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Coffee Roasting De-mystified

By Andy White

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by: **Andy White**

How many different names have you run across for different types of coffee roasts? Light, Medium, Dark? Espresso? Continental? Vienna, French, Italian, Spanish? City? Full-City? C'mon, who's thinking up these things?

Well, the dark secret (pardon the pun) of the coffee industry is that, well, there really isn't full agreement on which roast is which. So basically, we all pretty much get to hunt around, try different coffees from different sources and pick the one(s) we like. In this article, I'll try to use the standard nomenclature, and map it to the color and texture anyone can judge for himself.

The roasting adventure begins with green coffee beans. These are stored at room temperatures, at 12-15% moisture content. Roasting is done at temperatures of up to 450+ degrees F. Duration and temperature determine the roast.

A coffee bean will take on heat until the internal temperature of the bean reaches approximately 212-240 deg F. At this point, the outer layer of the bean(s) will discolor, turning a nice cinnamon color. Here, steam will start being released from the bean.

As the bean heats up further (approx 250-300 degrees F, again depending on the variety), the external membrane of the bean will dry up and start separating from the bean itself. At approximately 350 degrees F, the continuing heating of the bean forces a 'first crack.' This cracking occurs as moisture within is released through the existing seam in the bean. This essentially blows this small crack open, forcing the separation of the remaining bean 'chaff'.

Coffee at this stage is a light brown color; entering the 'light City Roast' stage. City Roast is usually achieved at a slightly higher temperature (above 370 deg F), where the sugars within the bean start melting or 'carmelizing'. This gives the distinctive 'coffee brown' color. City Roasts are usually stopped around 400 deg. or so. At this point, the sugars are not fully carmelized, and flavor of the beans at this

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stage are very much determined by their origin; not by the degree of roast.

The 'Full City Roast' stage occurs at higher temperatures, just as the bean reaches the 'second crack' stage. This stage happens at different temperatures for different beans based on variety. The second crack comes as the temperatures of the bean reach the point where the cellular composition of the bean starts breaking down. To obtain the Full City roast, roasting is stopped just at the point where this second crack starts (approx 425–435 deg F.) At this point the bean is darker brown, but 'dry' looking, as the oils of the bean have not started to emerge through the molecular breakdown of the bean.

Going into the second crack, we reach the 'Vienna', 'Continental', 'French' and/or 'Italian' roast stages. These are sometimes also referred to as "Espresso Roast", although strictly speaking, there's no such thing. Italian espresso blends actually vary – northern blends are typically roasted to the 'Vienna' stage, well into the second crack, where the sugars within the bean are almost fully caramelized and many beans within the roast will appear dark brown with hints of fissures. Espresso blends in southern Italy

are usually roasted into the "French Roast" stage, where almost all of the beans will be about one shade removed from black and oils will start emerging from some beans.

Beyond this point, beans will start releasing oils and their soluble compounds – mainly as a lot of smoke; but the beans will be left quite dark with a very oily sheen. Assuming they have not fully burnt yet, this can be specified as "Italian Roast". I've observed different temperatures (within the roaster) for all of these stages depending on the bean variety – so as my roasts reach the second crack, I tend to trust my eyes and ears more than I trust my probe thermometer.

One interesting note of coffee roasting is that as beans reach into the second crack, they tend to lose any distinctive varietal flavors. Is this a bad thing? Well, for some, perhaps... I for one will mutter a bit if my Ethiopian Yirgacheffe goes past Full City and I lose the distinctive flavor notes; and in my early roasting career I almost cried as a batch of prized Puerto Rican select went unheeded into the Italian Roast realm before I managed to get back to it. But... some varieties do better at the distinctive French Roast stage. *De gustibus non disputandum est* – it just doesn't pay to dispute the results in the cup!

And that is coffee roasting. I have seen a fair amount of advertising of 'slow-roasted' or 'deep-roasted' coffee, which always gets me to wondering. I suppose if you roast a huge amount of beans in a low-temperature environment... why, yes, that would in fact be a slow process! Certainly for a roaster to get beans to a certain roast point and no further, it does pay to be precise and not rapidly incinerate his product. But I can't say I'd want to purposely take any longer than necessary to do so.

As for 'deep' roasting? Hmm. Can't say as I've ever heard of 'shallow' roasting; but whatever it is, 'deep roast' must be the opposite! Seriously, the only 'trick of the trade' that I can think of runs counter to the notion of holding beans at any given temperature... and that is, once a batch reaches the desired point, get it out of the roaster and cool it down FAST! As described above, the quality of a roast depends on those sugars and soluble materials within the bean getting 'cooked' very specifically. Keeping the beans near additional heat (yes, even other beans nearby, releasing their own heat energy) will continue to cook them.

To some extent this is unavoidable, so the experienced roaster will compensate for this by knowing his roasting environment; and ideally provide a cooling location where beans can cool as rapidly as possible by the flow of cool (i.e., room temperature) air over the freshly-roasted beans. This allows them to 'coast' into their final characteristic color and taste.

Andy White is the proprietor and roast-master for Coudy Coffee. For more coffee and espresso information and resources, visit

The Art Of Coffee Roasting

By Catherine Olivia

Could there be anything better than a hot, fresh brewed cup of coffee? As you open that can of pre-ground Maxwell House Coffee, did you even know that coffee comes in different roasts? Did you know that you can roast your own coffee beans at home? If you think that the aroma of your fresh ground coffee beans can't be beat, get a home coffee roaster, you'll be in Java Heaven.

Roasting the coffee beans is what imparts flavor. Similar to the making of a fine wine or a hand rolled cigar, some consider the roasting of coffee beans as an art. Those that describe coffee use some of the same vocabulary they use to describe wine. Depending on the roast level chosen the beans take on different flavor characteristics. The lighter the coffee bean the less flavor it will have, the darker the coffee bean the stronger the flavor it will have.

There are generally four different categories of roast. A light roast (American) , a medium roast (Breakfast), a dark roast (French), and darkest roast (Italian or espresso). Each type of roast imparts a different appearance to the coffee beans.

When a coffee bean is roasted to an American roast the beans will have a very light color to them and they will appear dry. A medium roasted bean, or Breakfast roast will have a rich brown color and will be oily in appearance. A French roasted coffee bean will have a very oily appearance with the beans appearing very dark brown. The darkest roasted beans or Espresso beans will appear black.

Coffee roasting can easily be done in your home. Depending on the roast that you desire you can roast coffee in five to fifteen minutes. Green beans are available online from a number of sellers, as are coffee roasters. Choose different types of green coffees to sample. Drum roasters are very popular for use in the home. It's best to consider purchasing a roaster as it will give you the most consistent finish to your beans. Some try to roast beans in frying pans, some use hot air popcorn poppers. While each of these techniques will work, as mentioned above they don't give a consistent finish to all the beans and you will most likely be disappointed in the result.

Enjoy!

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