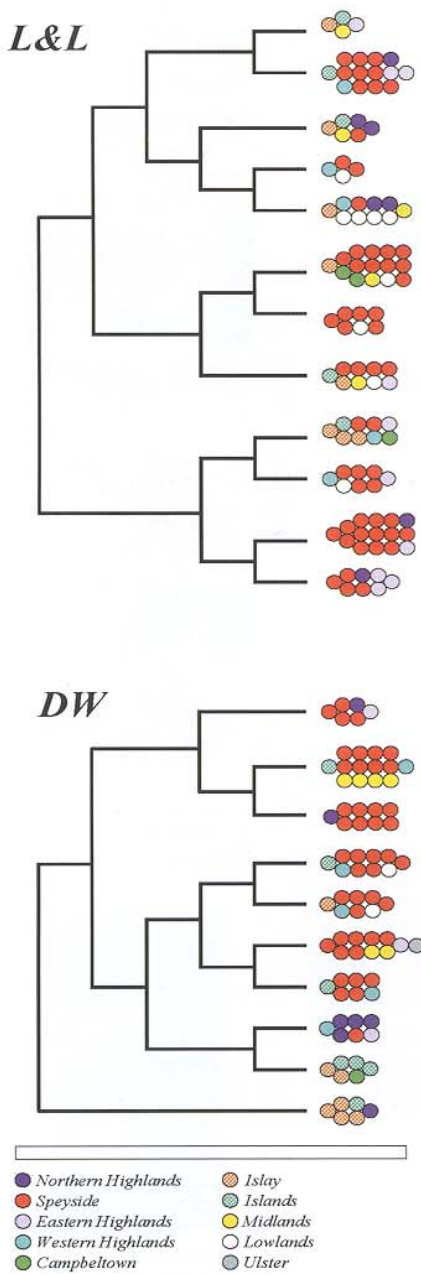


# Exploring the geography of taste

Alex Kraaijeveld examines whether there is a correlation between the taste of whisky and distillery location



**D**id you know that the regional classification of Scottish malt whiskies and distilleries used today (Lowlands, Islay, Campbeltown, Speyside, Northern Highlands and so on) has its origins in 18th century excise laws?

It was The Wash Act of 1784 that drew the 'Highland Line' and divided Scotland in to the Highlands and the Lowlands. Distillers in the Lowlands were taxed a rate of 5d per gallon of wash, whereas Highland distillers had to pay an annual licence of £1 per gallon still capacity. In addition, Highland distillers also had to use locally grown grain and were not allowed to export their whisky across the 'Highland Line' to the Lowlands.

The exact location of the 'Highland Line' has changed a number times (notably in 1785 and 1793) and an intermediate zone within the Highland area existed between 1797 and 1800 before it was incorporated in the Lowland area. However, the most significant change in ruling took place in 1816 with the event of The Small Stills Act which abolished the tax differences between the Highlands and Lowlands.

In the last few decades the geographic division of Scottish single malt whiskies and their distilleries has become more refined with geography often linked to taste variation – this suggests that single malt whiskies have regional taste characteristics similar to wines.

Single malt whiskies are often said to be 'typically Islay', 'typically Speyside' or 'typically Lowland'. Regional generalisations such as these have been criticised for their lack of subtlety when it comes to defining taste and there have been two serious attempts to classify single malt whiskies according to their taste characteristics. Both used a sophisticated

statistical technique known as cluster analysis, a method often used in biological research as an objective means of assessing the similarity of plant or animal species. When applied to whisky it creates clusters or groups: whiskies in one cluster are more similar to each other in taste than they are to whiskies found in other clusters.

The most recent analysis is from David Wishart (*Classification of Single Malt Whiskies*, last updated on April 2000 and published on the internet at [www.clustan.com/WhiskyClassified/classification.html](http://www.clustan.com/WhiskyClassified/classification.html)) and the other, published a few years earlier, is from François-Joseph Lapointe & Pierre Legendre (*A Classification of Pure Malt Scotch Whiskies*, published in 1994 in *Applied Statistics* and also available on the internet at [www.dcs.ed.ac.uk/home/jhb/whisky/lapointe/text.html](http://www.dcs.ed.ac.uk/home/jhb/whisky/lapointe/text.html)). These together form the cornerstone of my research: further referrals to Wishart's work will be written as the DW-classification and Lapointe & Legendre's as the L&L-classification.

Their classifications differ in a number of key areas: the numbers of whiskies included (DW: 84, L&L: 109), in the exact source material (DW has consensus scores from 10 whisky writers for 12 sensory variables whereas L&L includes a highly detailed 68 variables with all the notes from Michael Jackson covering colour, nose, body, palate and finish) and in terms of the statistical techniques. The DW-classification results in 10 clusters and the L&L-classification has 12 principal groups.

It is surprising to see that the two classifications give very different results – it wouldn't be ignorant to expect to see similarities between the two classifications, yet there is very little, if any, overlap between the DW-clusters and the L&L-

groups (whiskies that are grouped together in the L&L-classification do not come together in the DW-classification and vice versa).

The only thing this conclusively shows is that there are many ways of conducting such tests and that the 'correct' way (if that exists at all) to classify whiskies by their taste characteristics isn't as straightforward as it may seem at first.

Taking the two classifications 'as they are', the first question is whether there is any evidence for regional differences in terms of the taste of single malt whiskies and if so, at what scale? Exponents of evolutionary research assess whether certain traits of animal or plant species correlate by taking the results produced by cluster analysis, or similar techniques, and mapping onto a 'tree'.

Applying this idea to the two 'trees' produced by Wishart and Lapointe & Legendre means representing different geographic regions with different colours and replacing each whisky with a circle of the appropriate colour. Here the names of the differing whiskies and distilleries have been omitted so we can examine the overall pattern (see table on page 44).

If there are regional patterns in taste characteristics, it would be usual to see similarly coloured circles appearing together. If there is no evidence for such regional taste characteristics, the colours will appear mixed on the 'trees'. I have conducted this on a smaller scale for the different districts within Speyside (based on Michael Jackson's books) by leaving out all the non-Speyside whiskies from both 'trees' (see table on the right of this page).

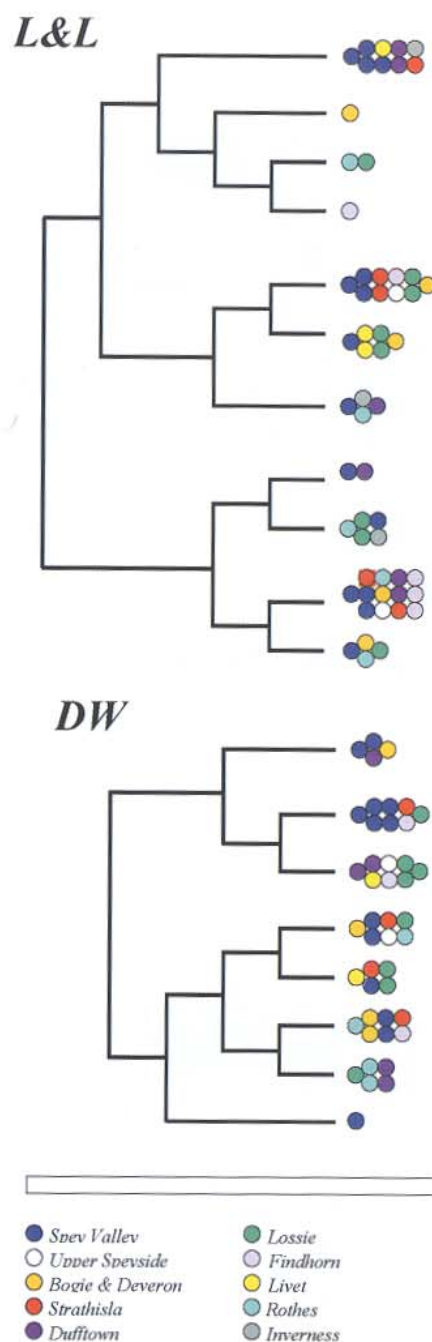
The result is rather clear – neither of the two taste classifications show much evidence for the existence of regional taste characteristics. Yet Lapointe & Legendre's analysis shows that taste characteristics are not completely randomly distributed over

Scotland: their research indicates that there is a weak statistical link between taste characteristics and distillery location. In layman's terms, there is a tendency, albeit weak, for whiskies coming from distilleries that are close together to be more similar in taste than distilleries that are far apart.

The taste of a whisky is determined by a whole range of factors that are influenced by natural and human factors. The water used is an important natural influence, as is the local climate (e.g. temperature, humidity). Human influences range from the level of peating of the malt, the shape and size of the still, the choice of the 'cut' made by the distiller and the casks used for maturation. The main difference between natural and human influences is that the former is much more linked to the actual site of the distillery than the latter. Being located at a certain site, for example, a distillery has its possible water source restricted but the size of the stills it can use have no restriction.

Water, as a natural influence, could be responsible for the weak correlation that Lapointe & Legendre have discovered. Distilleries that are close together are more likely to find their water source originates from similar rocks. It should be noted that rock types do not follow the traditional whisky regions and could be responsible for a more mosaic kind of 'regionality'.

This leads us to asking whether there is any indication of a link between taste characteristics and the type of rocks from which the water of the various distilleries originates. To look at this, I used information from Stephen & Julie Cribb's *Whisky on the Rocks* (published in 1998 by the British Geological Survey) on source rock types for distilleries and 'mapped' those rock types onto the taste classification 'trees' (whiskies from distilleries where the rock type of the water source is not clear have been left blank). Only the results from



## The diagrams: explained

The key to reading such 'trees' is to look for the shortest routes between clusters, following the 'branches' of the 'tree'.

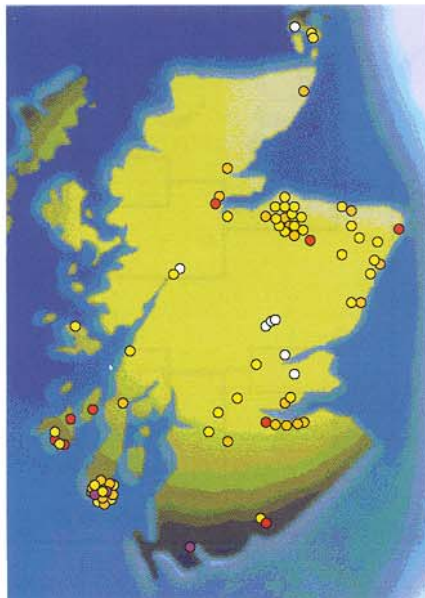
Take the DW-diagram on page 44 as an example: The uppermost cluster has 6 whiskies which the analysis tells us are very similar in taste. They appear to be full-bodied, mostly sherried whiskies. The cluster underneath has 14 whiskies which share nutty,

floral and fruity notes. Follow the line from this cluster and find the shortest route to another cluster: you'll see that this cluster of 14 whiskies is most closely linked (and therefore, most similar in taste) to the cluster of 9 whiskies below it, which are characterised by fruity, floral and spicy notes. Follow the line again from this combined cluster of 23 whiskies and you'll see that they are most similar in taste to the uppermost cluster of 9 whiskies.

Following the lines from each cluster and looking for the shortest route to another cluster tells you which clusters are most similar in taste to each other – the same goes for groups of clusters. The cluster of 6 whiskies on the bottom share being pungent and peaty but, according to the analysis, all the other whiskies in the diagram are more similar in taste to each other than they are to this cluster of 6 peaty whiskies.

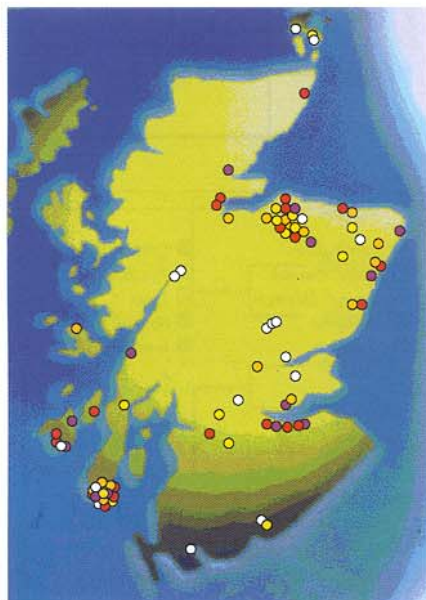
# Whisky classification

## Wash still size

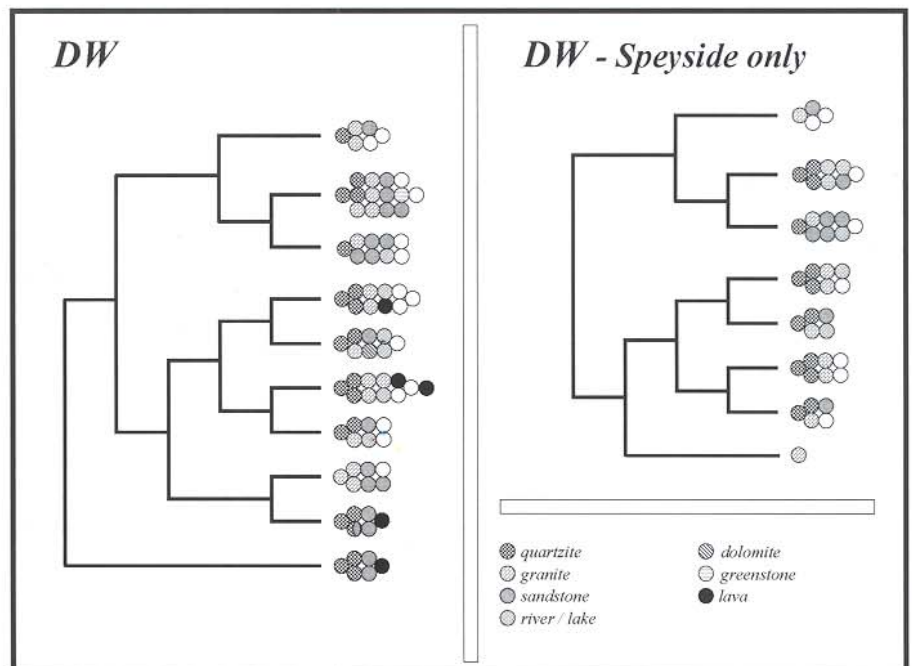


- < 1000 gallons
- 1000-3000 gallons
- 3000-5000 gallons
- 5000-7000 gallons
- 7000+ gallons

## Spirit still size



- < 750 gallons
- 750-1250 gallons
- 1250-1750 gallons
- 1750-2250 gallons
- 2250+ gallons



the DW-classification are shown here (at the two different scales), because, in my opinion, the results from L&L-classification are essentially the same (see above).

On both scales, the rock types are found all across the 'tree' and there is no indication for a link between the rock type found at the water's source and taste characteristics. It is often said that the hardness of the water influences the taste of a whisky. This may very well be true, but it doesn't show up here: hard water is associated with sandstone and 'sandstone whiskies' are evenly spread over the whole of both DW-trees' (this also applies to the L&L-trees').

This indicates that human influences are more important in determining taste characteristics than natural ones. One way in which human influences can still lead to regional taste characteristics is if different regions have traditionally different ways of producing whisky. Could the weak regional signal that Lapointe & Legendre detect be a whisper from the past? Were regional taste differences much more pronounced in previous centuries than they are in the 21st? After all, in the days of smuggling, illicit sma' still Highland whiskies were considered to be vastly superior to whiskies from the Lowland distilleries with their large flat-bottomed stills. Unfortunately, we have no systematic tasting notes from a century ago or so. What we do have is Barnard's invaluable *Whisky Distilleries of the United Kingdom* which gives detailed

descriptions of virtually all whisky distilleries in the British Isles that were operating in the 1890s. The size of the stills will certainly have its influence on the taste of the whisky produced and Barnard gives still contents for the majority of distilleries he visits. Indicated here is the average still size (in gallons) on a map of Scotland, showing wash and spirit stills separately.

There does seem to be something of a pattern – the smallest stills are generally found in central Scotland, the larger wash stills in the Lowlands and the larger spirit stills around Edinburgh and on Speyside. Campbeltown and the Islands show a lot of variation. Still size is only one human aspect, of course, and we have evidence that suggests that there were other regional differences. Several of the Islay distilleries turn out heavily peated whiskies but this was more widespread on the Islands in the past, both Bunnahabhain and Jura used to produce much peatier whiskies than they do now. Campbeltown's whiskies were notorious for their pungency and, if the stories about herring barrels being used for maturation are true, individuality.

Today, marketing (amongst other factors) influences the taste of whiskies strongly. This trend will strengthen: in the not-too-distant future all trace of regional whisky taste characteristics may have disappeared – a massive blow to an industry that thrives on the unique variations that exist between its differing whiskies. ■