

TO NARROW A GENE POOL IS DANGEROUS!

*The underlined term **Vavilov Centre** is a link on the original story at www.DNAalert.net*

What we should understand about gene pools. Sadly, some scientists are quite indifferent to the serious consequences that can result when a gene pool has been stripped of its integrity.

Gene pool is a term often bandied about, but few people have any idea of the dangerous implications of a **narrowly based gene pool**, which is what remains of the original **broadly based** one when we treat it as just another throwaway of the consumer society.

Businesses must proceed in the pursuit of profit, if not, business as we know it cannot survive. Profit to a politician and an economist means economic growth, however in short, to a politician economic growth means votes and to an economist it means that at least it looks like, he knows what's going on. Nevertheless, business only survives because of the laws of nature and its laws are simple to learn.

For nature to help us survive we must understand the nature of gene pools and what happens when we abuse them. So, concentrate, hang onto your seat and you'll be there in a jiffy.

Firstly, there are two words that are very useful when considering gene pools and these two words are **Phenotype** and **Genotype**, these terms are simple to understand but very important. **Phenotype** means what an individual looks like. The word phenotype is from a Greek word φαίνεται pronounced 'phéhnehteh' it means 'it looks like'; the accent is on the first syllable. **Genotype** means the limited genes that are carried in an individual to make it like it is; its colour, its smell, its taste or its shape (morpheme); morpheme comes from a Greek word for shape μορφή, pronounced morphí; with the accent on the last syllable.

An easy way to explain these three terms: **gene pool**, **genotype** and **phenotype**; is by way of the Irish Potato Famine. Potatoes originated along part of the Andes mountain range on the western side of South America; here is to be found the great gene pool of potatoes a **Vavilov Centre**.

In the early heady days of navigation and exploration from Europe into the New World where potatoes were discovered, potatoes were seen as a wonderful resource for the gardens of Europe. Of course in those days the meaning of a 'broadly based gene pool' meant nothing; although with a little thought most everyone of those early navigators would have known immediately what the concept meant. Meaning, that brothers and sisters do not interbreed for too long, if they do their progeny will suffer some very serious consequences; because they would belong to a '**narrowly based gene pool**'.

It appears that the first potatoes taken to Europe originated from a few gardens. In each of those small gardens however, there would have been great resilience against pest and disease. Those original primitive cultivars are called Landrace varieties; they are genetically very close to their wild relatives.

So if a disease happened into one of those ancient potato gardens, all the gardener had to do was go see a neighbour where potatoes were genetically a little different and natural resistance was sure to be found. In the world's history of agriculture, monoculture (huge acreage of one type of crop) did not exist. Monoculture is a dangerous new trick, economically driven, that leaves the world very vulnerable and more reliant on chemicals that are now rapidly poisoning our planet. Monoculture is a huge banquet for pests and diseases; that is just basic biology.

It appears that originally three varieties of potato were taken to Ireland, but by 1810 a potato called the Lumper potato had arrived and that potato grew well in poor soils and so it spread rapidly. In those days the English were stealing much of the food from the Irish, so the Irish were very hungry people, however after the potato arrived and got well established it was relied upon by a great percentage of the population of Ireland as a staple.

Potatoes have some protein as well as carbohydrate and the Irish took to the potato so well that many people believe that potatoes originated in Ireland. For many years countless Irish families filled their tummies with potatoes though not much else but the population started to grow and nobody foresaw the looming disaster of the consequences of a narrowly based gene pool.

Sure, the potatoes in Europe belonged to that great gene pool in present day Peru, though that gene pool was cut off by the Atlantic Ocean and then by the Andes mountains further to the west and so there was no 'gene flow' with the **Vavilov Centre** in South America; the home of the potato.

Now let's suppose that in those days in Europe there was much plant breeding and the plant breeders of Europe were developing many new varieties of potato. However, let's also suppose that there had been a disaster in South America and the whole west coast of that continent had suffered a massive earthquake and the Andes had slid into the Pacific Ocean; and so let's suppose for this story that the Vavilov Centre for potatoes had been lost forever.

Let's pretend also, to illustrate this point, that the only potato in Europe that they had to work with was the Lumper potato. So the plant breeders of Europe could only work from a very narrowly based gene pool; a few small genotypes. The plant breeders were rather clever and they produced potatoes of many colours, shapes and even potatoes of a few different flavours and textures; but those potatoes were still all brothers and sisters. Each potato was of a very narrow 'genotype' though each 'phenotype' of potato that was bred may have looked quite different from the next.

So now let's get back to reality. A genotype can dictate resistance to a certain disease, but it can also dictate vulnerability to disease, and that is precisely what happened in the Irish Potato Famine. It would not have mattered how many types of potatoes the plant breeders had bred from the narrow gene pool. Regardless of what the resulting offspring look like (phenotype), if the gene pool starts off narrow it will remain narrow until it receives an infusion of new genes; that is basic biology (nature).

In the 1840s a new variety of potato was introduced into Europe that carried a disease called blight. In South America, the blight would not have been much of a problem, because that is the land of potatoes; so for every disease there is also to be found resistance to that disease. It would not have mattered how many varieties (phenotypes) of potatoes the breeders of Europe had bred, the **genotype** would still have told the potatoes of that narrow gene pool, "**Blight will kill you**".

And so it was, that in the eighteen forties when the blight hit the potatoes in Ireland, within two weeks every potato turned to mush and around a million people died of starvation; and the rest is history; that is how **The Irish Potato Famine** came about. It does not matter how many genotypes or phenotypes you can come up with, you cannot broaden your gene pool, but you can narrow it.

The Vavilov Centre for corn (maize) in Mexico that extends south through Peru has already been contaminated with Monsanto's genetically engineered DNA, carried in pollen. The people at Monsanto that contaminated the Vavilov Centre of Mexico knew precisely what they were doing. The people responsible for such outrages are some of the most dangerous and irresponsible people on our planet. Those responsible for irreparably damaging the genetic bridges that must be protected by us and passed on intact to our children for their survival must be brought to account.

You cannot put seeds into a Seed Bank (glorified refrigerator) and suggest that all will be well on planet earth. Seed Banks are for convenience and some security but refrigerators have nothing to do with how nature works; "**nature can survive without us but we cannot survive without nature**". That last short quote about nature and us came from an Australian aborigine.

Genetically engineered crops and monoculture threaten the future food security of our planet and that is a biological fact. Many Genetic Engineers seem to have gone into denial about genetically engineered food. One day there may be wonders from genetic engineering, perhaps we may even be able to grow a new tooth, but today is not that day – for crops, genetic engineering is still too dangerous.

Each time a crop is contaminated and damaged with **genetically engineered DNA** another genetic bridge is burned forever. Do you think it is very responsible to contaminate forever the only gene pools that are available for the survival of our children?

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