

Inspiration from Biodiversity – a Quiz

1. Where did *paper* originate?

Egypt Arabia China

(Papermaking, 2008)

2. When was papyrus introduced to Egypt?

4000 BC 900 AD 1969 AD

(MNSU, 2008)

3. Which of the following were used for black pigment?

Beetles Galls Fungi

4. Indigo was made from

Insects Woad Indigo

5. Blue pigment was made from

Shells Flowers Precious stones

(Colour-experience, 2008)

6. Which makes scarlet ?

Insects Fungi Logwood

(Aurora, 2008)

7. What made yellow dye?

Solder Weld Worms

(IENICA, 2008)

8. What was the leaf that inspired the Renaissance architects?

Fig leaf Acanthus leaf Aspidistra

(MNSU, 2008)

Quiz notes (colour-experience.org, 2008)

Until the advent of the synthetic dyes in the second half of the nineteenth century, all dyes were derived directly from natural sources such as the leaves, flowers, berries, stems or roots of plants, from insects and shellfish, and even a number of minerals. Important centres of dyeing were established around the shores of the Mediterranean five thousand years ago. Dyeing with natural dyes became a skilled craft in ancient Egypt. For yellow they used weld, for blue the woad plant, for red the root of the madder plant. The Phoenicians specialised in using shellfish to produce a dye which ranged from red through to purple to blue. The Greeks and Romans adopted most of these earlier techniques. They also used kermes insect to produce a red dye and archil, a lichen found on seashores, for purple. The colour purple was held in high esteem and was used to indicate rank and status. Until the sixteenth century the range of natural dyes used by European dyers was similar to those used by the Greeks and Romans. Madder, woad and weld were the most important with others such as archil and kemes being used to lesser extent.

Cochineal is an extract of a dried insect inhabiting tropical countries. It gives a bright and fast scarlet on a tin mordant and is still used for dyeing some high-quality uniform cloth by a single-bath process. Indigo was the main natural dye used to yield blue shades; its fastness to light was outstanding when compared with other natural dyes. As a result it achieved particular importance. Even so, the bacterial fermentation process used for its extraction from either *Indigofera* or woad plants was highly unpleasant and prompted Queen Elizabeth I to order the curtailment of the production of woad.

Madder is a particularly good dye because it contains natural mordanting agents. During the Middle Ages, people who made and dyed hats (called hatters) frequently used heavy metals in their dye baths as mordants. As they did not wear protective gloves, some hatters absorbed toxic levels of heavy metals causing them to become mentally deranged; hence, the expression 'mad as a hatter'.

It is a strange fact that green, the colour of plants, is the one dye colour not obtained from them.

By the end of the nineteenth century a large number of synthetic dyes were available in a vast range of often brilliant colours. Natural dyes have now been almost entirely superseded by the synthetic products, except for a few specialised uses. Logwood, the only natural dye still in large-scale use, is however used for dyeing not only silk and wool, but also secondary cellulose acetate and nylon.

Dye	Colour
Alkanet	Violet-grey
Annatto	Red
Barwood	Red-brown
Brazilwood	Red-brown
Camwood	Red-brown
Cochineal	Scarlet
Fustic	Yellow
Indigo	Blue
Lac	Scarlet
Logwood	Purple-Black
Madder	Red
Orchil	Purple
Persian berries	Yellow
Quercitron	Yellow
Saffron	Orange
Sanderswood	Red
Turmeric	Yellow
Weld	Yellow

References

Aurora (2008) http://www.aurorasilk.com/natural_dyes/dyes/dye_logwood.html on 21/11/2008

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IENICA (2008) <http://www.ienica.net/crops/weld.htm> on 21/11/2008

MNSU (2008) <http://www.mnsu.edu/emuseum/prehistory/egypt/dailylife/papyrus.html> on 21/11/2008

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