling a cornerstone, do some research on the building. A search of the local newspapers of the era may reveal not just the whereabouts of the cornerstone but also its construction and its contents. Large public ceremonies were well-covered by the local papers. If your local public library does not have the local papers on film or in print, check with the South Carolina Newspaper Project at





Recovering an Old Time Capsule CONTINUED

the University of South Carolina's South Caroliniana Library to see if they have the paper on microfilm.

Any newspaper accounts listing the materials inside the time capsule will help you develop a budget for recovery of the items. A little further research on the building may tell you whether some catastrophe might have destroyed or damaged the time capsule. If there were a fire or a major roof leak, water might well have seeped into the cornerstone and even into the time capsule itself. Water damaged materials will be very fragile, recovery will be more expensive, and you will have to plan on a larger budget for conservation. Consider opening the time capsule without public fanfare to see if the documents survived. Few things can be as disappointing as a large public gathering to open a box of moldy, crumbling, illegible papers.

Be very careful when opening the cornerstone to avoid damaging the capsule inside. While most time capsules are metal boxes, some are glass bottles. Glass bottles, apart from being brittle, can be very valuable, depending upon age and condition. If there were serious mold and water damage to the contents of the bottle, it is quite possible the bottle may be the most valuable item in the cornerstone.

If the building is being renovated or remodeled, you will want to avoid structural damage to the building when you open the cornerstone. Have the site examined by a structural engineer, whose fees should be included in the project budget.

Opening the Time Capsule

When removing the box from the cornerstone, try to keep it as level as possible. The materials inside will certainly have settled over time. They may have shifted when the container was placed inside the cornerstone. Move the box to a perfectly flat, padded work surface. Secure the box by easing it into a brace you make with two pieces of lumber at ninety-degree angles to one another at the front corner of the work surface. This setup will allow you to slide the container gently onto the work surface, while the braced lumber acts as a bumper, gently holding the box snug and secure while you work on it. Do not try to hold the box in place by clamping it down to a work surface; you could dent or even punch a hole in the container.

Before opening the box, try to find out where most of the materials rest inside it. Slip a quarter-inch dowel under the center front of the box. The box should tip to the end where most of the documents rest. Remember, if water has seeped into the box, or if there are small heavy objects placed in one end of the box, this test may not be accurate. You may still have lighter documents spread throughout the container, or you may find that some documents floated up during a flood and adhered to the top of the container.



**Opening the
Time Capsule**
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Most of the time capsules in South Carolina contain documents, photographs, and small memorabilia sealed inside metal boxes — usually copper-coated tin boxes or plain tin boxes soldered shut. The solder provided a sound enough seal, but it can present some problems. The hot solder may have fallen into the container when the seal was created, burning the papers inside the box. Different metals react chemically to one another, giving off harmful gases that may cause damage to the contents of the box; photographic materials are particularly vulnerable.

Even if the solder has not fallen inside the box, the container is now tightly sealed and can only be opened by cutting the box open. This must be done very carefully. Begin opening the box by drilling a pilot hole from the side near (preferably above) the seal with a 3/8 inch drill bit. It is a good idea to shield the bit to prevent it from penetrating too deeply into the box. Before cutting open the box, you should carefully extend a small dowel or a fiber optic viewer into the box to determine if there are documents or objects near the top along the line where you intend to cut the metal. Before starting to cut into the lid with a small fine-toothed hacksaw, slip a plastic strip inside the hole to protect the materials under the cutting line.

Gradually cut across the top edge of the side, as near the lid as possible. Try to move the box and its contents as little as possible while you saw. When you have created a large enough opening, try to check the contents again, using a flashlight. If it appears to be clear, continue cutting far enough to remove the documents safely (three sides of the box). Be sure to use pliers to fold back the edge of the box once the cut is large enough.

**Treating the
Documents Taken
From a Time Capsule**

If the cornerstone is in the exterior wall of the building, or if the time capsule is buried underground, you should expect the contents to be damaged to some degree. Budget a minimum of \$500 for some treatment by a conservator.

Two people will have to work together to remove the documents from the container. Do not try to remove the materials from the box with your hands. Using a micro spatula, carefully lift an edge of the top document, but do not try to force two documents apart if they are stuck together. Gently slide a Mylar sheet (cut slightly smaller than the height and width of the box) underneath the document(s) you have lifted. Using the Mylar as a support, ease the document(s) out onto a more substantial sheet of archival paper board (.40 board should be adequate). Remove the board, the Mylar, and the documents to a flat work surface. Do not try to unroll or unfold materials on the spot. When paper is folded or rolled for years, the fibers take on that shape and grow brittle. A folded letter will crumble apart if it is forced open without proper humidification first.





Treating the Documents Taken From a Time Capsule **CONTINUED**

South Carolina's humid climate and occasional flooding contribute to mold growth and metal oxidation in time capsules. If the building were involved in a fire or suffered severe storm or flood damage, water may well have seeped into the cornerstone, if not into the actual time capsule container. When the documents and objects inside the container get wet and then dry out over time, they often become "fused" together. Items that suffered this kind of damage cannot be separated without some loss. A properly trained conservator can minimize that loss. If you open a time capsule and find the materials in this fused, moldy state, leave the documents in place inside the box and take the entire collection to a conservator.

If the materials remained dry, you may find the documents in relatively good condition. They will, however, almost certainly be brittle. If they can be separated easily, do so, using proper supports for each item as described above. Consult the South Carolina Department of Archives and History for sources of Mylar, archival board and micro spatulas. Use cotton gloves when handling these materials.

Since most items will be folded or rolled, they must be "relaxed" through gentle humidification before they can be opened and flattened. If small books are inside the time capsule, open them very gently. Do not force the covers open, however. Paper, glue and boards will likely be very brittle. If metal objects are inside the container, do not pull them off documents if they are stuck. If they are loose, house them separately.

Preparing a New Time Capsule

Time capsules are often opened during anniversary celebrations. The organizers of these celebrations want to replace the contents of the time capsule with new materials. It is still the custom to create time capsules for inclusion in new buildings' cornerstones. Given experiences opening and recovering materials from the old cornerstones, the South Carolina Department of Archives and History recommends abandoning the custom. Most time capsules contain records that are readily available elsewhere or materials that have no great interest to modern observers. Given the costs of recovering these documents and artifacts, which are of little real value, it seems unwise to put our successors to the trouble and expense of recovering our era's selections.

However, there is a strong attraction to the idea of "buried treasure" left for succeeding generations to recover. There are different ways to carry out these projects. They all require a bit of time to prepare the materials, so a time capsule should be planned well ahead of time.

Choose the time capsule's site carefully. If one is to be placed in entirely new construction, try to put the time capsule in an interior wall where it is well marked and reasonably accessible without great expense on the part of those recovering it in the future. If you are



**Preparing a
New Time Capsule**

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replacing the old time capsule in an old cornerstone, be sure to mark the stone clearly and indicate the safe access point. Avoid underground burials in South Carolina; flooding, insects, and water seepage are inevitable.

Choose or fabricate the time capsule with care. The container itself should be stainless steel. If you cannot find or fabricate a container that seals with a stainless steel screw-on lid, then use one with a lid that fits snugly and can be clamped down with wing nuts. An additional O-ring seal is recommended. However, the O-ring should not be rubber, which dries out rather quickly and breaks down giving off harmful gases. Sheet metal is a suitable and less expensive alternative. The lid can be welded closed. Use electrical arc rather than gas-fueled welding equipment.

Unless the container is going to be sealed into an interior wall, plastic containers are not recommended for time capsules. No one is certain that they will remain chemically stable over long periods of time if they are stored in hot, humid conditions. Never use any time capsules made of PVC pipe. Sealable polyethylene containers may be an acceptable option.

If the time capsule is going to be placed in an external niche or underground, it should be sealed inside a polyethylene bag. The bag will help keep water out of the box.

If the time capsule is to be buried, be prepared for the worst. Prepare duplicate materials for a second “capsule.” This is particularly important if you decide to put photographs or ephemera into the time capsule. The duplicate “time capsule” should be placed in the local archives — where it must be cataloged and clearly marked. Many county libraries have local history collections; place the sealed archival container with them, or in a local historical society — providing they will catalog the item. Use an archival quality document case rather than a metal container to house this duplicate copy of your time capsule. When the anniversary celebration occurs in 50 or 100 years, it is likely that the library or historical society copy will be the only one our successors will actually be able to read. Truly historically valuable items, the handwritten letter of a now-deceased prominent official, for example, should not be stored inside a time capsule. Such items should be kept safely in an environmentally controlled setting.

Conditioning of both the container and the items to go in it is required. Both the container and the items going into it should be as dry and clean as possible. Dry out the materials by enclosing them in an airtight container with a package of silica gel that has been “activated.” Silica gel is a crystalline substance that can be purchased from archival supply vendors. Purchase both white crystals and blue “indicator” crystals. A small quantity of the more costly blue indicator crystals should be mixed in with the white ones. The blue crystals will turn white when they have absorbed all the water they can. All the





Preparing a New Time Capsule **CONTINUED**

crystals will then have to be activated again by placing them in an oven at 150 degrees. When the crystals are dry enough to absorb moisture again, the indicator crystals will turn blue again.

Also place a small, cloth bag of silica gel crystals inside the time capsule. Close the time capsule and allow it to dry out. Replace the bag with a new bag of activated gel before you fill the time capsule. Make sure that the gel does not come in direct contact with your memorabilia and documents. Note that this gel will only dry out any residual moisture present when the capsule is first closed up. Over time, it will cease to be effective in very damp conditions.

Since oxygen supports chemical reactions, try to evacuate as much oxygen as possible from the sealed time capsule, although an absolute vacuum is not recommended. The complete absence of oxygen can damage pigments in some photographic processes. One method of depleting the oxygen inside a container is to force nitrogen into the container through a small hose fed into a small hole in the sealed container. Once the nitrogen is pumped in, the hose is removed and the hole sealed.

Prepare the Materials for Storage in the Time Capsule Carefully

Paper

Paper objects should be free of all metal fasteners. Items should be stored separately in Mylar or polyethylene sleeves. Use acid-free paper whenever possible. (Acid-content testing pens are available for less than \$10; contact the South Carolina Department of Archives and History.) Remove wire staples from pamphlets, because the staples will rust. If you are concerned about keeping the pamphlet intact, it can be sewn with heavy book binders' thread. Always place lighter paper objects on top of books and pamphlets, using archival quality barrier boards for support. Avoid all adhesives and any ribbon fasteners. Adhesives often contain acidic materials and dry out over time. Ribbons can contain fugitive dyes.

Metal

Metal objects should not be included, but if they are, clean them of all oils and dirt. Clean them with acetone or mild soap and water, dry them thoroughly, and do not handle them again unless you are wearing gloves. Store them separately inside their own sleeves or boxes.

Other objects

Even lightweight objects will, over time, damage paper on which or under which they rest. Do not place memorabilia in direct contact with papers. Separate the paper from odd-shaped objects and coins with sheets of strong archival quality board cut just large enough to slip into the container. If you have chosen larger objects like pottery or small appliances, these should be stored in small archival boxes first. Place them at the bottom of the container, and then place the



**Prepare the Materials
for Storage in the
Time Capsule Carefully**
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archival barrier board on top of them. Put the paper documents in next, and then put in photographs and microfiche.

Select materials for the time capsule with careful thought. Use acid-free paper materials. Avoid color photographic prints. Consider microfiche as a compact alternative to paper. Most records will, and should be, duplicated elsewhere. Ceramic materials will probably hold up well over time. Small manufactured items are likely to be most intriguing to those who open the time capsule. If you include small manufactured appliances, like a CD player or a calculator, remove the batteries and include a power cord along with operating instructions. Avoid plastic objects unless you are certain they are made of chemically inert materials.

Above all, leave enough time to prepare a time capsule. Contact the South Carolina Department of Archives and History for advice and assistance in purchasing supplies, developing a budget for your project, and selecting and preparing materials for the time capsule.

If you are preparing to recover a time capsule, contact the South Carolina Department of Archives and history for advice and information about conservators in the area.

**Resources and
Recommended Reading**

South Carolina Newspaper Project, USC South Caroliniana
E-mail: rcopp@gwm.sc.edu
Phone: 803-777-3132
www.sc.edu/library/socar/books.html#newspapers

Barclay, Robert L. *Time Capsules*. Ottawa: Canadian Conservation Institute, Notes, No. 16, 2000. www.cci-icc.gc.ca/main_e.shtml

Fraser, Helen. *The Time Capsule: Repository of the Past or Romantic Notion?* AASLH Technical Leaflet #182. Nashville: American Association for State and Local History, 1992.

Glaser, Mary Todd. "Relaxing and Flattening Paper by Humidification," Technical Leaflet, Conservation Procedures, Section 6, Number 4. Amherst, Mass.: Northeast Document Conservation Center, 1999.

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Public records information leaflet no. 28

- Public information leaflets from the Archives***
- no. 1 *Legal requirements for microfilming public records* (1992)
 - no. 2 *On choosing records for microfilming* (1998 revised)
 - no. 3 *Service bureau or in-house microfilming* (1992)
 - no. 4 *Targeting and certification of microfilm* (1996 revised)
 - no. 5 *Choosing a microfilm camera* (1992)
 - no. 6 *Quality testing of microfilm* (1998 revised)
 - no. 7 *Microfilm and microforms* (1992)
 - no. 8 *Choosing a micrographics service bureau* (1998)
 - no. 9 *Choosing microfilm readers and reader/printers* (1992)
 - no. 10 *Computer assisted retrieval systems* (1992)
 - no. 11 *Microfilm storage* (1992)
 - no. 12 *Preservation microfilming* (1992)
 - no. 13 *Public records stored as digital images: policy statement and recommended practices* (2003 revised)
 - no. 14 *Storing records in the State Records Center* (1993)
 - no. 15 *The deposit of security microfilm* (1993)
 - no. 16 *Disaster preparedness and recovery in state and local government records offices* (1999 revised)
 - no. 17 *How to conduct a records inventory* (1993)
 - no. 18 *How to establish records retention schedules* (1993)
 - no. 19 *Photographic Media: Care and Handling* (2003)
 - no. 20 *Editing and splicing roll microfilm of long-term or archival value* (1994)
 - no. 21 *Managing e-mail* (1998)
 - no. 22 *Standards for microfilm service bureau certification* (1998)
 - no. 23 *Sample e-mail policies* (1998)
 - no. 24 *Storage and handling guidelines for maintenance of electronic records of long-term or enduring value* (1999)
 - no. 25 *Preserving evidence: recommended practices for creating and maintaining legally-admissible records on automated systems* (1999)
 - no. 26 *Managing public records on web sites* (2002)
 - no. 27 *Guidelines for the conversion of digital images to microfilm format* (2003)
 - no. 28 *Time Capsules Old and New* (2003)

* These leaflets are available electronically through our WEB page at www.sc.state.us/scdah/techlflt.htm#leaflets

