

The Wax Fruit and Vegetable Collection at NYSAES

Final Project Report



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1. EXECUTIVE SUMMARY

The NYSAES Collection of Wax Fruit, Vegetables and Fungi, containing approximately 480 specimens, was once a source of great pride. For years these historic pieces of economic botany, which were used as teaching and research aids, filled impressive wooden cabinets on the 2nd floor of Jordan Hall. The collection was the result of the efforts of two talented preparators/artists, over the period 1920-1942. In the 1960s/70s the models were deemed old-fashioned, packed away, and became all but forgotten.

With the re-examination of the Collection's historic and artistic significance, as well as its scientific merit, the Station feels that it is time to showcase these unique works once again.

With this in mind, a museum and library consultant, Marjorie Parrott Adams, evaluated, inventoried, and assessed the collection, and prepared finding aids during the summer and fall of 2008. This report documents the state of that work, and provides recommendations for storage, preservation, exhibiting, documenting and promoting the collection, including a process to make it available on the Internet.

Key Findings and Recommendations:

Literature Search

- The research has uncovered the fact that there are also important wax fruit and vegetable specimen collections at other institutions, which offer a valuable opportunity for networking and collectively reviving interest in this field. It is recommended that contact be established with these institutions, and where feasible visits made. The literature is also extensive, however mostly dating to the early 20th century. Bibliographies, chronologies and essays based on this research were then prepared.

Preliminary Inventory

- The collection is mostly located in storage boxes in the basement of Jordan Hall with a few specimens in display cases on the 2nd floor library at Jordan Hall and in the Barton Lab. 480 items have been inventoried so far, and basic details recorded, including specimen name, artist, condition and registration number. A more thorough cataloging process is required, including computer database development.

Storage

- Over the years there has been a variety of storage methods employed. The collection is currently being stored in archival boxes, which are stacked. The boxes have been given preliminary box numbers using post-it notes. The specimens are mounted on their original cardboard mats, connected with wires protruding from the bottom of the specimens. Recommendations are provided for a practical and secure storage environment.

Condition

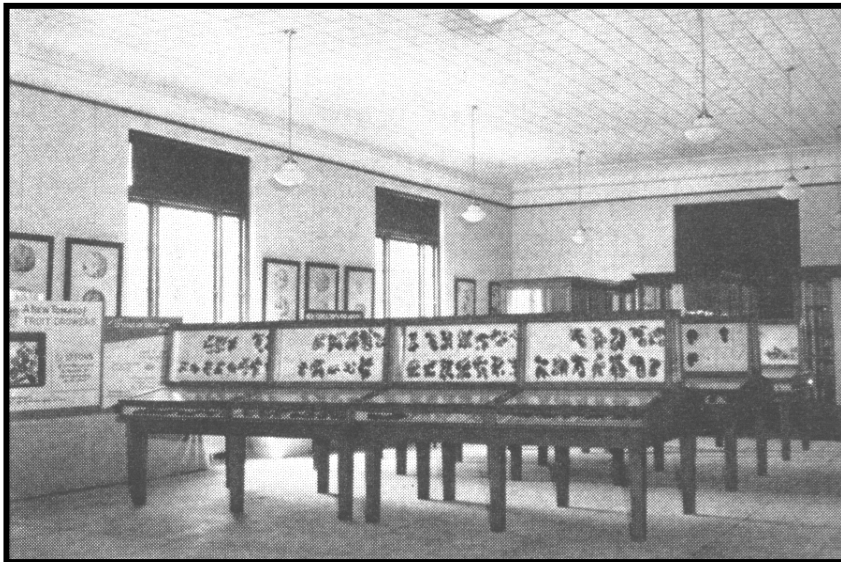
- Previous efforts to stabilize the models in the boxes used Styrofoam peanuts, which have left Styrofoam residue and in some cases impressions on the wax

items. Several of the specimens are broken or cracked and there are also some that have partially melted. The cardboard mounting mats are not made of archival materials, and some of them have foxing, water stains and warping problems. While restoration of damaged models may not be economically feasible, it is important to note the condition in the cataloging record and store the items in a way to stabilize them from further damage.

Database

- To facilitate cataloging, collection management and to make the collection available to a wider audience and also minimize handling, it is recommended that a collection database be developed and populated. A preliminary list of database fields was created and used to build an Excel spreadsheet, which will serve as a preliminary search tool for users and staff. This effort will also facilitate putting the collection on the Station/Cornell Internet site, together with collection images.

2. BACKGROUND



Historic Photo of Wax Model Display, Jordan Hall, 2nd Floor, NYAES

The story is a captivating one. The inspiration for the Station's Wax Fruit and Vegetable Collection began in the early 20th century, with a visit to the University of Guelph in Ontario by two Station scientists, Drs. Jordan and Hedrick. While in Guelph, they saw and admired the collection of wax agricultural specimens made by Mrs. Stanley Potter for the Ontario Agricultural Museum. They determined that the Station would benefit from such a collection for teaching purposes. To this end, James Sharp Lawson, a young pharmacist from Guelph, who had assisted Mrs. Potter with at least one grouping of wax specimens, (mushrooms which are now in the archives of the University of Guelph), was hired as the Station's first preparator (model maker) in 1920.

Lawson was employed primarily in the summers. He resigned in 1935. In May 23, 1936, Miss Clara L. Barnes was appointed Museum Preparator (model maker). She served until

1939-1942. Both positions were part-time. The position was eventually abandoned due to lack of funding.

The Station Museum was located on the second floor of Jordan Hall. There, 4' by 5' display cases housed the wax models of fruit and vegetable varieties, a series of mushrooms, also some specimens showing disease and insect injuries to the plants. In the 1960s/70s the specimens were packed away in 20-30 boxes, and stored in the Station warehouse.

3. PROJECT SCOPE

The current project was begun in the summer of 2008 by a library and museum consultant, Marjorie Parrott Adams. Its purpose was to determine the length and breadth of the Stations' wax specimen collection, (no known record exists as to the size, number and varieties of specimens); to assess the conservation challenges involved with the present state of the Collection; to formulate a system for gathering, recording, exhibiting and storing collection information in an electronic format; and to recommend a system of storage for these unique items.



Organizing the Wax Specimen Collection, Jordan Hall Basement, NYAES

4. LITERATURE SEARCH

In order to better understand the role of a wax model collection it is important to do background reading on the subject. The Station Librarian and his staff, over the years, had amassed a large file consisting of photocopies of articles on wax models in general, and on the Station collection in particular. The first task was to organize these into some order and to read the material. For the purposes of this study, some articles were excluded, specifically those dealing with anatomical, anthropological or zoological wax models, as well as portraits in wax. Included were articles relating to botanical wax models, including fruit, vegetables, fungi, flowers and other plants.

A search of the internet produced many articles in related areas. This has enabled the researcher to fill in missing pieces to the story of the Station's wax fruit, such as biographical information on Dr. James Sharp Lawson, the chief preparator of the collections, as well as establish its place in relation to similar national and international collections.

Actions:

- Organized the library's folder of articles on the subject of wax fruit and the history of the Station's Collection;
- Conducted background reading to become familiar with the subject;
- Made numerous bibliographic searches on the Internet for related material;
- Compiled and continually updated a Classified bibliography with the following categories;
 - The NYSAES fruit and vegetable Wax Models
 - Wax models (General and History of)
 - The Conservation of Wax Models
- Compiled lists on the following subjects:
 - Modelers in Wax
 - Wax Model Collections
- Filled in gaps of information on the Station collection, incl. biographical information on James Sharp Lawson, the chief preparator;
- Determined the role and place of the Station in the history of this discipline. The bibliographic search has resulted in the names of institutions with similar collections. These collections were contacted for information on database, storage and conservation of their collections;
- Recommended related publications for purchase for the library collection;

Recommendations:

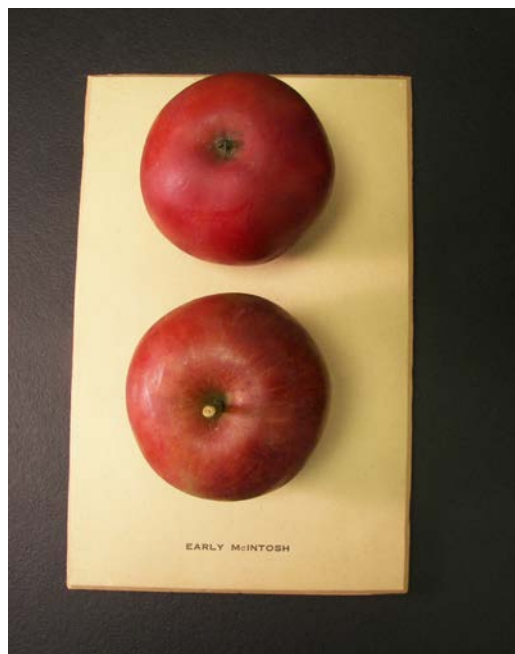
- Contact those institutions not yet contacted with queries (questionnaire developed);
- Follow-up with all of the institutions, send thank you letters;
- Encourage the creation of a network of wax model collections;
- Continue to search for relevant articles and works, as well as personalities;
- Perform in-depth research in the New York Agricultural Experiment Station records, at Cornell University, esp. those years during wax model activity and under Drs. Jordan and Hedrick;
- Check patent records for wax model citations;

5. PRELIMINARY INVENTORY OF THE NYSAES WAX MODEL COLLECTION

The Collection in the summer/fall of 2008 consisted of a number of cardboard boxes still containing the wax specimens packed loose in Styrofoam peanuts; and other specimens that had been unpacked prior to the consultant's arrival on-site. These were either housed singly or collectively in acid-free conservation boxes. Two display cases in Jordan Hall also contain specimens, as well as wall cabinets with 12 wax mushroom models in the lobby of Barton Lab.

Initial examination of the collection was made to ascertain the format of the specimens. The format consists of a three-dimensional wax specimen of a fruit or

vegetable. There are also mushrooms, and wax models which show insect and disease injury to plants. Each specimen is mounted, usually attached to its cardboard mount with wires. The exception being the specimens of corn, which are attached with two tacks or nails. The cardboard mounts have beveled edges. Most of the mounts contain the specimen, with an identifying name below, and often a descriptive caption. The underside or verso of the mount often is signed or dated by the preparator, and sometimes other hand-written information is included.



Wax Model Specimens on Mount with Captions

Activities:

- Unpacked remainder of collection from old cardboard boxes from warehouse storage. Some of these had experienced water damage.
- Boxes unpacked carefully, lifting specimen out and keeping surrounding Styrofoam peanuts. Any pieces of loose wax retained either with specimen, or if loose in box kept with group of pieces from same box.

- Removed only those Styrofoam peanuts which were not stuck to the surface.
- Placed specimens in temporary holding for inventory.
- Established which fields of information were important to collect
- Designed data entry sheet with these fields (SEE attached Data Entry sheet)
- Conducted inventory of 480 items. The complete data on 438 items was recorded; a preliminary inventory was done on 4 grapes on loan to Kroch Library, Cornell; 12 mushrooms in wall-cases in the lobby of Barton Lab, and 26 items in a display case in the library area, 2nd floor of Jordan Hall.
- The Data sheet has the following fields:
 - REGISTRATION NUMBER: tbd
 - DATE REGISTERED: tbd
 - CATALOGER: MPA = Marjorie Parrott Adams
 - BOX #: The only specimens which are boxed and with numbers are those in the basement of Jordan Hall. These were assigned a temporary box number and labeled with a post-it note.
 - LOCATION: The specimens are currently located in archival boxes in the basement of Jordan Hall; at Kroch Library, Cornell University; in a display case in the library section of the 2nd floor of Jordan Hall and in wall-mounted display cases in the lobby of Barton Lab.
 - TYPE OF WAX SPECIMEN: Fruit, vegetable, mushroom, fungus disease or plant injury.
 - COMMON NAME: Record the common name of the specimen as printed on the mount in uppercase, and within quotes, to show it has been recorded as it appears on the mount.
 - SCIENTIFIC NAME:
 - FAMILY NAME: The type of specimen, (e.g. Apple);
 - DESCRIPTION: the number of specimens present, a short description of the specimen, which can also include a printed caption/description under the name. This was recorded in quotes and in uppercase, as printed on the mount.
 - NOTES: recorded special observations about the specimen. E.g. when verso of the mount is signed and or dated, rubber stamped. Information was recorded in quotes, and stated whether it was written in pencil or ink. Rarely some location or numbers are present.
 - LENGTH/WIDTH OF MOUNT: Length dimension given first.
 - HEIGHT OF THE SPECIMEN. The recorded height measurement of the specimen includes the mount on which it is attached. Height of specimen is taken at the highest point, in its upright, mounted position; Sight measurements of the Mushrooms at the Barton Lab lobby were made: since the specimens are in wall mounted cabinets, it would be difficult to remove the specimens for precise measurement;
 - WEIGHT OF SPECIMEN:
 - CONDITION:
 - PHOTOGRAPHS:
 - ARTIST:
 - DATED:
 - HISTORY NOTE:
- NOTE: Measurements have been recorded in inches. Efforts were made to be as accurate as possible with the measurements, some are approximate. Some

- measurements are rounded up to the nearest ¼” since the specimen consists of a three dimensional item and is mounted on a two-dimensional cardboard mount.
- NOTE: Because of the recording of the previous information, we are now going to be able to identify the artists of many of the pieces for the first time.
 - NOTE: when recording information on the underside (verso) of the mount, the cardboard mount is only lifted when it is determined the specimen is secure on the mount, and there are no loose pieces, and only then it is held securely in with a hand at each end, lifted gently and held over head.
 - Entered in to Excel spreadsheet data on the 438 items in the basement of Jordan Hall, 26 items in glass cases in the Library on the 2nd floor of Jordan Hall, 12 items in wall cases at Barton Lab, and 4 items on loan to Kroch Library.

Recommendations:

- Prepare a kit of tools for use when inventorying the Collection, to include: Ruler to measure specimens; pick, white or plastic gloves, tweezers, pencils, pencil sharpener, wipes for cleaning hands, and white gum eraser;
- Develop thesaurus of terms to be used in recording information in a standard fashion;
- Compose and add a standard historical description of the Collection to data field;
- Add the scientific name of the specimens (this would make an interesting project for a botany or horticulture student, interested in taxonomy).

6. STORAGE

Prior to the recent transfer of the Collection to Jordan Hall, the specimens were packed loose in cardboard boxes with Styrofoam peanuts. The boxes were shrink-wrapped. A leak in the roof resulted in the current move.

The temporary storage room is in the basement of Jordan Hall. A de-Humidifier is kept at a setting determined by the library staff.

Activities:

- Studied storage methods of similar collections;
- Talked to managers and curators of similar collections;
- Reboxed into archival boxes, single specimen to box where possible-438 items.
- Retained loose pieces and put in a box, labeled with identifier to original box;
- Carefully positioned specimens in archival boxes with temporary box numbers attached with post-its to the front of the box.

Recommendations

- Choose a clean, secure, and stable environment. Ideal conditions for most materials include:
 - Temperature between 65-70° F, with fluctuations of no more than 2 degrees
 - Relative humidity at 35-45%, with fluctuations of no more than 5%
 - Protection from ultraviolet (UV) light, air pollutants, and vermin
 - Protection from damage, disaster (i.e., water, fire), and theft
- Limit access to storage areas, have secure locks as well as fire suppression and security systems installed. Conduct periodic audits to ensure systems are effective.

- Specimens should be handled as little as possible, and then only by trained staff. White, lint free cotton or archival plastic gloves should be worn when handling these fragile materials.
- Standardize boxing and labeling;
- Attach more permanent labels to the boxes
- When possible put single specimens in single box; especially those with loose pieces;
- Large flat boxes might be used for series such as the pollination of grapes;
- Heavy or large specimens require special attention. e.g. the apples which are too high for the standard single boxes used;
- Design permanent storage to accommodate these unique specimens to keep them stable and in a secure and temperature controlled environment.
- Because of the unique format of the Specimens, in which three-dimensional wax forms are wired to non-archival cardboard mounts there are conservation issues that relate both to wax and paper items. These should be evaluated by a conservator.

7. CONDITION

In the summer of 2008, the job of assessing the condition of the specimens was begun in unison with the inventory of the Collection. A data sheet was designed and the specific condition of each piece was recorded on the data sheet. The major conservation problems encountered are noted below. Because of the unique format of the Specimens, in which three-dimensional wax forms are wired to cardboard mounts there are conservation issues that relate both to wax and paper items.

Activities:

- For each specimen inventoried a condition report was recorded on the data sheet;
- Minor conservation performed, e.g. removal of loose Styrofoam peanuts where possible;
- Styrofoam peanuts removed where loose, but those adhered to surfaces were left in place for future attention.

Problems Encountered:

1. The Cardboard mount. The surfaces of most of the mounts were dusty, aged or brown. Some of the dust and dirt was on the surface only. Often there is a small puncture or hole at the center top and center bottom of the beveled edge of the mount. These are probably the result of the mount being secured with pins during the preparation of the specimen. Other condition issues encountered were;

- Foxing – usually light, and usually in small areas;
- Staining – From wax, water, and sometimes on the verso of the mount, rust from metal attachments;
- Warping – many of the mounts do not lay flat. This is due to the original method of storage or the pulling of the wiring on the specimens.

- Mold – Those specimens that were stored in the boxes that were water damaged have black mold to the paper, and has deteriorated.



Mold on Cardboard Mount

2. The Specimen

- Dust – Only present in a few pieces;
- Specimens extending over edge of mount, in danger of breaking;
- Specimens heavy;
- Sticky or Tacky surfaces – The corn and cucumber specimens mostly affected by this;
- Melted wax – May be related to above;



Styrofoam Peanuts Stuck to Surface of Wax Model

- Styrofoam peanuts stuck to surface – The corn, cucumbers some pears are the greatest affected, but there are examples throughout the collection;
- Residue of removed Styrofoam peanuts – Prior to the summer 2008 project some specimens had already been unpacked. Styrofoam peanuts which were adhered to the surface of some of the wax pieces were removed resulting in white spots on the specimens;
- Styrofoam flecks on surface – Throughout the collection, especially on wax foliage and berries;
- Cracking on surface and through specimen – This is particularly evident in the heavier pieces; also on the Grape clusters;
- Deterioration to surface – This appears on several of the pears;
- Detachment from mount – Several specimens are loose, detached from their mounts;
- Specimen broken in half – This is particularly evident in heavier pieces;
- Specimens with broken pieces present – Great care was taken to retain any related pieces with the specimen. Also there are boxes with orphaned pieces related to particular types of specimens.
- Specimens with broken pieces not present - There are boxes of orphaned wax pieces related to particular types of specimens.
- Other condition issues encountered: Rusting of mounting wire or mounting wire too tight or making mount unsteady



Specimen with Broken and Detached Pieces

Recommendations;

- Simple cleaning/dusting of the surface of the mount with soft brush;
- Apply for Condition Assessment site visit funding;
- Apply for other Conservation grants;
- Determine what conservation issues most urgent, and when to address.
- Ensure that detailed condition descriptions are included in the database entry for all items in the collection.

8. DATABASE DESIGN & EXCEL USER ACCESS TOOL

A method of cataloging the collection, providing the ability to search the collection by user-defined parameters, print reports, and putting the collection online in a searchable format will require an IT approach by the Library. Whatever technology is chosen for the database, a number of descriptive fields will be required.

Activities;

- Drew up a list of database fields (See Appendix B);
- Based on these recommendations, the Librarian consulted with a Cornell University Library Metadata expert regarding data fields;
- Researched what other collections with similar items have done as far as database design and management, e.g. John Marks, Curator of the Geneva historical Society recommended Filemaster, which can accommodate photographs;
- Melbourne Museum uses a relational database product which facilitates online access and user searching and includes images.
- Gathered templates from these collections and created a folder with this information;
- Produced a searchable, data collection Excel spreadsheet, based on recommendations from Cornell consultant's.

Recommendations:

- Further technical discussions with the Library IT department regarding cataloging, registration numbering, online access and search requirements;
- Approvals on the final list of fields;
- Proceed with data entry, based on agreed fields and standards;
- Photograph the Collection (models, mount boards) for inclusion in the database;
- Make database available to reading public for local and remote access.

9. CONTACTS AT SIMILAR COLLECTIONS

Activities;

- Contacted institutions with similar collections and queried them on our issues of concern;
- Established file of names and correspondence.

Recommendations:

- Contact those institutions not yet contacted with queries;
- Follow-up on original contacts, send thank you letters and bibliographies etc;
- Create links and networks to these institutions, e.g. *International Wax Model Collection Network*, etc.)

10. PROMOTION AND OUTREACH

The Wax Fruit and Vegetable Collection at the Station is an important asset that should be communicated to the stakeholder community and the broader academic community and general public.



Wax Grape Display at Annual Wine Librarians Conference - 2008, NSAES

Activities:

- Presented talk on the wax model collection to The Wine Librarians Annual Conference, Geneva NY, September 15, 2008;
- Organized exhibition of specimens for above event.

Recommendations:

- Put the collection on to the Station/Cornell website in a way that is visually appealing, informative, and searchable;
- Updated “narratives” about the Collection should be produced, which include some of the research findings of this study;
- In addition, the “newly” documented Collection could be publicized via the institution’s existing channels to the media and stakeholder communities. The Collection website could be “officially launched” as part of some future event by a dignitary;
- Research into the Collection and publishing can be encouraged to high school and university students and faculty, in such fields as biodiversity, climate change, agricultural economic history, horticulture, economic botany, agricultural history, museum studies, taxonomy, etc;
- The Library could take a role in promoting a network of institutions with wax fruit and vegetable collections;
- Involve the Station community, e.g. having experts evaluate the importance of the specimens or identify missing or loose bits;
- The Library could initiate or participate in Exhibitions within the Station/Cornell community and beyond.

11. CONCLUSION

The Wax Fruit and Vegetable Collection is a fascinating and valuable piece of agricultural history that is now being rediscovered. Research has revealed that the Station’s collection is one of only a handful of such collections still remaining in the world. The majority of these are of international import. For example, there are collections held by the UK Royal Botanic Gardens in Kew, the Melbourne Museum in Australia, the University of Wales and USDA.

Added to this is the renewal of interest in heritage or heirloom seeds and plants, food and biodiversity, and the Station’s Department of Food Science. The collection might benefit from a re-naming and a more modern approach to its function, e.g. most of Kew’s examples reside in the *Department of Economic Botany*, and Melbourne’s wax specimens are part of the *Sustainable Futures* collection.

This report lays out a roadmap of the process to bring the management of the collection up to date and make the resource a vibrant and useful tool for the benefit of the Station/Cornell, the local community and the world beyond through the Internet.