

Malt Maniacs E-pistle #2010-01 **By Nabil Mailloux, Canada**

This article is brought to you by 'Malt Maniacs'; an international collective of more than two dozen fiercely independent malt whisky aficionados. Since 1997 we have been enjoying and discussing the pleasures of single malt whisky with like-minded whisky lovers from all over the world. In 2010 our community had members from 15 countries; The United Kingdom, Sweden, Germany, Holland, Belgium, France, Switzerland, Italy, Greece, The U.S.A., Canada, India, Taiwan, Australia and South Africa. You can find more details on: www.maltmaniacs.org.



Peak Whisky **The Crude Truth**

*"Come and listen to a about a man named Jed
A poor mountaineer, barely kept his family fed,
Then one day he was shootin' at some food,
And up through the ground came a bubblin' crude.*

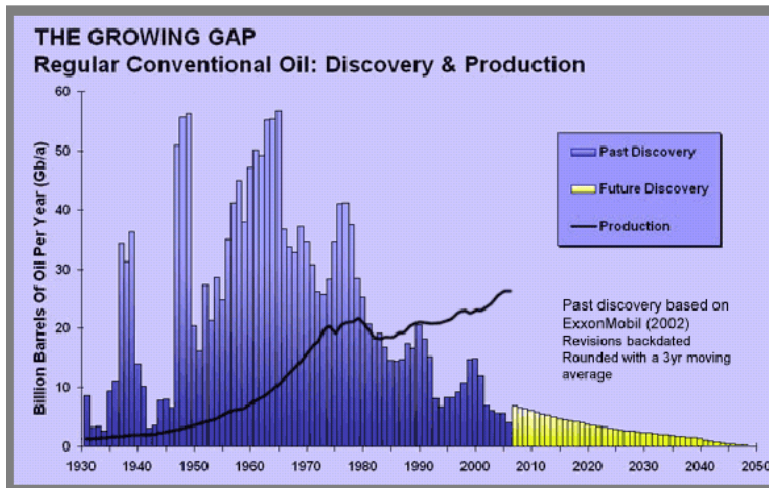
Oil that is, black gold, Texas tea..."
Lyrics, *The Beverly Hillbillies*.

As a young boy, born in 1970, this is how much of my generation grew up relating to oil. It was aplenty, synonymous with wealth, and if you were lucky enough to have it, you wouldn't want for anything. In our little corner of the world, in southwestern Ontario, we actually lay claim to the oldest commercial oil well (though not the most plentiful or profitable) near Sarnia, Ontario. I often remember sitting around my grandfather's table listening to him jealously talking with my father about how a neighbour, two concessions away had struck it rich.



Ironically, the year 1970 also marks the year that M. King. Hubbert, a geologist of thirty years from Shell Research Labs, correctly predicted that oil production in the United States would peak, never to rise again. What should concern us as lovers of malt is that oil is whisky production's biggest energy input. What is more shocking is that many petro-geologists have used improved Hubbert models to correctly predict that North Sea production's would peak in 2004 and also concluded that the *global peak* in oil production is happening as we speak.

The followers of this theory are legion in their numbers and have been growing at a rapid pace since Jean Lahérière and Colin Campbell (both veterans of the oil industry) published their famous paper, *The End of Cheap Oil*, in Scientific American in 1998. Since then, Dr. Kjell Aleklett, geology professor at the University of Uppsala, Sweden has assumed the chairmanship of what can only be described as a 'maniacal' group of their own: The Association for the Study of Peak Oil & Gas ([ASPO](http://www.aspo.org)). Dr. Aleklett is so convinced of the data that he has even taken on a personal bet with the CEO of British Petroleum for the value of a single barrel of oil and another \$100 000 USD with Cambridge Energy Research Associates, on the assertion that total global production in 2018 will be lower than today's production...much lower. Now that's maniacal! Just this week, Sir Richard Branson himself warned that within 5 years, oil prices may rival the credit crisis in notoriety.



Does this mean that we are going to run out of oil? NO. What it does mean is that all of the easy, cheaply produced oil will have already been produced. Back in 1982, M. King Hubbert estimated the global reservoir of oil at 2 trillion barrels. The US consumes roughly 21 million barrels EACH DAY. According to Kenneth Deffeyes, Princeton geology professor, we have already burned through exactly half of that supply. To

exacerbate matters, the number and volume of newly discovered oil deposits continues to decline at an exponential rate. That is to say that we are not discovering enough new oil to supply our future economic growth. Economist Jeff Rubin, former chief economist for the CIBC World Markets asserts that it was a doubling of the price of oil that sparked the credit crisis of 2008 and that by 2012, we may have to get used to \$200/barrel oil. This would roughly double our current energy expenditures and is not much of a stretch since we have already seen \$145/barrel only 2 years ago.

The black gold of yesteryear plays a much bigger role in our lives than many of us realize. Approximately 66% of crude oil is consumed in energy related activities, be it transportation or electricity generation. The remaining 33% is used as lubricants or feedstock for all manner of plastic and pharmaceutical products. Every piece of plastic in your automobile, right down to the volume knob on your radio can trace its ancestry to an oil well somewhere in the world. Even my wife's stockings or my new polyester blend sweater is made with the 65 million year old detritus from the Jurassic period.

So what about whisky? Whether you are growing barley, harvesting, distilling, bottling, or distributing, crude oil is a crucial source of energy for the whisky industry. Much of the world's food production relies on the breakthroughs of post WW II chemistry that revolutionized the production of chemical fertilizers, produced...you guessed it...from crude oil. It is this fertilizer that is used to grow a number of cereal cash crops, including distiller's barley. It is also the only fuel source in use today by mechanical harvesters and plows on most western farms. Fossil fuel consumption per acre on an average farm producing barley is estimated to sit at 0.3 L per liter of alcohol produced at the distillery.

"Oil is the single biggest energy input in the transformation of barley into alcohol", says Mark Reynier. In 2005 one liter was being consumed for every liter of spirit produced at Bruichladdich. This was one of the reasons behind the installation of a new energy efficient boiler at the distillery which reduced this amount by 20%. More recently Reynier's team has also announced the installation of an anaerobic digester to convert waste water into methane which will be used as a combustible fuel supplying 80% of their electrical needs.



Reynier is however skeptical about the projected timing of peak oil. *"I believe there are some overly alarmist claims about when 'peak oil' will be reached and I believe it will be much further away than some think - especially as new fuels are adopted precisely to reduce demand on oil."* Nonetheless, Bruichladdich is open to alternative fuel sources, but they will have to make financial sense.

Apparently, what is good for small distillers is also attractive to gargantuan distilleries like Diageo's Roseisle Distillery. Mike Jappy, Diageo's project manager, was recently quoted in Building Sustainable Design as saying: *"Combining the energy the biomass can offer and the recovery of waste hot water, we will offset our fossil fuel demand by about 85%."* Approximately 50% of the power for the distillery – about 120,000kWh a day – will be generated from biomass, and an additional 35% from heat recovery. Jappy goes on to say: *"We have some other ideas, such as process optimisation, but we believe we can nudge this distillery to almost fossil fuel neutral in the near future."*

All of this is of course without considering the impact on transportation and distribution of the final product following maturation in the warehouses. Much of the product is shipped by container ship to destinations spanning the entire globe. These huge transoceanic transports are fuelled by the same stuff that go into a distillery's boiler. A quick calculation shows that one liter of alcohol requires approximately a tenth of a liter of oil to be shipped from Los Angeles to Shanghai; and the cost of the fuel for container ships has tripled in just the last few years. In an era where fuel doubles or triples again, how much will it cost to ship from Scotland to Shanghai or the US? Will global markets even be viable for the Scotch whisky industry at all?



Do we need to start worrying about Peak Whisky? The answer is yes and no. Undoubtedly, crude oil will peak, followed by natural gas. We are now facing not just peak oil, but peak energy and this will have an impact on the whisky business. If it is to be marketed internationally, prices will probably go up. Will whisky be further pushed out of the reach of the middle class? Will the soaring costs of energy force distilleries to prioritize energy conservation? Will the Coffey or Patent Still come back into fashion? Will the Scotch Whisky Association be forced to reconsider allowing the use of column stills to produce single malt whisky? Who knows? The question is really when will we begin preparations for a world with less abundant, more expensive, energy? If we can adapt fast enough, we may be able to preserve more of our current standard of living.

Are there alternatives? There are always alternatives, but are they palatable? At the distillation level, solar power is used exclusively to heat the steam required to fry Frito Lay's Sunchips; theoretically, this same approach could be taken to firing the stills or drying the barley. Old King Coal's recrudescence is also a possibility, but pollution mitigating technology would be a must. Natural gas is already in decline in North America and will present the same problems as crude oil. Building nuclear power plants is still a viable option, though it remains to be seen if it can ever be done profitably. Wind-turbines will also play a role replacing lost

capacity from oil and gas, but will not be a silver bullet solution. Perhaps we might also bear in mind that the Scots used alternative fuels such as *coal* and *peat* before liquid petroleum had even been discovered!

Nonetheless, it takes time to build an infrastructure that is adapted to a world of expensive energy. Unless we start planning now, the global economy as we know it may shrink somewhat, as Mr. Rubin has suggested in his book *Why Your World is About to Get a Lot Smaller*. Considering that in total it requires over a liter of crude oil to produce one liter of your favourite malt, it might be a good idea to enjoy a dram of that modestly priced \$164 bottle of Uigedail!



Nabil Mailloux hails from Kingston, Ontario, Canada, a town that likes to celebrate *almost* becoming our nation's capital. He is originally from southwestern Ontario, a town that is also known as South Detroit (Windsor), the automotive manufacturing capital of Canada. He holds a Master's degree in organic chemistry from Queen's University, Canada. While in the Quiet Pub at Queen's University, he was introduced to the world of single malt whisky by his good friend John Morgan. That very same Morgan also convinced him to buy a hogshead of whisky with him, thus forever changing his life. As a result, he has become obsessed with nosing, tasting and evaluating whisky. He eagerly awaits 2014, the bottling date for his cask. He also wonders what he's going to do with his share of the whisky...