**A Beginner’s Guide to Apple ID**

**Why identify apples?**

We have forgotten most of what we once knew about apple varieties and how to grow them and use them. Unless we know what our apples are, we don’t know when to pick them, when to eat them and how long we can store them. Nor do we know whether our apple is a ciderer, cooker or eater; whether it’s good for juice or drying; whether it keeps its shape when cooked or cooks to a fluff or whether it’s a great tasting apple or a dull run of the mill variety.

Knowledge of your variety will tell you if it is particularly prone to disease; whether it prefers the dry south-east or the damp Welsh Marches; whether there are any pollination issues; whether it is prone to biennial bearing; if it’s a tip or spur bearer etc., etc.

Finally we have forgotten many of their cultural and historical associations. Some varieties are just great because they have interesting stories attached to them (Ten Commandments); great names (Slack ma Girdle, Pitmaston Pineapple, Peasgood Nonsuch); are really old (Autumn Pearmain late 1500’s, Court Pendu Plat 1613, Harvey 1629, Devonshire Quarrenden 1678); are locally distinctive (Colwall Quoining, Bosbury Pippin, Madresfield Court) or really rare (Credenhill Pippin, Newland Sack – one tree left of each when they were rediscovered).

**Before collecting your samples.**

Before even gathering any apples it is wise to collect some background information about the tree(s)/orchard. How old is the orchard/tree - <http://www.old-maps.co.uk/> is a fantastic resource for dating your orchard/dwelling – self evidently old trees will not be modern varieties.

What sort of orchard is it – modern bush (likely to have only 3 or 4 varieties of cider apples or modern commercial varieties); traditional farmstead (likely to have a wide variety of cider, cookers and eaters); traditional standard commercial orchard (likely to have a range of dessert/cookers with prolonged picking period, or be exclusively cider) or garden orchard (likely to have a mix of well-known cookers and eaters but no ciders, with most trees different).

Is the tree on a vigorous rootstock or on a dwarfing or semi-dwarfing rootstock? Semi-dwarfing rootstocks did not appear and become widespread until after around 1925, so trees on standard rootstocks will *usually* not be modern varieties.

Where has the apple come from? If it’s from Clydeside it’s not likely to be a Colwall Quoining and if it’s from Colwall it’s unlikely to be a Tower of Glamis.

Make a note of the growth form of the tree if this looks in anyway noteworthy. Merton Knave for instance is round-headed, spreading and slightly weeping whereas Emneth Early is upright. It is also useful to note the vigour – Bramley’s Seedling being a triploid is very vigorous whereas Lord Grosvenor shows very weak growth. Is it a tip bearer like Grenadier, a partial tip bearer such as Discovery or a spur bearer like Egremont Russet?

Is the tree badly cankered (probably Cox’s Orange Pippin!) or relatively unaffected like Newton Wonder? Are the fruit and leaves covered in scab (Cox again!) or scab free like Charles Ross?

**Collecting your samples.**

This is not as straightforward as you might think! First you need to know which tree the apples have come from. There is no point in identifying a long lost variety only to find that next year you can’t remember which tree it was on. Ideally trees should be tagged and you should have a sketch plan of locations.

Collecting the samples may not be easy, very often the only fruit may be out of reach so you may need a ladder (preferable) or have to climb the tree or have a pole to knock fruit down. This last is not recommended as it will bruise the fruit and if you have a backlog of samples you may well find that your sample has rotted by the time that you come to deal with it – trust me it happens.

Apples from the same tree may be very variable so you need a good sample size – an absolute minimum of 3 from each tree and preferably 8. Cider apples can be particularly variable and half a bucketful is recommended. It is important that you don’t pick the biggest, brightest fruit – they may not be representative. Equally it is important that you pick fruit from the sunny side of the tree as these will have developed the characteristic ground colour, flush and stripes. They will also have a more characteristic taste and aroma.

Do not include king fruit in your sample. These are the fruit that develop at the centre of the truss. They develop from the first flower in the cluster to open and are unusually large and have an atypical, usually short and stumpy, stalk often with a fleshy bump next to it. It is also helpful to gather a sample of leaves. It is important that these are leaves from both the spurs and the current season’s new extension growth (see below).

Collect your sample of fruit and leaves and place in a sealed bag with any notes that you have taken. It is important to seal the bags. Apples have a habit of escaping and there is nothing worse than opening the car boot and finding several empty bags plus a load of mixed apples rolling about. If you are not going to identify the samples promptly then unseal the bags and leave in a cool place, the fridge is best if you have room.

**Identifying your apples.**

It should be said from the outset that usually this is not easy! Even experts are regularly stumped and have been known to name the same variety differently in different years. The difficulties stem from several sources.

Firstly, there are over 3500 named varieties, although you are only likely to come across 100 or so. Further complications are caused by the huge number of synonyms – Alexander has 85!

Secondly, we are faced with the inherent plasticity of the appearance of cultivars, with individual characters used for identification morphing and melding within and between varieties and with no apples having a single defining characteristic.

Thirdly, there is no definitive identification guide to apples – the literature is still mainly hard copy and often out of print with little web-based resource. Frustratingly different authors can disagree on the characteristics of a particular variety – Bultitude describes the lenticels of Bramley’s Seedling as “*quite noticeable as white or russet dots*” whereas Rosie Sanders says “*lenticels conspicuous dark grey-brown or green dots*”. Not helpful when until today you were probably blissfully unaware of lenticels as an aid to identification!

Identification relies on assembling a set of different characteristics, both external and internal, which will narrow the search down to perhaps half a dozen possibilities and then using ID guides to make the final judgement. You will use most of your senses – sight, touch, smell and taste. At first it can seem bewildering, with lots of new terminology to learn, characteristics that are definitely analogue rather than digital and apparently a huge number of possible answers. Practice makes perfect though and perhaps the best way to start is to nip down to the supermarket or preferably your local greengrocers, buy some named varieties and work them through the ID process. This will help you to understand the terminology and help you know what you are looking for/at.

But always remember - “*Nature refuses to be bound, and will not submit to be confined, within the narrow limits that man would assign to her*” Robert Hogg.

So where do we start? Identification relies on assessing a series of external and if necessary internal characters.

**External Characters**

Robert Hogg in the fifth edition of The Fruit Manual pioneered the classification of apple varieties according to fruit shape, colour and other distinguishing features as an aid to identification. This grouping convention was followed and extended by Bunyard (1920) and by Taylor (1936) and then used and adapted by most subsequent authorities, in particularly by Bultitude (1983), Morgan & Richards (2002) and Sanders (2010), whose books are now those most commonly used to identify fruit. Most people nowadays rely on the so-called Bultitude Groups. The first step therefore is to assign the sample to one of 8 Bultitude Groups according to a few simple characteristics of appearance and taste. See appendix for illustrations. All illustrations courtesy of [www.fruitid.com](http://www.fruitid.com)

**The Bultitude Groups are –**

**Group 1** – smooth-skinned, green and sour (Lord Derby-type) culinary apples.

**Group 2** – smooth-skinned, green, sweet (Granny Smith-type) dessert apples.

**Group 3** – striped, smooth-skinned, sour (Lane’s Prince Albert-type) culinary apples.

**Group 4** – smooth-skinned, flushed or striped, sweet (James Grieve-type) dessert apples.

**Group 5** – yellow-skinned (Golden Noble-type) dessert and culinary apples.

**Group 6** – mainly red (Worcester Pearmain-type) mainly dessert apples.

**Group 7** – reinettes, skin coloured with some russet (Cox’s Orange Pippin-type) dessert apples.

**Group 8** – skin mainly russet (Egremont Russet-type) dessert apples.

Then note any other colour characteristics such as:

Flush - an area of colour (over the ground colour) which may either be restricted to a patch or may cover the entire fruit. Remember that apples from older trees shielded from the sun may be without flush compared with fruit from younger more open and vigorous trees. When collecting your samples remember that if it is a highly flushed apple you will need to collect at least one where the ground colour is visible, maybe from the shady side of the tree.

Mottling - when the flush is broken to reveal the skin colour beneath.

Stripes - coloured stripes in varying shades of red and varying forms. These can be continuous or broken stripes or splashes.

Scarf skin - a thin whitish/silvery transparent layer usually around the base as in Grenadier or Jupiter.

Hammering – uneven slightly pitted skin like beaten copper. An unusual characteristic found in for example Jonathan and Annie Elizabeth.

**Shape.** Next try to assign a shape to the apple (see appendix for illustrations). The shapes merge into one another so you may assign more than one shape to your sample. Also make a note of the following shape characteristics:

Ribs - up to five ribs may be present in some varieties to varying degrees.

Five crowned - ribs may be extended to the apex to form a ‘crown’.

Symmetrical - when viewed from the side the sides of the fruit are equally developed.

Lop-sided - when viewed from the side the sides of the fruit are unequally developed.

Regular - when viewed from above or in cross-section the fruit is nearly circular.

Irregular - when viewed from above or in cross-section the fruit is not circular but may be elliptical, angular or irregular.

Waisted - when viewed from the side the outline is slightly concave towards the apex.

**Skin:** Skin characteristics can be extremely useful in narrowing down your search. Make a note of the following:

Texture - the varying textures can sometimes be difficult to discern. They range through smooth e.g. Lane’s Prince Albert; rough e.g. Egremont Russet, dry e.g. Grenadier or waxy e.g. Bramley’s Seedling. Waxiness can increase in store and then change to become greasy.

Hair line - a thin raised line, sometimes russeted, usually running from apex to base. A conspicuous characteristic but not present in all samples of a variety e.g. Keswick Codlin.

Russet - a familiar characteristic where the skin is rough and dry with a brown cork-like layer. It may be present in small patches, as spots, or even stars. It may cover the entire surface e.g. Egremont Russet.

Reinette - a term used to describe thinly russeted apples. The russet forms a netting over the surface e.g. Cox’s Orange Pippin.

Netting - as above but where the russet does not extend over the whole fruit e.g. Lord Hindlip.

Lenticels - pores in the skin which allow the passage of gases. Discernible as spots which are often russetted and may be large of a distinctive shape or may be small and indistinct. Ideally you need a hand lens to examine these. See appendix for illustrations of types/

Areolar – describes lenticels which have a halo of colour around them e.g. Granny Smith.

Bloom - a fine whitish deposit which can easily be rubbed off e.g. Spartan. A characteristic more usually found in plums. Not to be confused with ‘scarf skin’ which doesn’t rub off.

**Size**: This can be a useful characteristic especially at the extremes, Pitmaston Pineapples are always small and Howgate Wonders always very large. It is measured as the maximum width and maximum height. You will need a large sample, up to a dozen will do, and take a range and a mean after discarding the smallest and the largest apples. Note that fruit sourced from younger trees will tend to be larger than from mature trees and that growing conditions may affect the size of fruit.

Finally we need to describe the stalk and its cavity and the eye and its basin.

**Stalk and cavity:** The length and thickness of the stalk should be measured. The latter can be very variable and a large sample may be needed. Some varieties such as Ellison’s Orange can be confusing with both short and long stalks! Note how much it protrudes above the cavity. Note any particular odd characteristics, for instance Newton Wonder almost invariably has a fleshy bump on the stalk.

The cavity is the depression where the stalk is attached to the fruit. Assess the depth and width of the cavity. The presence/amount of any russet and its shape and distribution is also noted. Also note any odd characteristics, for example it may be ‘lipped’, a swelling on one side of the cavity forcing the stalk to one side e.g. Charles Ross.

**Basin and Eye:** The basin is the depression surrounding the eye at the apex of the fruit. Note its width and depth. Also note any irregularities such as beading, ridges or creases or whether it is smooth walled. This last is unusual and found in relatively few apples such as Charles Ross.

The Eye sits in the basin and is the part of the flower that is retained by the fruit. It consists of five sepals which are somewhat clove-like in appearance. Rarely a few shrivelled brown petals and some stamens are present. The shape and disposition of the sepals is distinctive and may be diagnostic for a variety. They are classified in six different categories (see appendix for illustration). A hand lens is essential for examining the sepals:

Erect convergent - sepals are standing upright with their margins and tips all touching like a tent.

Erect - sepals upright and free-standing.

Connivent - sepals standing upright and touching but with their tips overlapping like a wigwam.

Flat convergent - sepals lying flat with their margins touching.

Divergent - eye wide open with sepals strongly reflexed.

Reflexed – the tips of the sepals are bent outwards away from the eye.

Other sepal characteristics to note are – colour (a few varieties such as Laxton’s Fortune have distinctly green sepals); degree of downiness; whether they are brittle and broken e.g. Newton Wonder and whether the eye is really wide open so that you can see the stamens, Newton Wonder again.

**Aroma:** Finally before you cut the fruit, check the aroma. This is always the aroma of the whole, uncut fruit, preferably at room temperature.

**Internal Characters**

I sometimes feel that internal characters are a bit of a last resort. They can be extremely valuable diagnostic tools but I tend to use them as the final piece of the jigsaw to be deployed if I still haven’t reached a definitive answer. They can be difficult to see as it usually requires very accurate cutting of the apple – you will often get through several apples before you have found all the characters. Even when you have exposed them satisfactorily they can be difficult to categorise and this is exemplified by different authors describing them differently. We are concerned here with three internal structures –the calyx tube and its stamens; the core and its core line and the carpels (cells) and their seeds. It is well worth the time spent to gather a load of windfalls and practise cutting them to find and understand these structures.

**Calyx tube** - examined by cutting the apple vertically between the stalk and the eye. You will see a deep depression just beneath the eye, which lies between the sepals and the core. The calyx tube is usually either a cone or a funnel; rarely it can be urn-shaped. When cutting vertical sections, be aware that cutting even slightly off-centre will turn a funnel into a cone! You need at least 4 sample fruit, which should be fully developed and of good size. Personally I find this character very difficult to use and not that reliable.

**Stamens** - when cut in vertical section the stamens may lie in one of three positions:

Marginal - stamens are in the upper half or at the top outer margin of the calyx cavity where it meets the sepals.

Median - stamens are around the middle of the calyx cavity. This is so frequent as to provide little value as a search criterion.

Basal - very near the base of the calyx cavity.

**Core and core line** – examined by cutting the apple vertically between the stalk and the eye.

The position of the core in the fruit may lie close to the stalk (sessile), in the centre of the fruit (median) or far from the stalk (distant).

There is a core line (sometimes two) in the flesh surrounding the core. Note the colour of the core line which may be distinctive. It’s attachment to the core may vary thus (if there are two core lines it is the inner one which concerns us here):

Basal - when the lines meet and touch at the base of the tube.

Basal clasping - the lines touch either side of the tube at the base but do not meet.

Median – when the lines meet the tube half way up.

Marginal - the lines meet the tube nearest to the eye.

**Carpels (cells) and seeds** – examined by cutting horizontally (initially at least) through the apple.

**Axis** - if the fruit is cut horizontally the cells will generally be found to have a star-shaped axis. This is axile if it is symmetrical and abaxile if it is asymmetrical. In addition the cells may be open or closed.

**Seeds** - may be one of three shapes – acuminate (long and sharply pointed); obtuse (short and blunt) or acute (halfway between the two). The skin colour may vary from light tan to almost black but be aware that this will vary with the degree of ripeness.

**Cells** - if the seed cell is split vertically it will be found to be one of 5 shapes.

Round - roundish in shape and the widest part is central.

Ovate - the widest part of the cell is nearest the base of the apple.

Obovate - the widest part of the cell is nearest the eye.

Elliptical - its widest part central but the cell is elliptical instead of round.

Lanceolate - the cell tapers to a point at each end.

In addition to the above, the cells may be lined with woolly ribboning, referred to as being tufted. I find that cell shape is really difficult to assess and requires really accurate cutting and handling. See illustration for hints.

**Flesh** – note the taste, texture and colour of the flesh. Note that the first two are subjective and can vary within and between seasons.

**Leaf** - the leaf is sometimes a useful diagnostic feature. Note that different authors use different leaves! Ho hum! So, Fruit ID uses fully developed leaves from the middle third of vigorous current season shoots, whereas Rosie Sanders uses leaves from the spurs.

The teeth along the leaf margins may be serrate – with saw-like teeth; bi-serrate – the serrations are themselves serrated; crenate – with rounded convex teeth and bi-crenate – the crenations are themselves crenate. See illustration.

Good luck.

**Identification and description guides.**

**Apples.** *John Bultitude, 1983, Macmillan (out of print) –* **the** essential guide to the identification of apples with keys, colour plates and detailed descriptions.

**The Apple Book.** *Rosy Sanders, 2010, Francis Lincoln Ltd* – a beautiful and very useful identification guide to 100+ commoner varieties of apple.

**The Apples of England.** *H. V. Taylor, 1946 3rd edn., Crosby Lockwood & Son* – excellent guide to the apples that were around pre-war, with colour plates.

**Apples - a field guide*.*** *Michael Clark, 2003, Whittet books* – a useful but not essential guide to a selection of apple varieties.

**Apples of the Welsh Marches.** *Marcher Apple Network, 2008* – useful little booklet covering traditional varieties in Herefordshire, Gloucestershire, Worcester, Shropshire and East Wales.

**Cider Apples: the New Pomona.** *Liz Copas, 2013, Short Run Press Ltd –* a brilliant book with ID keys for virtually all extant varieties including modern ones with colour pictures and loads of other useful info.

**Directory of Apple Cultivars.** *Martin Crawford, 2001, Agroforestry Research Trust* – essential guide to UK apples including cider apples, covering over 3000 cultivars. Includes useful information on rootstocks, soil preferences, when to pick and how long to store etc.

**fruitID.** A great online resource [www.fruitid.com](http://www.fruitid.com) . Multi access keys that will guide you through the ID process and narrow down your search amongst the 220 fully described varieties. This will almost certainly contain your apple but if you sign up you can access many more *in progress* varieties (currently 780!). Tends to have an East of England bias but this is changing gradually. I use this website to narrow down the search and then go to the books for final confirmation.

**The Fruit Manual.** *Robert Hogg, 1923, reprinted by Bibliolife* - one of the great early guides to the identification of all fruit varieties including soft fruit and still a useful guide.

**A handbook of hardy fruits, apples and pears.***Edward A Bunyard, 1920, London (out of print) –* one of the earliest fruit identification guides and still extremely useful.

**The Herefordshire Pomona.** *1878, The Woolhope Club* (available on CD from the Marcher Apple Network) – definitive guide to the traditional apple and pear varieties of Herefordshire.

**Native Apples of Gloucestershire.** Available to download from <http://gloucestershireorchardtrust.org.uk/native_apples_of_gloucestershire.pdf>

A fantastic work of scholarship from the pen of Charles Martell listing 185 varieties including 84 apparently now lost. Colour photographs and detailed descriptions.

**The New Book of Apples.** *Joan Morgan and Alison Richards, 2002, Ebury Press* – an essential directory of over 2000 UK apple varieties, including cider apples, plus excellent essays on the history of apples and orcharding.

**A Somerset Pomona: the cider apples of Somerset.** *Liz Copas, 2004, Grenadier publishing Ltd* – detailed identification guide with photos to cider varieties of the West Country including Herefordshire.

**Welsh Marches Pomona.** *Michael Porter, 2010, Marcher Apple Network* – a beautifully illustrated guide to 30 or so of the rarer apples of the Welsh Marches.

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