Plantsmanship: Adding an Extra Dimension to Horticultural Understanding

G. Anderson
School of Horticulture
Royal Botanic Garden Edinburgh
20A Inverleith Row
Edinburgh EH3 5LR
Scotland
United Kingdom

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Abstract
For many years, individual horticulturists with a good knowledge of the origins, cultivation, and use of garden plants have been referred to as Plantsmen. In 1995, the Royal Botanic Garden Edinburgh (RBGE) in conjunction with the Scottish Agriculture College (SAC) gained approval to offer the Higher National Diploma (HND) in Horticulture with Plantsmanship. The origins of the course will be described and the opportunities for student learning highlighted. Plantsmanship training is now recognised as a valuable discipline within horticulture and attracts students from a wide range of backgrounds. The HND Plantsmanship course is accepted as an integral part of the Scottish horticultural scene and allows students, through their study of plants, to progress to degree and post graduate level courses in horticulture and related specialisms.

INTRODUCTION
Scotland is the source and the home of good gardeners. Over the centuries gardeners and eminent horticulturists trained in Scotland have taken their skills out into the wider world. There has been a tradition of horticultural training evident in Scotland for centuries. Some of the earliest records refer to the appointment of Foresters and Gardeners in East Lothian in the 10th and 11th centuries. Scotland has produced eminent plant collectors like David Douglas and George Forrest and outstanding conservationists such as John Muir. Many of these past explorers and icons of horticulture are remembered in the plants named in their memory but even more so they should be remembered for the wealth of plant material that they brought to gardens and to horticulture.

The Royal Botanic Garden Edinburgh has had a long association with horticultural training. A course was started at Edinburgh in 1892 in order to educate and train staff for the network of estates in Scotland who were then the proud custodians of many of the new plants recently introduced from abroad. Records from the time show the source and destination of students passing through the training course offered at Edinburgh and many came from local nurseries and Scottish estates and then moved to establishments much farther afield. The course grew in popularity and it concentrated on aspects of forestry. Students trained in Edinburgh in the early part of the 20th century ended up in the forestry industry in Africa or planting rubber, tea, coffee or bananas in climates far removed from the cool temperate zone that is Scotland. This tradition of training continued through the remainder of the century when Amenity Horticulture started to gain popularity and create demands for staff. In the 1970's and through to 1992 most students found employment in the parks and recreation sectors of horticulture and throughout all this time the employment uptake for students leaving the course remained extremely high (frequently 100%).

In 1992, one hundred years after the first course was started at Edinburgh, the Garden embarked upon another change. This time it involved the development of a completely new course and one that was hoped would open up greater possibilities for its successful students. The bold decision was taken to develop a course concentrating on the in depth study of plants and their cultivation, the Plantsmanship course.
COURSE RATIONALE

Plantsmanship is seen as an important skill for horticulturists. Employers of students increasingly seek personal knowledge of a wide range of plants. For example planteria managers in major garden centres, curatorial staff of heritage and botanic gardens here and abroad as well as local authorities charged with the responsibility for Urban Horticulture look for evidence of good plant knowledge in any newly appointed horticulture officers. Development of the Plantsmanship Course set up a unique opportunity of partnership between SAC and one of the world’s leading botanic gardens. Some of the specific strengths of this partnership are as follows:

- association/collaboration between two organisations with complementary resources covering this increasingly popular area of horticulture;
- student numbers would be substantially increased in an advanced level course;
- increased opportunities for SAC students to access RBGE facilities and expertise;
- provide a ready means for HND students to articulate into Degree courses;
- provide access for students into European educational networks (e.g. Erasmus)

The HND Horticulture with Plantsmanship course was the result of extensive discussions between the Scottish Agriculture College (SAC) and the School of Horticulture at The Royal Botanic Garden Edinburgh (RBGE) and likely employers of successful students.

The course title clearly identifies the level of the award and reflects the course content and the vocational commitment of the candidates. The title was chosen to show the link between plant knowledge and the management of scientific, amenity and historically important plant collections. The word Horticulture sets the course firmly within the context of the cultivation of plants. Plantsmanship is knowledge of the diversity of plants and their cultivation and is achieved by integrating the practical experience of plant cultivation and management in nurseries, gardens and other landscapes with advanced knowledge of plant distribution, classification, diversity, structure, identification and recognition. The term Plantsmanship is used to indicate that the course will enable the plant knowledge to be obtained in a practical way and will be applicable to the workplace. The course concentrates on the establishment, organisation, interpretation, structuring, use and maintenance of plant collections for stated aims.

AIMS OF THE COURSE

- To educate students to Higher National Diploma level in Horticulture with a specialism in Plantsmanship;
- To raise the standard of plantsmanship within the horticultural industry;
- To provide students with access to topics best taught in a botanic garden;
- To raise the status of the art and science of plantsmanship in horticulture;
- To provide students with ready access to further educational progression.

COURSE OBJECTIVES

- To provide relevant transferable skills in management, communication, literacy and information technology to allow successful students to be effective in the workplace;
- To provide students with the opportunity to develop their knowledge of taxonomy, ecology, distribution, conservation, cultivation and management of plant;
- To enthuse students to independently develop skills in plantsmanship;
- To enable students to apply plantsmanship skills to the cultural, economic, management, and scientific context;
- To provide a vocationally based qualification leading to employment at a technical or supervisory level in organisations concerned with the management of plant collections and other landscapes;
- To prepare students for a relevant higher qualification.

THE LIVING COLLECTIONS

The Living Collections within Scotland’s national botanic gardens (The Royal
Botanic Garden Edinburgh and its specialist gardens) is of international importance and, as with the collections in the Herbarium, have the status of “biological standards”. The Living Collections comprise 27 ha of garden and 4.6 ha of nursery at Edinburgh, 44 ha at the Younger Botanic Garden, Benmore, 25 ha at Dawyck Botanic Garden, Peeblesshire and 11.4 ha at Logan Botanic Garden, Wigtownshire. At Edinburgh there are 5,170 sq m of display glasshouse open to the public and 1,947 sq m of glasshouse area devoted to plants for scientific and horticultural research. The four gardens which go together to make up Scotland’s National Botanic Garden represent a wide range of soil, aspect and climatic types, allowing an extraordinarily wide range of plants to be grown, displayed and available to students. These different gardens provide a wide variety of individual problems, opportunities, situations and challenges to students studying the cultivation of plants and help to develop their plantmanship skills. While studying on the course students may be in daily or weekly contact with staff members who have responsibility for the curation, creation, design and management of plant collections. In this way they are enthused, encouraged and invited to learn.

THE LIBRARY
The Library is primarily a research collection and holds 75,000 books and about 100,000 volumes of journals. It obtains by subscription or exchange nearly 1,600 current journals, making it one of Britain’s largest specialist botanical libraries. There is a collection of about 250,000 “cuttings”, some of which are original artworks, together with a large number of botanical illustrations. The Historical Archives Collection consists of about 20,000 items of correspondence, diaries and other manuscript material relating to the history of the garden, and to botany and botanists. The Library provides full research library services to all RBGE staff. This includes analytical indexes for taxonomic, current awareness and enquiry services; literature searching using on-line databases; inter-library loans facilities; and full loan and circulation services. The students are encouraged to make full use of the library and have access to the collections from 0730 through to 2100 on week days with separate arrangements made for weekend working.

THE COURSE
The HND Horticulture with Plantsmanship Course extends over two years and comprises a range of units fundamental to horticulture in year one and a more specialist set of units in year two. Students take the Higher National Certificate level course in year one and then specialise during year two. Year one is taught at the Ayr campus of SAC (from 2003 similar courses will be available at other centres throughout Scotland). In year two, Plantsmanship students complete their studies in Edinburgh at the Royal Botanic Garden.

To meet the demands of studies in Plantsmanship and to encourage the study of plants to some depth, the following units were devised and are presented during the second year of the course. These are part of a wider core of units seen as essential to the specialism.

Managing Plant Collections
In this unit, candidates conduct a practical survey of an existing plant collection and use the information gained to devise a strategy for the establishment and management of a new, existing or proposed plant collection. The use and cultivation of the plants within the collection is discussed and students devise methods whereby the material for new and proposed collections may be collected. Throughout the period of study, the candidates are encouraged to consider the importance of Collection User Groups and the Client Brief. Reference is made to legal aspects of plant collection and establishment and a working knowledge of plant passports, certification, CITES, quarantine regulations, Agricultural Weeds Act, Wildlife and Countryside Act and where appropriate, their overseas and European equivalents. The unit is seen as important for those who wish to design, manage and maintain plant collections for whatever purpose. It is seen as vital to
the whole course and allows students to appreciate the wide range of inputs necessary before decision making can begin on the way a collection should be managed. Throughout the unit, Plant Collection Management is seen as a vital tool enabling the maximum use to be made of the collection. The unit is particularly useful to students wishing to follow a career in Plant Collection Management and Plantsmanship and is of great practical value to those likely to be charged with the responsibility of growing plants for display, research or amenity.

**Designing Plant Collections**

This unit teaches the importance of linking the arrangement, interpretation and layout of plants to the after-use of the site and the display. Students design a plant collection layout and through a series of visits and practical exercises, become confident in the evaluation of various plant displays for interpretation. They plan a programme of interpretation for a plant collection display and justify its use. The unit covers design principles such as scale, unity, colour, density, form, habit, texture, scent, spatial organisation and time and the various forms of client brief (thematic, artistic, conservation, education, historic and scientific) are explained. Students present plans, sketches and written support notes and/or oral material in support of their plant collection designs. The unit is of practical use to students seeking to follow a career in Plant Collection Management where the public at large and/or specialist groups make extensive use of the plant displays. Students who seek employment within national trust, heritage or large private gardens where public access and plant displays are to be interpreted for the visiting public find this unit extremely helpful. The unit is also helpful to those students wishing to follow a career in the care of plants in collections set out for research purposes.

**Plant Classification and Systematics**

Plant Classification and systematics is designed to teach students to classify and identify plants correctly to family, genus and species level. Students complete a portfolio of information on a wide range of plant families and in so doing increase their level of knowledge of plants. While taking this unit they are encouraged to study a wide range of plant families and to investigate the practical and theoretical relationships within and between various families and groups. The international codes and regulations relating to the naming of plants are explained and traditional and modern methods of plant classification are covered. Reference is made to the major horticultural plant families and groups and teaching is effected through a series of tutorials, lectures, workshops and practical walkround sessions. Students are encouraged to build up their own plant recognition and identification skills and vocabulary through the production of a portfolio of information on a range of plant families and groups. This unit is at the core of the range of skills required by a Plantsman and teaches and encourages the close observation necessary for the correct identification of plants. It allows students to recognise the similarities and differences that exist within and between plant groups, families, genera, species and individuals. Many of the practical skills such as observation, recognition and identification achieved in this unit are transferable and will be of use in general plant identification. Similarly, the background information on plant cultivation presented here is of use elsewhere. The unit aids student appreciation of the wide diversity of plants and the need for their conservation at habitat and individual level. Students are encouraged to study plants specific to their region of work and interest.

**Plant and Habitat Conservation**

This unit describes the major plant habitats and equips students with the skills to recognise them. The concepts of Plant Ecology are covered and students apply the principles of vegetation analysis to the description of plant communities. They are encouraged to study plant communities and habitats familiar to them and to devise a strategy for the conservation of a plant and habitat within a given area. They justify plant and habitat conservation at local and international level and are encouraged to identify the
factors affecting the conservation status of plants and habitats in relation to specific sites. Appropriate current conservation legislation is discussed and the value of in situ and ex situ conservation techniques and gene banks are explored. Students are made aware of the range of natural habitats and reference is also made to manmade habitats such as peat walls, herbaceous borders, ponds, woodland gardens, glasshouse environments and other garden/landscape features. The importance of urban habitats in terms of adaptation, biodiversity, conservation and education are also covered. This unit equips students with transferable skills in plant and habitat conservation. The knowledge gained will allow them to put these skills into practice in their eventual area of work. The unit is of particular value to students who wish to follow a career in Plant Collection Management and in the interpretation, design and layout of plant collections for public, private or research purposes. The knowledge of plant habitats acquired during this unit enable students to better understand the cultivation of plants in garden and landscape situations.

**Plantsmanship**

Plantsmanship is at the centre of the second year of study presented at the RBGE and involves a deep understanding of the diversity, cultivation and recognition of plants often down to cultivar level. The unit provides information on major plant families and groups in terms of distribution, diversity, habitat, environment, and cultivation. It also provides the information required to identify plants and assess their growth requirements in gardens and natural and manmade landscapes and encouraged them apply the acquired knowledge to the cultivation of plants. Students are encouraged to communicate confidently on the range and type of environments most desirable for the cultivation of specific plants and to explain how existing environments may be require to be modified in order to accommodate specific plants. This unit is essential for students wishing to pursue a career where plant cultivation and recognition are key skills. The information presented is invaluable to those wishing to take up a post involved with the cultivation and or the sale of plant material where the information acquired will be especially useful to those who are to be involved with advising clients and/or the public at large. Aspects of plant identification, propagation, planting, pruning, support, irrigation, pest, disease and weed control, management of plant growth, nutrition, soil cultivation and plant establishment are covered and will prove useful to students in their future career. Many of the skills acquired in this unit are transferable to other areas of horticulture.

**CONCLUSION**

Following successful completion of the Plantsmanship Course a high percentage of students (90%+) continue within the discipline of horticulture. Some gain employment as valued members of staff in heritage gardens, botanic gardens and private gardens or as lecturers and teachers within colleges. Others use the Plantsmanship qualification to allow them to progress through to degree and/or post graduate (MSc) courses in Plant Taxonomy, Landscape Design, Horticulture and Botany. Student interest in the course runs at an encouraging level and there is increasing interest from international students. An honours degree course is planned and will take Plantsmanship to new heights within horticulture. Opportunities are available to incorporate Plantsmanship teaching into other courses and these need to be explored. With the wider and deeper understanding of the cultivation and importance of plants that students derive from this course of study Horticulture must surely benefit.