LHBGC OF ITHACA

March 21st

Bonsai

7:30 PM

IN THE HORTON ROOM

Board of Directors: please meet at 7:00 pm

The Liberty Hyde Bailey
Garden Club of Ithaca, NY
Editors: Michael Hayes and Gudrun Reiterer
310 Graduate Dr., Ithaca, NY 14850

THE BAILEYAN

The Official Newsletter of the Liberty Hyde Bailey Garden Club of Ithaca, New York

The Liberty Hyde Bailey Garden Club of Ithaca meets each month, on the third Tuesday (second Tuesday in May and December) at the Horton Room in the Floriculture Greenhouse, Tower Road Cornell University Ithaca, New York. The Club is open to all gardeners. Visitors are welcome.

Volume 46 Number 3 **March, 2006**

2006 Officers

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This month: March 21th, 2006 – Dr. Lou Albright Bonsai

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Next Meeting: April 18, 2006 – Plant Auction

Meeting Schedule and Programs: 2006

January 17:	**Organizational Meeting**	**July 18:**	**Cayuga DayLilies** **Ann Ryder, owner**
February 21:	**Gardens of the UK** **Ray Fox**	**August 15:**	**Picnic**
March 21:	**Guest Speaker on Bonsai** **Dr. Lou Albright**	**September 19:**	**Perennial Exchange** **Seed List 2006**
April 18:	**Plant Auction**	**October 17:**	**Dish to Pass**
May 16:	**Seedling Sale***	**November 21:**	**Election**
May 20:	**IHS Plant Sale**	**December 19:**	**Holiday Festivities**
June 20:	**Der Rosenmeister** **Leon Ginenthal, owner**		

Please mark these dates on your Garden Calender.
*All meetings are on the 3rd Tuesday of every month, except for May and December. Meetings are held in the Horton Seminar Room in the Floriculture and Ornamental Horticulture Greenhouses, unless otherwise indicated. Specific programs and time variations will be announced in the newsletter. Our usual meeting time is 7:30PM with the Board of Directors meeting at 7:00PM (when held). Summer garden visits sometimes meet earlier. Members and guests are welcome to attend both meetings.

Opportunities

Small Farm Day at Cornell: A day to celebrate New York's small farm families and the Cornell Cooperative Extension educators, researchers, service providers and decision makers who work on their behalf. Come hear about exciting farmer innnovations, pioneering Extension programs, emerging farm-to-Cornell connections, and cutting edge small farm research. Enjoy a reception featuring NY small farm products tastefully prepared and presented by Hotel School students. 03/30/2006 10:00 AM-06:00 PM at Cornell Campus.

Meeting Minutes

February 21, 2006, 7.30pm, Horton Room, Ken Post Greenhouse
After a brief board meeting, President Debi Lampman called the general meeting to order, with 14 members present.

Ray Fox presented a colorful slide lecture about the gardens of the United Kingdom he had visited in the past. Members were impressed with the beauty of the landscaping and variety of plant material.
Debi Lampman commented that last year we had started seeding too early and recommended we begin this year in late March, early April. The following schedule was agreed upon:

18 March (Sat), begin early varieties
1 April (Sat), second seeding day
15 April (Sat), last seeding and transplanting
6 May (Sat), final transplants

Ruth Doll, who will supervise the seeding and transplanting, needs volunteers. Please call her at 844-8341 to sign up and for times.

The LHBGC seedling sale for members and guests will be held at our regular meeting on Tuesday, 7.00pm, 16 May, here at the Ken Post Greenhouse.

The HIS annual plant sale will be held on Saturday, 20 May.

Debra Nero announced that Bill Cullina and Don Leopold will speak on "Beyond Black Eyed Susans and Border Phlox" at the Syracuse Mens Garden Club, 1 April, 8.00-12 noon, $35 preregistration of $50 at door. Craftsman Inn, Fayetteville (315) 637-8000. Call Debra for further details or car pooling 539-7062.

Coop Extension is saving a plot for us to plant Liberty Hyde Bailey's favorite plants in the Children's Garden. Suggestions needed.

Ed Cobb mentioned that programs for future meetings will be held on 29 June at Der Rosenbeister, 18 July; Daylillies at Ann Ryder's and a garden visit to be announced for August.

Our annual plant auction is scheduled for the 18 April meeting.
Bring donations and be prepared to take home new garden treasures.

Debi suggested we send get well cards to former member, Rosemary Lapadula, 12706 Geist Cove Drive, Indianapolis, IN 46236.

The meeting concluded with refreshments and delicious cakes prepared by Beverly Hillman.

Helen E. Swank
Recoding Secretary

Building and Using Hotbeds and Coldframes - Denny Schrock - Department of Horticulture

A coldframe is a protected plant bed. It has no artificial heat added. The temperature difference between the inside and outside of the frame is generally not more than 5 to 10 degrees. A mat or blanket may be placed over the frame on cold nights to conserve heat, but this increases temperature by only a few degrees. There are times, however, when a few degrees can be very important. A coldframe is used to provide shelter for tender perennials, to "harden off" seedling plants or to start cold-tolerant plants such as pansies, cabbage or lettuce earlier than they can be started in open soil. It may also be used to overwinter summer-rooted cuttings of woody plants. A hotbed basically is a heated coldframe. In many ways it is a miniature greenhouse, providing the same benefits with limited space at minimal expense. It is a means for extending the growing season. It is most often used to give an early start to warm-season vegetables such as tomato, pepper or melon. It may also be used to root cuttings of some woody plants.

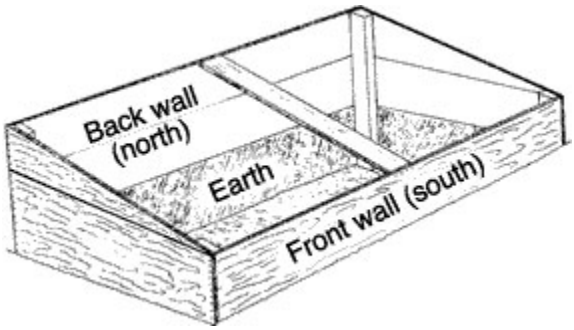
Location: Hotbeds and coldframes should have a southern exposure to receive the maximum amount of sunlight. To reduce the cost of heating, use a north or northwest windbreak. This may be provided by a building, bales of hay or straw, tight board fence or evergreen hedge. Bundles or bales of straw could be used on the north for temporary windbreak. Note: Windbreaks should not shade the bed. The site should have good natural drainage so there will not be excess moisture beneath the bed. If the hotbed is below ground level, excellent drainage is essential to keep water from entering or accumulating during heavy rains. If natural drainage is not good, use drainage tile or a thick layer of coarse gravel. If this is not practical, beds may also be built above ground level for proper drainage. However, there will be greater heat loss. Locate beds near the house where they can be given frequent attention. A convenient water supply should be available. If the structure is to be heated electrically, have outlets close by.

Constructing the bed: Basically, the hotbed or coldframe is a rectangular box with the back higher than the front, covered with a transparent roof. The size and complexity of the structure depend on needs or funds available. Often scrap lumber

and old window sash may be used, thereby reducing costs.

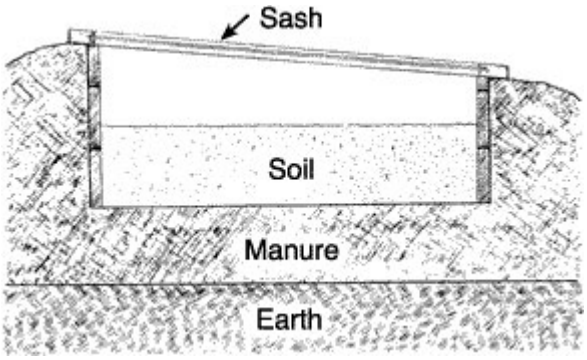
Sash and coverings: The sash available will determine the dimensions for the bed. Glass sash is the conventional frame covering and generally the best. Standard glass sash for coldframes and hotbeds is 3 feet by 6 feet. When this is used, the bed should be about 5 feet 8 inches (front to back) by 3 feet or a multiple of 3 (6, 9, 12, 15 or more feet). Used window sash is satisfactory and less expensive, but the frame dimensions may have to be adjusted. Note: Remember, whatever the size, the slope from back to front should be 1 inch per foot If glass sash is not available or considered too expensive, the frame may be covered with clear polyethylene (4 or 6 mil) stretched on wooden frames. Polyethylene is lightweight and allows construction of many sizes of simple frames. Such frames are lightweight and must be hinged or hooked down to prevent lifting during strong winds. Polyethylene films must be replaced yearly. Plastics lose heat rapidly; a double layer with air space between improves heat retention. Fiberglass may also be used as a covering. Use clear rather than colored sheets for better light transmittance.

Materials: The sides of the structure may be wood, brick, masonry blocks, concrete or metal. Masonry block, concrete or brick make excellent permanent structures but are more costly than wood. Metal must be well insulated, or heat loss is high. The average home garden hotbed or coldframe is constructed of wood. It is easy to work with and more temporary, but also more flexible if the bed needs to be enlarged or removed as needs and interests change. For longest durability, lumber should be treated with a preservative that is not toxic to plants. Lumber that has been CCA pressure treated is suitable for this use. Don't use wood treated with creosote or pentachlorophenol; accumulation of fumes from these materials in a closed frame can cause plant damage. Redwood and cedar are long-lasting woods. If untreated wood is used, the frame can be painted with a white latex-base paint or white greenhouse paint for added light reflectiveness and protection. One-inch-thick lumber may be used for the frame, but 2-inch has greater durability and insulating qualities. The back wall (generally the north wall) should be at least 18 inches tall, measuring from the top of the heat source. The front wall (generally the south wall) should be about 12 inches tall for a 6-foot frame. Weather stripping at joints helps retain heat and makes the frame more efficient. Use 2 x 4 lumber for corner posts (see Figure 1).



Preparing the bed area: The area for the bed must be leveled. Although temporary frames may be set on the soil surface, excavation is required for more permanent structures. Most home hotbeds are heated with electric coils, but where fresh manure is available, it may be used. A deeper excavation is generally required for establishing a manure-heated bed. For electric heating, and where some drainage material is required, excavate to a depth of about 14 inches. Corner posts should extend to the base of the excavated area, but side walls need only be extended a few inches below the level of the heat cables. After the bed area has been excavated, place in it a layer of coarse gravel about 6 inches deep. Cover the gravel layer with screening or burlap to prevent sand and soil from sifting down into it. On this, place a 2-inch layer of sand. Sand makes leveling easy and provides a base for the heat coils. Remember that the 12-inch front and 18-inch back are measured from the level of the heating cables. At this point the bed is ready for laying the heating cable.

Heating the hotbed: Methods for heating the beds include manure, electric cables, light bulbs, hot water and steam. Manure-heated beds or of interest as a means of conserving energy. Temperature control in manure-heated beds is more difficult than in electric, and therefore, we can normally expect to grow better plants in electrically heated beds. The manure-heated bed is suitable for only short periods in either spring or fall. The electrically heated bed can be used for any time period or even throughout the entire winter.



Manure: In areas where fresh manure is available, it is a cheap and convenient heat source. Temporary hotbeds have been made by simply placing the board frames on top of a flat pile of manure 8 or 9 feet wide and 18 to 24 inches deep. Additional manure is banked around the sides of the frame for insulation and heat retention (see Figure 2). Since this method requires large quantities of manure, it is not generally practical. Heat can be used from smaller amounts of manure packed in a pit beneath the frame. The manure-heated hotbed provides a means for starting plants several weeks earlier in the spring than they could be started outdoors. It is built exactly like any other frame except that the pit beneath is made 18 to 30 inches deep to hold the manure. Excellent drainage is needed. If the manure layer becomes soaked with water, fermentation stops and no heat is produced. Fresh

horse manure containing about one-third straw is excellent, but other manures may be used. To prepare for the manure-heated bed, collect the manure into a pile about 10 days before the bed is to be started. Compact and allow to remain until heat starts. Then repile, compact and allow it to remain undisturbed until heat is emitted for a second time. At that time, the manure will be ready to pack into the pit beneath the frame. Place the 6-inch layer of coarse gravel, as previously described if there are drainage problems, or run tile out of the pit to release any water as it enters. Tamp down the manure so the total depth of manure is 12 to 18 inches. Be sure to pack edges and corners as well. Next, cover the manure with a layer of good soil 4 to 6 inches deep (see Figure 2). Allow to remain for several days. The soil temperature may reach well beyond 100 degrees F. Wait until soil temperature drops to about 85 degrees F before planting seeds or moving in plants. Use a soil thermometer. If temperatures start to rise, always open sash promptly.

Electric heating cables: Since most gardeners do not have adequate amounts of fresh manure available, electric heating cables are the most convenient and dependable means for heating the hotbed. Cables covered with either lead or plastic give good results when used properly. Cables vary in length and wattage rating. Some are 30, 60 or 120 feet long with about 6.7 watts per foot. Others are in lengths of 6, 12, 24, 36, 48 or 96 feet with about 3.5 watts per linear foot. Other combinations of length and wattage may be available in some areas. Cable is installed so as to produce a certain number of watts per square foot of bed area. Generally, in milder climates, such as Missouri's Bootheel, 10 watts per square foot of bed space is adequate. Throughout the remainder of the state, 12 watts or more should be used per square foot. Lay the cable on loose, level soil or sand with the bed prepared as previously described. Be careful not to damage the covering of the cable when handling. Avoid kinks that could damage or break the cable, and don't cross cable over itself. Note: Never cut the cable to shorten its length. The spacing between the loops of cable is important and determines the number of watts that are supplied per square foot of bed. Use the following formula to determine the spacing between loops: Spacing (inches) = (12 x watts per foot of cable) ÷ wattage required per sq. ft. of bed To determine the watts per foot of cable, divide the total number of watts for the cable by its length in feet. Example: Spacing for a 400-watt cable 60 feet long to produce 10 watts per square foot of bed area would be: Spacing = (12 x [400 ÷ 60]) ÷ 10 = (12 x 6.7) ÷ 10 = 8 inches between loops. The factor used here is 12, but spacing can easily be estimated for 12 watts per square foot of bed area. The number of watts per foot of cable (as 6.7 in the above) becomes the same as the spacing needed between loops (which would be 6.7 inches in this case) when the number 12 is substituted for 10 in the above formula. If the heating cable is too long, use spacing slightly closer than calculated, but always distribute the cable uniformly throughout the bed. Irregular spacing makes temperature control difficult. Generally, a 60-foot cable should heat about 36 square feet of bed area. After the cable is positioned, cover with sand or fine soil. Over this, place half-inch-mesh hardware cloth. The hardware cloth protects the cable from damage when soil above it is being worked for planting. Over this, add the layer of soil for planting.

Thermostats: A thermostat is necessary to maintain uniform temperatures. Some cables have built-in thermostats that keep the soil temperature close to 74 degrees F. For larger beds, a separate, adjustable thermostat is best. Thermostats in general use have an operating range between 30 and 120 degrees F. They have a remote temperature bulb that should be buried beneath about an inch of soil midway between two loops at the center of the bed. Don't allow the bulb to come in contact with the heat cable.

Other heating methods: Light bulbs are less expensive but also less satisfactory as a heat source. However, they can provide a quick and easy means of adding supplementary heat on frosty nights of early spring. About four 25-watt bulbs should be adequate for a 3 x 6 foot frame if spaced around the sides. Use waterproof wiring and sockets. If more heat becomes necessary, these bulbs can easily be changed for larger wattage bulbs. If ground-level basement windows are present, it may be possible to build the frame outside such a window, which, when open, would provide some supplemental heat from the heated basement. Hot water and steam systems are normally useful only for large commercial hotbeds and are seldom used for the average home hotbed. Soil piled around the outside of the frame provides added insulation and heat retention.

Operating the hotbed or coldframe Regardless of the method of heating or type of construction used, the hotbed or coldframe must have proper temperature control, ventilation and watering.

Temperature A soil temperature in the hotbed between 70 and 75 degrees F is ideal for planting most seeds. In the manure-heated bed, seeds may be sown while the soil is slightly warmer, but once seedlings appear, good ventilation is necessary to keep the seedlings from becoming soft and weak if temperatures are still high.

Once seeds have germinated, temperatures should be adjusted for the type of plants involved. They can be divided into two groups: cool-season and warm-season crops. The cool-season crops include those that require a relatively low growing temperature. Plants in this category are lettuce, onions, cabbage, broccoli, cauliflower, larkspur, pansy, bachelor

button, primula, snapdragon, sweet pea, stock and many perennial garden flowers being started from seeds. Crops requiring higher growing temperatures include tomato, pepper, eggplant, sweet potato, muskmelon, watermelon, squash and cucumber, as well as many annual garden flowers.
Regardless of the group, most seeds can be germinated in a soil at about 70 degrees F. The warm-season crops germinate a little better if the soil is about 75 degrees F, while the cool-season crops could be kept at 65 degrees F. Where this differential is not possible, the 70-degree temperature is a good compromise. The more critical temperature period begins after seeds have germinated. Now air temperature becomes more important. Cool-season plants prefer an air temperature of 65 to 70 degrees F in the day, with 55 to 60 degrees F in the night. These plants will not be hurt by slightly lower temperatures. In spring it is not always possible to keep daytime temperatures this cool, but pay attention to night temperatures, which are more critical. Warm-temperature plants should be kept at air temperatures between 65 and 75 degrees F during the day and not be exposed to lower than 60 degrees F at night. In the coldframe, little temperature control is possible. Covering the glass with pads or straw on exceptionally cold nights with careful daytime ventilation are the main methods for heat conservation and control.

Ventilation: When ventilating the hotbed or coldframe, raise the sash on the side opposite that from which the wind is blowing. This prevents wind burn on young, tender plants or lifting of the sash by strong winds.

During extremely cold weather, provide extra protection and conserve heat by covering the sash with mats or a layer of straw. These must be removed when weather clears and temperatures rise. Glass must be cleaned when straw is removed to provide maximum light transmittance. On warm, sunny days the sash may be opened wide or totally removed. A thermometer is the best guide to determine what width of opening will allow proper air movement for good temperature control. Coldframes are ventilated in about the same way as hotbeds. Since they are solely dependent on natural heat absorbed during the day, it is important to close the sash promptly in the late afternoon or evening after there is no danger of excess temperature buildup.

Watering: Proper watering promotes good growth and prevents disease buildup. Frames should not be widely opened for watering at any time when the temperature outside is below freezing. Watering should be done early enough in the day so that foliage dries before nightfall or before the frames are tightly closed. In general, little watering is necessary while plants are small and temperatures are cool early in the season. As the season progresses, plants become larger and temperatures higher, so frames must be opened longer and wider. This means that frequency of watering must also be increased. Always allow the soil surface to dry between waterings, but do not allow wilting. Occasionally, after several cloudy days are followed by bright, sunny days and higher temperatures, these tender plants will wilt. This is not an indication that the plants need water unless the soil is obviously dry. If the condition is severe, misting over the foliage or providing temporary light shade may be beneficial.

Soil pasteurization: The hotbed or coldframe should contain 4 to 6 inches of good garden soil for growing the seedlings. Weed seeds, insects and diseases are found in ordinary garden soil. Fumigation or soil pasteurization are helpful in reducing problems and maintenance. For small beds, bake soil in a 140 degree F oven for 30 minutes before placing into the beds, or if this is not possible, hot water may be poured on the bed to provide some pasteurization. Hot water is hard on soil structure and must be done well in advance of planting so that the soil can dry adequately and be worked well before planting.

In most cases it is more convenient to sow seeds in flats or pots, which are then placed in the hotbed. In this case, the soil layer is not essential and the flats or pots may be placed on the sand directly above the coils. Pasteurization of individual units is also possible and easier.

Fertilization: There is generally no need for addition of fertilizer in the seedbed preparation. If the fertility of the soil is not known, it would be beneficial to have a soil test run and appropriate additions made. After seeds have germinated and developed their first true leaves, a light addition of liquid fertilizer should be made. This should be repeated at about two-week intervals while the plants are in the frame.

Pests: Remember that your hotbed or coldframe contains some of the most lush, soft plant growth available to insects in early spring. They are attracted to it. Therefore, keep a close watch for pests and apply appropriate controls before plants are seriously injured.

Hardening plants: Plants started in a hotbed and especially those started indoors should be "hardened" before they are moved into the garden. A coldframe is an ideal place to accomplish this. The hotbed may also be used. To harden the plants, gradually expose them to the sun and wind first by keeping the sash open wider and longer each day as well as at night if nights are not too cool. Gradually the length of time and amount the sash is opened are extended until it is removed. However, be ready to return the sash in case of a sudden late spring freeze.

Pictures from Hidcote Manor, United Kingdom as presented by Ray Fox at last month's meeting.

Thanks to Ed Cobb for submitting