EVALUATION OF POST-FLOOD HANDLING AND VACUUM FREEZE-DRYING TREATMENT OF ARCHIVAL MATERIAL: FREDERICK LAW OLMSTED NATIONAL HISTORIC SITE

by Janet L. Stone

The presentation at the annual meeting was designed to show graphically by use of slides how various archival papers survived a flash flood and subsequent handling and vacuum freeze drying. In this article, the processing conditions we encountered, and the post drying conditions of the papers will be reviewed. I shall then suggest a possible approach for future disaster planning to prevent the pitfalls we encountered.

The collection, its location, and the disaster is described by Elizabeth Banks in her article "Recovery Measures for Flooded Archival Materials Including Photographs at the Frederick Law Olmsted National Historic Site."

In two fireproof file drawers, the collection of historic photographs was too swollen to budge. One of these drawers was sprung with a coal chisel. Separating the contents by soaking them in baths of water occupied the conservator and Cooperstown intern, Jacki Elgar, for the next ten hours. The Curator dispatched the second drawer to The Northeast Document Conservation Center where its contents were dealt with by Gary Albright and his assistants. Due to the pressure of processing a large number of photographs and some negatives we were unable to flatten most of the photographs as we processed them; as a result many dried with distortions especially those which were unevenly adhered to their original support. The pages of a replaceable reprint on highly loaded paper were successfully separated after a three day refrigerated soak in a solution of phot-flo.

The bulk of the collection was initially frozen in file drawers at a local ice cream plant at minus 10 degrees F, and then transported by the freeze-drying firm, on an 8 hour trip in a commercial rental truck which presumably picked up a load of dry ice a half an hour or so after loading on a hot day. We have no way of knowing how much or how soon the interior reached the freezing point. Numerous floods within a short period of time resulted in the promised company freezer truck having been dispatched elsewhere. Had we been appraised of this fact we would have rented a proper freezer truck and delivered the materials using our own staff.

We should never have visited the vacuum freeze drying facility had it not been for the long delay in the return of the papers and my commitment to present a report at the annual meeting. The staff requested that while there I evaluate what might be needed to restore the material to archival usefulness for purposes of writing a contract while emergency funds were still available. It had been decided that this work should not interrupt our more important goal of readying the Olmsted plans collection for researchers.

Vacuum freeze drying took an inordinate amount of time because the file drawers were shipped intact with swollen contents. This happened due to a lack of communication or understanding in the first hours after the flood. The Curator discovered that it was impossible to remove papers due to their swollen condition. When she telephoned the firm she reached an assistant who said it was all right to leave them in the file drawers. In following this advice the Curator was strongly influenced by the desire to keep the records in order and to get the materials frozen as rapidly as possible.

Breaking open the file drawers and wrapping and labelling the contents in milk crate sized packages would have required considerably more time and manpower. In later discussions we learned that we were given the advice to leave the papers in the file drawers because the firm often salvages office records of no intrinsic value. For these it is considered an acceptable procedure to thaw them out in order to package them in small units for the vacuum chamber. We negotiated for our papers to be vacuum freeze dried in the file drawers until enough moisture had evaporated that they could be separated into smaller units for final drying.

Large chunks of ice take much longer to thaw than the same volume separated into smaller units. Conversely, the actual freezing probably took much longer. The very nature of disasters is that they are not foreseen. However, in some locations such as basements, should there be collapsible inserts or sheets of silicone paper between groups of documents to make their retrieval possible without breaking the storage furniture?

The planting lists, stored in Permalife folders, comprise the most significant part of the damaged materials; most were typed on a thin rag paper in black or blue-black ink. In some instances colored pencils were used. The blue component of the blue-black ink ran considerably, but the black remains legible. Many colored pencils did not run.

The general files contained correspondence and miscellaneous illustrative materials:
A type of photostatic copy paper dating from circa 1950 with a chalky surface was in the worst condition. In locations in the drawer where it was not tightly packed, the chalky surface flaked off and sometimes adhered to the facing paper. The only practicable way to save the information is to photograph or microfilm the pages as they are separated.

Some blue inks ran extensively enough to be indecipherable. Possibly photographing with a light behind or with ultraviolet light will be helpful in recovering the information. Red and blue inks often penetrated several pages so that the materials will have to be examined carefully to note the origin of certain signatures and notes.

Purple mimeograph pages dried in good condition.

Photographic emulsions adhered to themselves and adjacent papers. These will have to be soaked.

Diazos offprinted on adjacent papers. They were often folded on themselves and remain legible since the original remains darker than the offprint.*

Coated papers separated remarkably well, often with much running of colors and occasionally with slight lifting of the surface. Much is lost aesthetically; however, the information is there.

Dyed buckram covers discolored adjacent papers.

At first glance it appeared that the removal of mud would be very time consuming; however, with the exception of a few loosely rolled documents, it seems to be confined to the upper margins and a few areas where pages were loosely packed.

Rust stains from paper clips, pins and the file drawers had spread to stain documents. Undulations seemed to be worse in loosely packed folders than in those held firmly in position. Deformed pages will need flattening before returning them to the files. Loose packing because it allows faster drying is advised by the freeze drying firm.

Moisture and active mold were detected in several thick pamphlets. When I first remarked that some of the papers felt damp, I was assured that this was because they had just been removed from a colder room for my inspection. However, one pamphlet, sealed in a brown envelope was damp with a fresh growth of pink and grey mold. Another pamphlet of recent printing also had mold stains. Were these produced before or after the vacuum freeze-drying? The firms's procedure for determining when documents are dry is a combination of touch and weighing. When the weight stabilizes, the container is judged ready to remove from the vacuum chamber. Here again, it is likely that this system did not work with our materials because the container was so heavy that the percentage of weight due to the moisture was too small to be detectable. I recommended the use of a moisture meter, but have had no personal experience with them.

We probably all agree that each institution should have its own disaster plan. In order to help each other in this endeavor, I highly recommend that the gathering of certain information and contact and negotiations with private firms be organized first on a regional level. A committee either from each regional conservation organization or from the regional museum's association with the assistance of a conservation group could locate and check out services and disseminate the information to its members. The first step would be the pooling of information already collected by some member parties. It is recognized that certain facilities may be available only on an inhouse basis or to a limited institutional category. Nevertheless, an inventory of possibilities should be helpful to each institution 's preparation of its own plans. Furthermore, freeze drying facilities may not be available in each region; so that after sources are studied by a region, they could be communicated to other regions.

Local sources are needed for: 1. Supplies such as milk crates, and bakery trays. 2. Freezing facilities and 3. Rental of freezer trucks.

Regional sources are needed for 1. Blast freezing and 2. Vacuum freeze-drying contractors. Especially for the last two sources the following should be verified at least annually: hours open, telephone numbers, individual contacts, and types and volume of material which will be accepted.

There are professional standards for handling museum objects, rare books and archival materials which conservators and curators may assume are self evident, but which may not be to the non-professional, commercial operator. especially since damaged materials sent for treatment may not look like fine objects which require special handling. After our experience, I strongly believe that a committee of conservators and possibly curators should visit these facilities to see what the conditions are in order to avoid any pitfalls. Private facilities might be better able to meet conservation needs should they appreciate some of our basic assumptions about the care of archival and rare book collections.

The standards which the committee needs to communicate to the non-professional include: proper methods of transporting wet and frozen materials, an adequate security and alarm system, the setting aside of specific areas for specific functions, maintenance of cleanliness even though damaged materials appear filthy, and minimum handling especially while documents contain frozen moisture.

The handling and storing of museum materials should take place in rooms that are not used for storage of other types of things which do not need careful handling, such as cleaning supplies, food, office supplies and records. Areas should be set aside for food and drink which do not overlap the areas where collections are handled. Work patterns and access to washrooms should be arranged so that access to areas of document storage is minimal.

Always wash hands before handling artifacts because oils or other contaminates from hands may add to problems of restoration. Both in and out of the refrigerated area, natural history specimens and objects should be isolated from books and papers in separate containers. Oil on book covers may stain adjacent papers.

What precautions need to be taken while handling frozen artifacts? At what point in its drying is it safe to leaf through a book or flex a paper? These are all points which need to be considered with the potential contractor.

Because disasters may well occur in clusters which overtax all facilities, it is important that all employees of a firm who might be advising the public be versed in the difference between various categories of materials, so that they may make the appropriate recommendations.

In turn, the conservator is responsible for keeping abreast of developments in disaster planning and recovery and to impart this information to curators and other staff members in their institutions.

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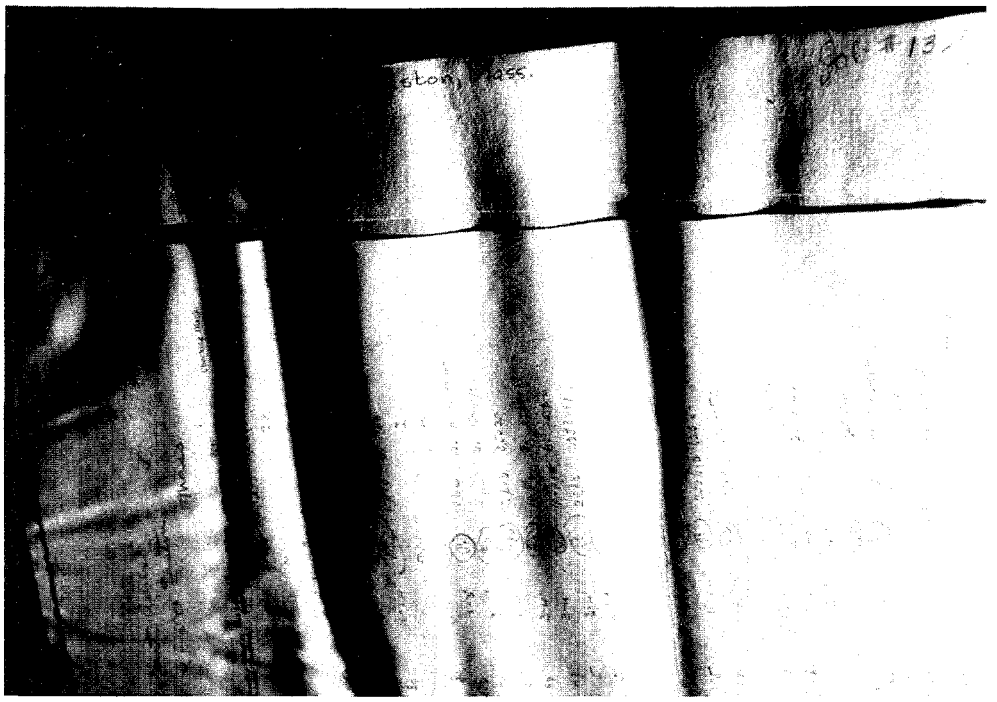
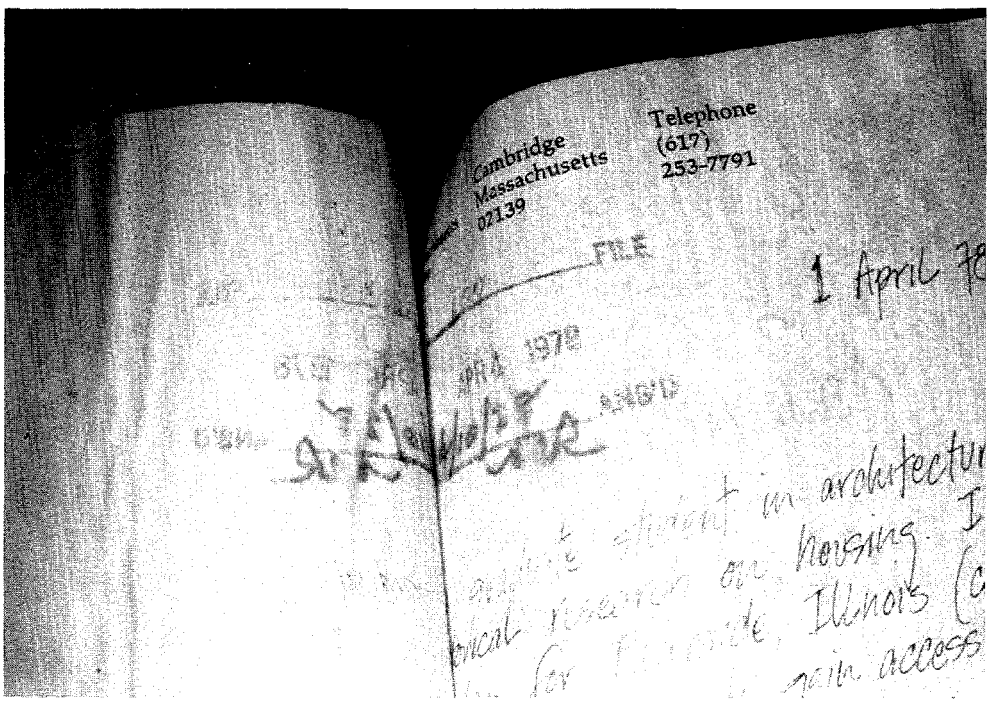
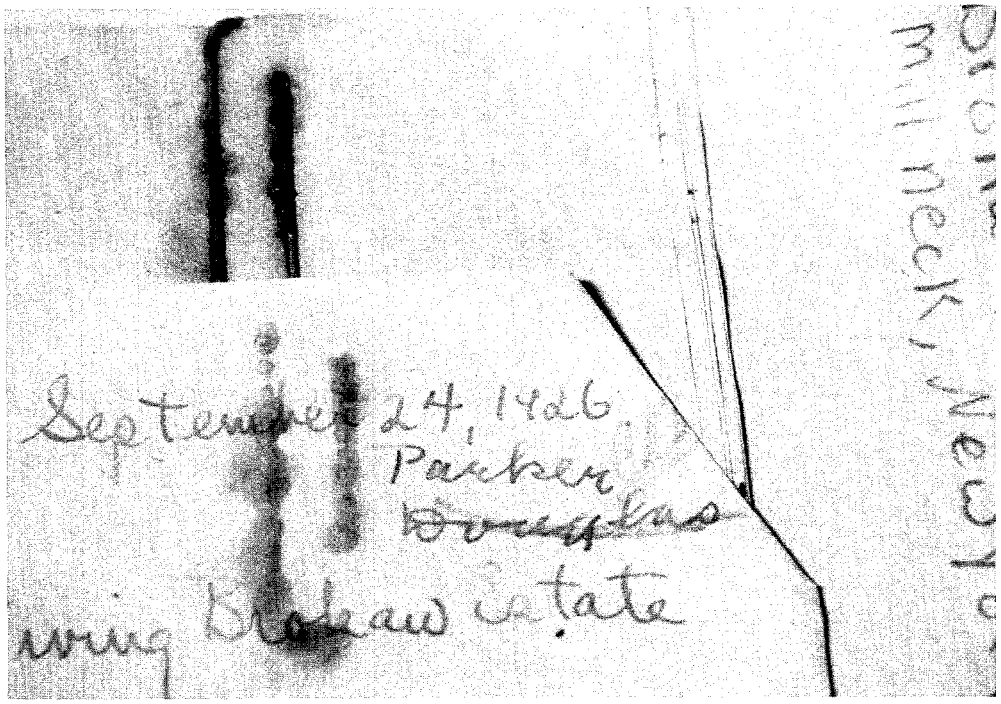
* It is important to distinguish between blueprints, and various other early photosensitive methods of copying tracing papers, and diazos. The condition of the former is generally improved by washing especially if pH is low; for color stability the pH must remain under 7. Diazos often contain water soluble dyes.which are more stable when the pH is above 7. Color intensity is slightly improved by non aqueous deacidification.



Loosely packed folder of planting lists - probably transferring contents to a new folder in humid conditions would flatten the pages.



The ink shown here runs into four pages.



Rust?