COWBRIDGE PHYSIC GARDEN
GARDD BERLYSIAU'R BONT-FAEN

INFORMATION NOTES

Plants used to dye fabrics

Madder root and fabric dyed with madder

Before the discovery of the first chemical dye in the 1850s plants, trees, certain insects, molluscs and minerals provided the only source for colouring fabrics. These colours were harmonious and could be soft or vibrant. If prepared correctly most were colourfast. The three main dyes in medieval Europe were:

- **Madder** (producing red dye)
- **Weld** (producing yellow dye)
- **Woad** (producing blue dye: superseded in the 20th century by **Indigofera**)

All these plants grow in the Physic Garden.

Natural dyes have a special affinity with natural fibres. The fibres usually have to be treated with a **mordant** before dyeing. A **mordant** is a metallic salt which makes a chemical bond with the fibre to allow the dye to fix. Alum, iron and tannin are the most common mordants used today. Not all dyes need a mordant: these are called **substantive** and include woods, barks and lichens.

Dyes are usually extracted by boiling the relevant parts of the plant in water. The mordanated washed fibre is gently simmered in the liquor. After dyeing is complete it is washed in warm soapy water and rinsed until the water is clear. The process of dyeing continues to be both a science and an art.

There are many plants in the dye bed at Cowbridge. A few of the ones most likely to interest visitors are listed below:

Allium cepa **Onion** Wniwn

Onions are members of the Lily family and produce yellow, orange and brown dye from the outer brown skins of the plant. The addition of iron will produce a darker brown dye. Some believe that the juice of the onion can be used as a moth repellent and that it can be rubbed on skin to repel insects.

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Anthemis tinctoria **Yellow Chamomile** Camri melyn

This perennial plant produces flower heads with yellow centres and white rays. The flower heads can be dried and stored. Alum-mordanated wool gives a beautiful, soft golden-yellow. The leafy green parts also contain dye material and should be picked when the stems are mature.

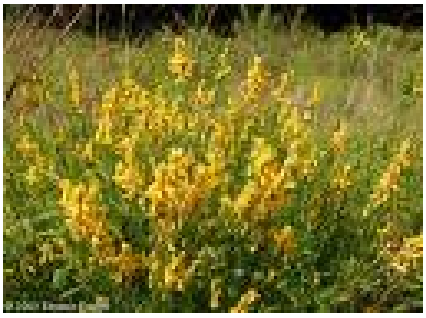
Carthamus tinctorius **Safflower** Cochlys

Known as 'Dyer's thistle', this plant is native to Central Asia. The chemist Edward Bancroft classified the red colour it produces; it was traditionally used to colour the ribbon tied around legal documents - hence the term 'red tape'. It also gives yellow dye but this a 'fugitive', that is it is not a fast colour.

Crocus sativus **Saffron Crocus** Saffyr Meddygol

The saffron crocus has been an important trading plant from the earliest times, being used as a dye (eg robes of Buddhist monks), a perfume, a condiment (eg the Spanish dish *paella*) and medicine (it was believed to be an aphrodisiac). The Welsh name for saffron (Saffyr Meddygol) particularly represents its medicinal use: 'saffyr' suggests its yellow quality whilst 'meddygol' means 'medical'. The stamens are used to produce dye.

Genista tinctoria **Dyer's Greenweed** Melynog y Waun



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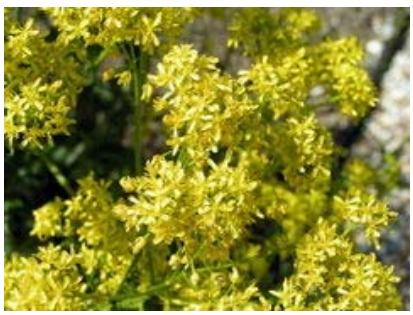
As the English name suggests, this has long been an important plant whose flowers were used to dye fabrics yellow. It can be combined with woad or indigo to give a green dye.

Indigofera **Indigo** Lliwur glas

Indigo was mentioned in manuscripts in the 4th century BC and probably came to Britain in Elizabethan times. It is, of course, best know for dyeing jeans. *Indigofera* is the most important of over 50 plants in the world that contain Indigo in their leaves: it contains a higher source of colour than other varieties and is the principle source of indigo for dyeing. In the 17th century it superseded woad (the native British plant) which does not produce as rich a colour as the indigoferas. The dye is extracted by a process of fermentation. In Britain it is really a greenhouse plant so may not always be seen in the dye bed!

Isatis tinctoria **Woad** Llysiau'r Lliw



This is perhaps one of the most famous of the dyeing plants because ancient Britons apparently painted their bodies with a blue paste made from the leaves of woad. In the 1st century AD the Greek physician Dioscorides described woad as a **styptic** (something used to stop bleeding) so maybe the woad our ancestors used not only frightened their enemies but also helped to heal their wounds. It was cultivated as a source of blue dye for over 2000 years in Europe, only being superseded by indigo in the 20th century. It is a

biennial plant which likes a nitrogen-rich soil and can be harvested up to three times a year. It gives a permanent blue dye. It is 'substantive' which means that it does not need a mordant during the dyeing process.

Reseda luteola **Weld** Melengu

Weld is a very ancient dye plant and traditionally an important source of the colour yellow. (This is reflected in the Welsh name of the plant (*Melengu*): the Welsh word for yellow is 'Melyn'). It grows well on freshly disturbed soil: the poorer the soil the better the dye. The stem, leaves and flowers are all used for dyeing.

Rubia tinctoria **Madder** Cochwraidd Gwyllt

This is the most famous plant for producing a fast red dye and has been used for at least 5,000 years. It grows best on sandy soil to allow its tuberous roots to spread and is harvested after 3 years. Its roots give a wonderful range of colour-fast reds. (This is reflected in the Welsh name of the plant (*Cochwraidd Gwyllt*): the Welsh word for red is 'coch' and for root is 'gwreiddyn'. The photograph at the top of this information sheet gives only a very approximate indication of its colour which is a wonderfully rich red.

Taraxacum officinale **Dandelion** Dant-y-llew

The bright yellow flower heads give a fresh yellow colour when dyeing fabric. The word 'dandelion' comes from the French '*dents de lion'* (teeth of the lion): the Welsh name for the plant (*Dant-y-llew*) has the same meaning.

Two other important plants in the dye bed

Dipsacus sativus **Fuller's Teasel** Crib Bachog

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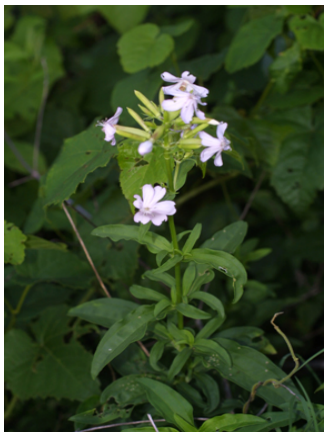
These tall plants are not to be confused with the similar-looking common teasel with their soft downy spikes which are often seen in the countryside and are frequently used for dried flower decorations. The Fuller's teasel has flexible hooked spines surrounding the flower heads which were used for raising the nap on cloth. They can still be seen at the Welsh Woollen Museum in Dre-fach Felindre in Carmarthenshire.

Saponaria officinalis **Soapwort** Sebonllys



When the leaves of the plant are rubbed with water a foam is produced: in Roman times it was used for laundering. This is another plant where its qualities are refelected in the Welsh name of the plant (*Sebonllys*): the Welsh word for soap is 'sebon'.

One last thing

When you see the word *tinctoria* as part of the name of a plant the chances are that it was a plant used for dyeing.

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This information sheet was produced in June 2007 by Christina Davison, a volunteer at Cowbridge Physic Garden, assisted by Margaret Redpath, a professional dyer.

Further information: The information in this leaflet came from a range of sources, including the internet. The main publications used were:

Dye Plants and Dyeing. John & Margaret Cannon. UK: A&C Black, 2003.
Enwau Cymraeg ar Blanhigion, Welsh Names of Plants. Dafydd Davies & Arthur Jones. Cardiff: National Museum of Wales, 1995.
The Craft of Natural Dyeing. Jenny Dean, UK: Search Press, 1994.

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The Encyclopedia of Herbs and Herbalism.
Malcolm Stuart (Ed). London: Book Club Associates, 1979.
A Weaver's Garden and *A Dyer's Garden*. Rita Buchanan. USA: Interweave Press, 1995.
The Colour Cauldron. Sue Grierson. UK: Perth, 1986.