

must be entirely removed to prevent overcrowding. It must be understood that, if the long, vigorous shoots are pruned severely, other strong shoots will be produced; whilst, on the other hand, if the tops are simply taken off, and the rods placed, as far as practicable, in a horizontal position, laterals bearing flowers will push from nearly every bud, and a grand display of colour be the result.

## CULTIVATION OF HARDY FERNS UNDER GLASS.

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THE outdoor fernery may be justly considered the proper place for the cultivation of British and hardy exotic ferns, but they are so exceedingly beautiful when grown under glass, that a collection should be grown indoors in all gardens where room can be found for them. In point of beauty, the fine varieties of the Lady Fern, the Male Fern, the Hart's Tongue, and the typical *Polystichiums* are unsurpassed by any of the exotic species, and, moreover, they can be most successfully cultivated without the assistance of any artificial heat, which at this moment is a matter of considerable importance. They, therefore, have special claims upon the attention of the amateur with limited means, and I will as briefly as possible point out the way by which they can be most successfully cultivated.

In the first place, it must be said that there are two ways of growing hardy ferns under glass; one, planting them out on a well-prepared rockery, and the other in pots. They certainly have a very attractive appearance when judiciously planted on a rockery, but for the amateur it will, perhaps, be more desirable to cultivate them in pots. By having them in pots it will be practicable to fill the house with other hardy plants, if it is unheated during the winter and spring, for the ferns may be wintered out of doors, provided they are placed in a sheltered corner, and protected from severe frosts by means of liberal coverings of long litter or the common dry fern. Protection of some kind is absolutely necessary to prevent the frost splitting the pots, and possibly injuring the roots by reason of the manner in which they will be exposed to it. A goodly collection may be grown in a deep frame or pit, but it is more desirable to have them in a span-roof or lean-to house of medium size, because of the greater facility with which they can be inspected and attended to. In either case the structure should be on the north side of a wall or building, so that the plants may enjoy the fullest exposure to the light without the possibility of the sun injuring them. It will also be less difficult to maintain a cool and moist atmosphere about them in the hottest weather. They can, of course, with the assistance of shading materials, be grown in span-roof houses occupying exposed positions or lean-to's, having other aspects than the north, but the north aspect is decidedly preferable.

May.

When grown in houses, it is desirable to have a flat stage or table on each, or one side of the walk, with a layer of shingly gravel or cocoa-nut fibre refuse for the plants to stand upon, as the moisture arising therefrom will be highly conducive to a healthy growth. The water which drains from the soil will help to keep the material damp, and, if necessary, water can be poured over it occasionally. When in frames the plants can be placed upon a layer of coal-ashes.

In commencing the culture of British ferns in pots, the best course will be to procure a sufficient number to partly fill the house or pit, or as many as may be afforded, in three or five-inch pots. If they are strong and well established, they should at once be shifted into pots two sizes larger, and then no further repotting will be required until next spring. When newly repotted, due care must be taken to avoid over-watering, but when well established, liberal supplies of water will be required. In warm weather a gentle sprinkle overhead in the evening will also be beneficial, but at the same time a moderate degree of atmospheric humidity must be maintained by pouring water on the floors and stages.

After the first year an annual shift, using pots two sizes larger each time, will suffice to maintain a steady growth throughout the season. The pots must be properly drained, and a compost consisting of about two parts fibrous peat, one part turfy loam, and a liberal proportion of silver-sand employed. During the winter the plants must be kept rather dry, especially the deciduous species and varieties, but the soil must not be kept dust dry, or the roots will perish, and the plants suffer in consequence.

For a beginner the following will form a very good collection, and they may be obtained at a comparatively cheap rate:—

*Asplenium adiantum-nigrum*, *A. a.-n. acutum*, *A. marinum*, *Athyrium* (Lady Fern) *filiæ-fœminæ apuceforme*, *A. f.-f. corymbiferum*, *A. f.-f. Elworthi*, *A. f.-f. Fieldiæ*, *A. f.-f. Frizelliæ*, *A. f.-f. grandiceps*, *A. f.-f. multifidum*, *A. f.-f. plumosum*, *A. f.-f. ramo-cristatum*, *A. f.-f. Vernoniæ*, *A. f.-f. Victoriæ*, *Cystopteris fragilis Dickeana*, *Lastrea filix-mas Barnesi*, *L. f.-m. Bollandiæ*, *L. f.-m. crispa*, *L. f.-m. cristata*, *L. f.-m. furcans*, *L. f.-m. Ingrami*, *L. f.-m. polydactyla*, *Osmunda regalis cristata*, *Polypodium vulgare cambricum*, *P. v. multifido-cristatum*, *Polystichum angulare brachiatum*, *P. a. cristatum*, *P. a. Elworthi*, *P. a. grandiceps*, *P. a. plumosum*, *P. a. proliferum Wollastoni*, *Scolopendrium vulgare crispum*, *S. v. laceratum*, *S. v. macroscorum*, *S. v. marginato-coronatum*, *S. v. ramo-cristatum*, *S. v. ramomarginatum*, *S. v. undulato-lobatum*.

The following hardy exotics are in every way desirable for associating with the British species:—

*Adiantum pedatum*, *Asplenium consimile*, *Cyrtomium falcatum*, *Lastrea decurrens*, *L. opaca*, *L. Sieboldi*, *Polystichum setosum*.