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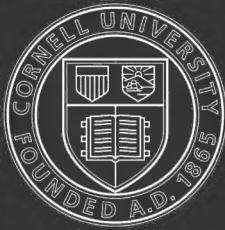
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**The culture of *Adiantum farleyense*.**



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# THE CULTURE OF ADIANTUM FARLEYENSE



BY JULIUS LINDSTROM  
FORMERLY FARLEYENSE GROWER AT THE  
KENT PLACE NURSERIES, SUMMIT, N. J.



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# THE CULTURE OF ADIANTUM FARLEYENSE

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BY JULIUS LINDSTROM, FORMERLY FARLEYENSE GROWER  
AT THE KENT PLACE NURSERIES, SUMMIT, N. J.

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All who have had anything to do with the cultivation of *Adiantum Farleyense* know that this most beautiful fern is not propagated from seeds, but from the bulbous parts of the roots commonly called eyes. The plants can be propagated with success any time during the year providing you have sufficient heat in the greenhouse, whether it be artificial or natural. As a grower of this fern for commercial use, I always aimed to propagate at such times that I would be able to supply the New York florists with good, well-shaped plants in 5-inch pots, from September 1 to June 1. To accomplish this, I found it convenient to propagate twice during the year. As there is quite a demand for cut fronds of *Farleyense*, a person will always have a chance to cut down a few plants, the stumps of which will, if taken care of at all, furnish splendid material for propagating.

I used to begin propagating *Farleyense* the first days of January and keep it up to the middle of March, and from June 1 to the middle of July. It requires a good many stumps for propagating where 5,000, 8,000 or 10,000 good *Farleyenses* are wanted, and as a person is continually cutting down some plants for cut fronds the stumps should be put somewhere in the greenhouses and cut up and propagated in proper season. If you do not want to sell cut fronds, you can always buy stumps from the city florists, but the eyes are not always as good as the stumps you have got at home, providing they were healthy plants when you

cut the fronds. The plants that have been kept in the city stores for probably two or three weeks have suffered in every way, and when propagating from such stumps I found they had a tendency to rot. By cutting through a couple of the eyes you are generally able to tell whether the stumps are in good, healthy condition for propagating. At times, however, you are able to get good stumps from the stores; but you can rely more upon those you have got at home.

A common mistake is to propagate from sickly, bull-headed plants, and cuttings of such plants seldom amount to much. Another mistake is to select the strongest and heaviest eyes that can be found. They are generally from old, over-fed plants, and when you get them in the propagating bed they rot rather than sprout; if they come they will throw such a heavy leaf that it is hard to get nice symmetrical plants in 5-inch pots. They will, however, make good specimen plants in 6 and 8-inch pots. The best eyes are the medium-sized ones with red tops. Some people grow Farleyense so poorly that their plants are not good for propagating, and buying stumps ought to work well in such cases if good ones can be obtained.

To be successful in propagating, a place in the greenhouse should be selected with good bottom heat; or a regular propagating bed will serve the purpose well, especially if it is in a west-side house. Some people prefer putting the cuttings in a sand bed and handling them like cuttings of other plants. Others use flats filled with peat and moss, the cuttings being placed on top of this mixture about an inch apart and slightly covered with the same. This seems a pretty good method, but there is difficulty in taking up the plants after they are rooted; besides, they do not make as strong roots as are produced in the sand. I have been most successful with flats about two inches deep, with a layer of rough clinkers or ashes in the bottom and an inch covering of coarse sand. After the stumps have been thoroughly cleaned by washing, or by shaking of the soil, the cuttings should be separated to single eyes either by breaking them carefully apart

with the fingers or using a knife, taking great care not to injure the eyes. You should leave about three-quarters of an inch of the old roots attached. Place the cuttings on top of the sand in flats about one inch apart each way and give them a sprinkling of water, then cover them with the sand to a depth that will enable you to see the eyes peering over the surface and water them with a sprinkler; put them in good bottom heat with glass over them and about the same shading that would be required for cuttings of other kinds of foliage plants.

I have had a propagating bed fixed on the west side of a greenhouse in the following manner: I selected about 50 feet of the front bench with an extra heating pipe under it. Valves were put on so that the heat could be regulated and shut off entirely if desired. The bench was cased in with boards, scrubbed clean and whitewashed. A board 15 inches high was fixed on the edge of the bench at the back, a couple of inches from the wall, and an 8-inch board was nailed on the front edge of the bench, giving it a 7-inch pitch, or much the shape of a cold frame. On the bottom of the bench I placed pots, the 4-inch size at the back and thumb pots in front at regular distances. On top of the pots the flats containing the cuttings were placed, thus getting a pitch somewhat corresponding with the frame, the flats standing close together and leaving no room for mice to get at the cuttings from the bottom. If the flats did not fit tight at the ends, clinkers were filled in finer on top; this made everything tight as far as the bottom was concerned. A coat of lime about an inch thick was put on top of the clinkers at the ends of the flats. If the flats are enclosed with a line of lime there will be no loss on account of snails, which in the places of some growers have damaged or entirely ruined thousands of cuttings in a single night. Mice will do considerable damage if they get a chance at the flats where the young eyes begin to sprout. I have had thousands of cuttings ruined by mice, although I depended upon a cat that I kept in the greenhouse. Poison should be put on the edges of the flats. After the flats were fixed in the bench in the manner

described, sashes were put on the bench as snug as possible, small blocks of wood or anything else that was suitable being used for ventilating. At night the sashes were let down to half an inch opening, taking care not to leave any room for mice to get in during night.

The cuttings should be kept moist. Watering might be required twice a day, the last early enough to give the cuttings a chance to dry a little before closing up for the night. When watering in the morning the sashes should be taken off and wiped with a sponge, as a considerable quantity of water always collects on the glass during the night and if left on will give the plants a tendency to damp off. A temperature of 76 degrees at night is good, and something like 80 to 85 degrees during the day, with, of course, ventilation on the sashes. In about six weeks after propagation some of the plants ought to be ready to pot, and in a couple weeks more all that will amount to anything will usually be fit for potting. The best soil for the first potting is a good loam, with plenty coarse sand mixed in without any fertilizers. The soil should be screened so as to fit around the plants. Thumb pots, or inch and a half pots, as some seem to prefer, are best for the first potting.

The plants should be taken up carefully. Do not take too many at a time. Be careful not to expose them to cold air as the young leaves are very tender at this period. Pot them light and water them without much delay. Put them on a warm place, with a sash over them and a few inches of ventilation. Be on the lookout for fungus. Have the boards of the bench thoroughly cleaned and whitewashed. Place over the openings between the boards a layer of rough clinkers, then add another and finally a covering of finer yet. On top of this sprinkle a coat of lime and water in with the hose so that it will penetrate between the clinkers; put another light sprinkling of lime on top of the bench while it is yet wet and let it stay on. Thumb-pots set on a bench like this have a sweet, clean understanding; and if any plant appreciates cleanliness it is Farleyense, especially in thumb-pots



*VIEW IN A 20 X 200 FOOT GREENHOUSE.  
Nine months old plants in 5-inch pots propagated from single eyes.*

standing close together. The plants should not be set pot-to-pot, zigzag style. If they stand as close as possible or pot-to-pot, let them be in front of one another, as it is good to have little openings for the air to get at the "pots."

Great care should be taken in watering the young plants. I do not know of anything, except seeds, that requires so careful a watering as Farleyense of the smallest size. Take care you do not splash too much water on the leaves; if you do, keep the sashes off and let the plants dry a little. As the plants take hold and grow, give them plenty of air. Although sashes are not necessary, yet I have found them very beneficial for young plants. When I have potted 4,000 Farleyense cuttings in the Spring months and not lost more than 80 plants, I have considered myself very well paid for the little trouble experienced with a few sashes. As soon as the young plants are fairly well through the soil they should be potted off, the strongest into 3-inch and the rest into 2½-inch pots, in good loam a little coarser than the first potting. On cold Winter days, if the greenhouses are not very tight, I have found sashes beneficial yet for a few days, but in a good, snug house this is not necessary. A light sprinkling of bone might be of benefit in this second potting. Do not let your plants get stunted; keep them growing.

Shading is a very important item. Many growers shade Farleyense entirely too heavily. The plants should have as much light as they can bear without getting bleached. Keep the floors and walls dampened and maintain a moist atmosphere. Have the air as pure as you can without chilling the plants. Be cautious, when ventilating, that you do not get a cold draft on the plants; they are very easily chilled, especially in the Spring months, when the wind is cold, with the sun chasing up the temperature to a considerably higher degree than is wanted. Bottom ventilators work splendidly. I have had frames covered with cheesecloth, and when taking out the ventilators I have put in the one of cloth and sometimes placed the wooden one on top over part of it, according to weather and temperature outdoors. When the first

fronds are developed after the second potting, and if the plants are not quite ready for a shift into larger sized pots, they should be set over, spread out a little and given a little more room, this will help the plants considerably, as the light will now strike plants on different places and help them to more rapidly throw a couple more fronds. When the plants get pretty well rooted they should be potted off into the 4 and 5-inch sizes, and as most plants are generally sold for the market in the 5-inch it is of great importance to get them symmetrical and well filled out in this size.

The plants can now bear richer soil and will need plenty of food to throw two crops of fronds. After the potting to 5-inch, a good loam, with about one-third of pure cow manure pretty well ventilated or well rotted, will do, with plenty of coarse sand, depending somewhat upon the amount of sand the soil itself contains. This mixture should be pretty well broken up with a shovel or the hands and mixed thoroughly. A sprinkling of raw ground bone is good also for the 5-inch. It is not necessary to have the soil quite so rich for the 4-inch; a little less manure will do. The 2½-inch and the weakest of the 3-inch plants should be removed into 4-inch pots; while, if the plants are good and strong, the best 3-inch will do well in the 5-inch size. This latter may seem a big shift, but I have potted a good many that way; they were strong plants and did well. The most common shift is from 4 to 5-inch, and plants ought to do well if the soil is rich enough.

As for drainage, a piece of crock in the bottom, with a few pieces of clinkers, is all that is needed. The Farleyense should at all stages be potted deeper than Cuneatum, except that the first potting of the cuttings after being rooted should be light. A common mistake is to pot the plants in 4 and 5-inch sizes with the crowns projecting a third of an inch above the surface; this will help the plants to throw a lot of small fronds and get bull-headed. The crowns should be covered slightly with the soil. After being potted the plants should be put quite close together so as to give them a chance to get set over and spread out twice

before becoming salable. The setting over helps them wonderfully in getting symmetrical in shape; besides, it seems to tickle the eyes to sprout and throw up fronds more rapidly. A temperature of 68 degrees at night is all right at this period with 74 to 76 during the day. In clear days the temperature will run up to over 80 degrees, which is satisfactory if it is mostly sun heat, with a small crack of ventilation. In Summer the thermometer runs up quite high, but the plants can bear plenty of ventilation at this time of the year after they have got hardened off and you have ceased firing; yet it is necessary to be careful not to let the young fronds flag too much. When the weather is dark and dull for a couple of weeks in Summer it has been very helpful to scrape off some of the shading and on the return of bright, sunny days put shading on again. During such spells as much air as possible should be afforded the young fronds that are sprouting, otherwise they may get too soft and wilt when the sun comes out bright and clear. I have seen a good many plants damaged in this way.

If your plants have got soft and tender during a dark spell it is advisable, if you do not want to put any more stationary shading on your house, to go out and throw wet sand on the roof, letting it stay on till the plants get used to the bright sunlight. I have seen a house of Farleyense with the stems of the young leaves turned and twisted like a corkscrew. This happened after dark days, the young fronds getting very soft, and when the sun came out bright the leaves tipped over; the night following the points of the leaves straightened up again. The sunlight affected them again the second day with the same results, and when the leaves turned up to stay they were curved and twisted. This can be prevented by putting a little extra shading on for a couple of days. Toward the Fall, when the sun is not as strong, the shading should be diminished gradually. This is a good plan to follow in regard to shading; to give the plants, whether young or old, as much light as they can bear without getting bleached. During the Winter very little shading is required.

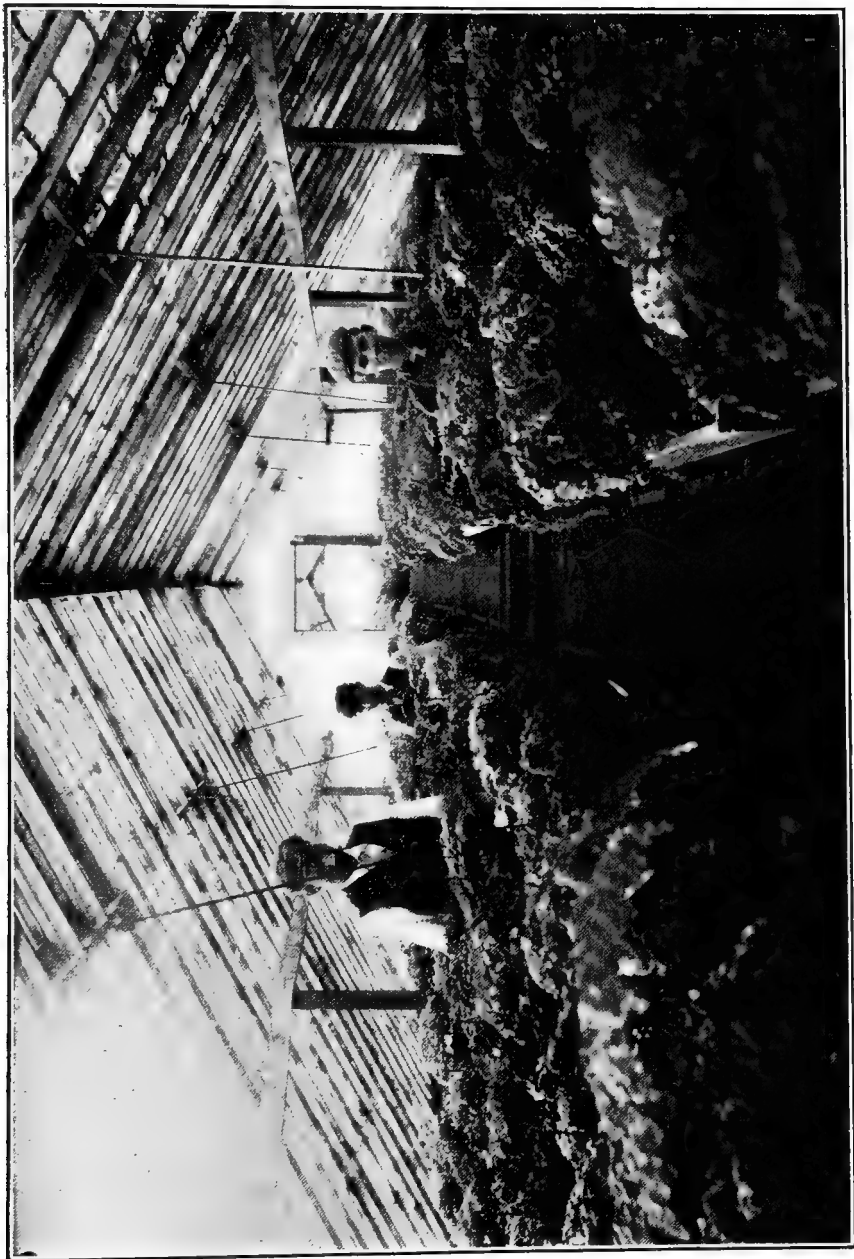


Artificial heat can nearly always be dispensed with from June 1 to September 1, sometimes longer. The plants can bear a lower temperature at night in early Fall than at any other time during the year, as they have got hardened during the Summer. It is, however, wise to be upon the alert for the early frosts in the Fall. A little ventilation at night is needed, and bottom ventilation seems to work admirably in this case, even while you have artificial heat on. Be on the lookout for high north and north-west winds and see that you have your night ventilation regulated, so that your young fronds do not get chilled. By the first part of September you should have plenty of good-looking plants ready for the market. The plants propagated during the Summer months of the previous year should now be ready in 5 and 6-inch pots.

Watering with liquid manure seems to do most good at this time. They are in a healthy growing condition, and you are beginning to apply artificial heat. This will help the plants to dry a little and feeding will do them good. Farleyenses are great feeders, but be sure the plants are pretty well rooted in their last shift and have consumed most of the nourishment in the pots. The best watering mixture that I have tried is composed as follows: Place one shovelful of well ventilated human fæces and three of pure cow manure in an ordinary kerosene barrel, fill with water and let it stand for a couple of days. Use it sparingly at first. After the plants have received a few applications, a 5-inch pot will do well with an ordinary two-gallon can of water, but you can always keep a few plants marked for experimenting and thus be enabled to tell how much the plants will stand before applying it to the general stock. After the plants have consumed the nourishment in the last shift and they begin to throw small fronds and look starved, if the roots are healthy and you do not want to shift them into larger pots, give them plenty of liquid manure once or twice a week and if conditions are otherwise right they are bound to respond and yield up a crop of fronds. Small, delicate sprouts should be broken off. Plants

that are frail, and produce a lot of sickly, small leaves, will be very much improved by being disbudded. You should always aim for good plants from the beginning. I prefer throwing away the small and sickly ones at the start rather than be bothered with potting them two or three times and after all getting nothing out of them.

The plants should be propagated and handled in such a manner that they will become salable in rotation. Farleyense will keep a long time without getting too old or dried up, but the house will hold a good many more plants by having them in good rotation. It works splendidly, if you should have quite a demand for cut fronds, to cut four or five of the bottom leaves off of your strongest 5-inch; then give your plants a shift into 6-inch pots in good, rich soil, and you will be able to sell them a little later on at good profit. About Christmas, when cold weather sets in, or any time during the Winter, you are likely to get some of your plants chilled. You will be able to tell it by the peculiar pinkish color the young leaves assume. They may not have got enough to make the tender fronds turn brown, but if this is going to happen you will notice small, dark spots in the underside of the leaves, sometimes hardly visible to the naked eye. Such leaves will in two weeks' time be damaged entirely and disfigure the plants if left on. The best way to treat your salable plants when chilled is to pick them out and sell them to the stores. The plants look splendid with their pinkish tint on the young leaves and they will look well in the city for two weeks. Anyway, a Farleyense is not likely to last any longer than that with the city florists and as the plant is already chilled it is quite hardy and not likely to flag. If the young leaves are of a rich, brownish pink color, it is all right and often a sign of good health; but as a rule when the young fronds take on a slight rosy-pink hue, it is a sign of cold, not always enough to do serious damage, but demanding careful watching. On windy, cold nights, let the temperature go up to 72 degrees. It is necessary to grow Farleyense as cool as you can without allowing them to be chilled. If



SECTION VIEW IN A 20 X 200 FOOT GREENHOUSE.

grown too hot they do not keep well at all, and you cannot do much with them either for cut fronds or pot plants.

Aim to have your best plants from September to Christmas. There are always plenty of good plants till after the holidays. After New Year the market is better and small defects on the plants will not be noticed as readily as when stuff is plentiful. Save up stumps during April and May for Summer propagating. Natural heat is all that is wanted at this time of the year for success in propagation. Cuttings started at this period will make excellent plants to open the market with in the Fall the following year, while you have your young plants that are propagated during the early Spring months to carry you through till June. Cuttings started in January should, if handled properly, make salable plants by Christmas, and those started during February and March could very well hold the season till June.

As to the growing of Farleyense for private places, a special house is not necessary. They will do well with other ferns if the temperature does not go below 68 or 66 degrees at night. The regular night temperature for Farleyense is 68 degrees at night; 74 to 76 is a nice growing temperature during the day. The more artificial heat you have the lower the temperature, of course. Farleyense likes pure air, as do other foliage plants. You can pretty nearly tell by the color of the foliage whether the temperature is right. It is a good plan to fix cheesecloth under the ventilators in some cases. The plants cannot stand much draft; they require a little higher temperature in thumb-pots and 2 and 3-inch pots, especially when newly potted, otherwise the temperature mentioned above is all right. I have had superior Farleyense in the palm house on private places. If they are located in a place sheltered from the strong current of air through the ventilators and the temperature is right, they will do well. Where only a few plants are wanted cuttings could be taken during Spring months.

A few clinkers or crocks or any rough material put in the bottom of a large seed pan with an inch or so of sand on, the cuttings placed on top, covered lightly with sand and watered, a

piece of glass fixed over the pan with little ventilations or openings, placing them on bottom heat, probably dig the pan into the sand in propagating bed, and handled as cuttings before described, and Farleyense will do as well as other stove-house plants if it gets proper treatment. Hot water is about the only heating system that can be used for the culture of this plant. The pipes should be located as in hothouses generally. Two-inch pipes seem to be preferred by many, especially if they are spread out under the benches as much as possible giving as nearly a uniform bottom heat as can be obtained. By all means have six or eight inches of space between benches and outside walls, so that the heat can pass up under the glass and keep off some of the cold that comes in through openings between panes of glass and through the glass itself. Have plenty of valves on, so that you can shut off when required. The sun will send up the temperature considerably during Spring days and you should begin to regulate your heating early, so that your house may not get too hot.

Ventilation must be carefully attended to at this time of the year. Have the fire in good order, so that you will be able to put heat on quickly if the weather happens to change suddenly, and on a clear, sunny day do not omit to get good circulation early in the evening or afternoon before the sun leaves your house entirely, or you will chill your plants before the artificial heat is warming up the house properly.

















