

# Commencement Speech to NCNM Class of 2012

*By Paul Stamets, June 30<sup>th</sup>, 2012*

Greetings Class of 2012!!!

Congratulations, you made it! Today your achievement puts you at your next crossroad in life. But let's think about how you got here. Not only are you successful in your academic achievements, but also you represent successes over thousands of lifetimes. That you are here today is a miracle of happenstances – a consequence of many steps on the evolutionary path of life. Should one ancestor have taken a different path, not had the coincidence of meeting one of your ancestral grandparents, perhaps a missed glance, a missed smile, a lover's kiss not given, not extending a hand in a time of need, not forgiving, or not having survived a life threatening illness... your ancestors would have gone down a different path and you would not be here today. Think about it. Truly, the little things in life can make big differences for generations into the future.

We are all blessed today with this gift of life. This is a rare opportunity. This is our opportunity. These are the Best of Times, and –the most critical of Times. Today, our ecosystems are threatened. We are fully engaged in 6x – the 6<sup>th</sup> greatest extinction event yet known since life began on this planet. But this extinction event is different – rather than caused by an asteroid or some physical phenomenon, it is caused by an organism – US. Not only are we the cause of this extinction event, but also we are likely to be its victim. Dr. E. O. Wilson theorizes that we may lose 50% of the known species in the next 100 years. In some taxonomic groups, we may be losing species faster than we can discover them. Like losing rivets on an airplane, how many species will be lost before ecologies unravel? What does this mean? We are entering into uncharted territories, the consequences of which science struggles to enumerate, but intuitively we know to be of great significance.

What we know today is that all organisms are inter-related, and the cross permutations of influence exceeds our ability to define ... but not to imagine. As these molecular bridges are cut off, what are their downstream effects? The United Nations reported this week that the biosphere is being pressed towards its biophysical limits. As great as our scientific achievements are today, we are still Neanderthals when it comes to understanding the depth of synergisms between organisms essential to life. Can we realize our connections to nature and support natural systems before ecological and economic collapse? The greatest threat to worldwide security is the loss of habitat health – the loss of clean water, healthy food, and forest ecosystems. No amount of conventional medicine can offset the deluge of illnesses whose root cause emanates from continually degrading polluted environments. The failure of our modern economic models is to undervalue the ecological services of healthy ecosystems. Ultimately, we are setting the path that our descendants to follow.

Naturopathic medicine is rooted in ecological health. Whether the ecologies are within or upon our bodies or in the environment that hosts us, the interconnectedness of these genomes is one of the greatest realizations of modern science today.

Hippocrates, the father of modern medicine, wrote in 450 BC that the premise of medicine is to Do No Harm. Doctors in Hippocrates time would be called shamans today. Shamans and doctors hold in common that imbalances in health - diseases – can be caused by the unseen. Shamans may call them spirits; doctors today may identify these spirits as being microbes. Regardless, these imbalances in the spiritual-microbial universe disrupt the equilibrium of health.

This past week, the microbiomes of the human body have been charted – and we know now that we are composed of more than 10 trillion bacteria cells who dance synergistically with the approximately 1 trillion cells that are human.

Without our microbes, we are not 'we'.

Indeed, the mosaics of ecologies extend beyond our physical bodies. We are reflections of the environments from which we sprang and which sustain us today.

I am a mycologist – a specialist in fungi – mushrooms – that can both heal the environment and bolster human health. From an evolutionary viewpoint, fungi can protect us in many ways. Interesting to me is that the same bacterial pathogens that attack us are shared in common with attacking mushrooms– E. coli, MRSA, Strep bacteria – and today new antibiotics are being discovered from mushrooms to fight pathogenic bacteria.

Since we are more related to fungi than to any other kingdom, having split from our fungal proto-ancestors 650,000,000 years ago, we have had a long time to choose the bacterial allies that help us stay healthy today. We exist as a fungal-bacterial-human hybrid.

Today, more than a billion dollars must be spent before the FDA will approve a new drug. So adverse is the FDA to controversy, that it is a well-known fact that to preserve your tenure at the FDA (and for that matter at many government agencies), it is better to deny approval than to grant approval of a new drug. I know no better example than that of Dr. Nestor. Dr. Nestor sat on a FDA approval committee for more than 30 years, and yet never voted to approve a new drug. His denial was a centerpiece of his constitution that carried over into his non-FDA life.

The beltway around Washington DC was engineered for capacity years ago. Mystifying the engineers was near-grid lock at 8 am and 5 pm. After careful analysis, they determined one slow driver likely caused that gridlock. After publishing this conclusion – who wrote in to the local newspaper? None other than Dr. Nestor, who insisted on driving exactly at the speed limit in the passing lane refusing

to move over to the right to let others pass. If others wished to break the law, he reasoned, then they must pass him on the right – he was not going to move over no matter how much traffic he impeded. A new verb emerged – now in Wikipedia – called “Nestoring” – speaking to the unreasonable behavior and his strict adherence to dogma. This attitude epitomizes an attitude lacking flexibility, stifling creativity, adversity to challenging convention, preventing innovation and limiting adaption to ever changing circumstances.

Given the hurdles of approving new drugs, preventive medicine is now being prioritized by health professionals. Far easier is it to prevent illness, than to try to cure after the fact.

This is the unique middle ground where naturopathic medicine and practices become so essential. Naturopathic medicine relies on nature’s Biodiversity. Naturopathic medicine ensures we will have access to the best libraries resident in nature, screened by thousands of generations of our ancestors before us. The high tech laboratories of today are limited in their screening of natural products by diversity in nature. Thus, intact ecosystems are essential for improving medicine, maintaining health, and keeping diseases at bay. The majority of anticancer drugs today originate from nature.

Fungi are unique in their network like web of cells called mycelium – the cobwebby fabric that infuses all landscapes. This network-based design allows fungi to rapidly adapt to change, accelerating epigenesis, recycling nutrients and detoxifying life-limiting threats to biodiversity, ultimately creating the soils that give life.

We will be de-molecurized by fungi and our bodies will be re-absorbed back into the web of life. We all become soil upon which our descendants will walk. Get used to it – this is our common destiny.

Although mushrooms have been used for thousands of years, they have been poorly understood and even feared. This fear – called mycophobia – is, I think, an innate response. Most mushrooms, when they appear, are in your viewscape for just a few days. That some of these mushrooms can feed you, kill you, heal you or send you off on a spiritual journey, but then in a few days, suddenly disappear for years, makes them more difficult to study. In contrast, with plants and animals, they are within your viewscape for months or years. So, naturally, we know much more about plants and animals than mushrooms. We are now re-discovering what our ancestors long ago knew ~ mushrooms are deep reservoirs of powerful medicines.

Medicinal mushrooms share these attributes: they promote an immune response without damaging inflammation. They contain powerful antioxidants. They are antiviral. They contain compounds that prevent the spread of pathogenic bacteria. They promote apoptosis – programmed cell death of cancer cells. Many mushrooms restrict angiogenesis – the proliferation of blood vessels feeding tumors. They sequester and nullify the toxicity of heavy metals. They are nutritionally dense. And, by

the way, they can be delicious! What drugs do all that? NONE! Mushrooms are not drugs –they represent the best of naturopathic medicines: these are functional, medicinal foods.

Our team was funded by a \$ 2.2 million dollar breast cancer clinical study by NIH to test whether or not Turkey Tail mushrooms could augment conventional therapies in the treatment of breast cancer. We grew up the Turkey Tail mycelium, which was used in this study. The study has just been published in an international oncology journal showing a dose dependent, increase in immune function by ingesting Turkey Tail mycelium. This is an example of how naturopathic medicine and conventional medicines can work synergistically.

Naturopathic medicine with mushrooms became deeply personal to me, when, in June 2009, my 84-year old mother, who is a deeply religious woman, called me and in a shaking voice said. 'Paul, I have something important to talk to you about but you are always so busy....' I asked her what was wrong. She said my right breast is 5 times the size of my left. I have 6 angry lymph nodes on my right side. I asked her why she did not tell me sooner and she replied that a person in her religious circle looked at her blood under a dark field microscope and declared that she did not have cancer.... I spent much of June that year taking my mother to cancer clinics in Seattle. At Swedish Breast Cancer clinic, the lady oncologist stated that my mother had the second worst case of breast cancer that she had seen in twenty years of practice. She should have been treated two years earlier.

She was too old to have a mastectomy or radiation therapy, as her weakened immune system would likely not be able to stave off infection after treatment.

My mother was put on taxol temporarily and then a wonderful drug called herceptin. Upon our second visit, the news got worse – the cancer had spread into her liver and sternum, crossing the meridian, meaning that she had advanced Stage 4 cancer. How long, we asked? The doctor said she might have 3 months, optimistically. We had the circle family meeting – many of you have gone through this. My mother bought a pine casket, the cheapest one she could find, because she was going to heaven.

Upon one of our visits the oncologist suggested that we look into taking Turkey Tail mushrooms as these may help her immune system, and that the NIH had funded a study specifically using Turkey Tails to help breast cancer patients. That is when my Mom said – My son is supplying those! Perhaps she had to hear this from a doctor. She began taking 8 capsules per day of Turkey Tails. .... I am happy to say that today, 3 years later, my mother has no detectable tumors and is healthy and happy. There is no greater honor in life that I know than for a child to help a parent survive such adversity.

I hope each of you graduates have an opportunity to help save lives –whether they be loved ones or your patients. You can help save smiles. You can perpetuate love. You can strengthen life. You can steer generations.

Many medicinal mushrooms thrive at the interfaces of environments – the leading edges of change. You, today, are the leading edge...and you will leave trails for others to follow. Lean forward and take the next steps. You may not know where these paths will lead, but trust your instincts. If you falter, do not fear failure. I have failed many times. I see value in failure – each failure is the price of tuition that I have paid to learn a new lesson. That you have failed and yet succeeded means you have tried. The effort makes the goal more worthy and more deeply defines it.

We continue on this path towards an Ecology of Consciousness. We are at the gateway of a whole new frontier in integrative medicine. You are becoming part of the Body Intellect of generational knowledge.

I want to end with two proverbs I have heard recently.

One Native American wisely stated that *“We do not inherit our environment – we borrow it from our descendants.”*

An African proverb states *“If you want to travel fast, travel alone. If you want to travel far, travel together.”*

Travel together knowing that your ancestors and descendants are with you. We, your elders, pass the torches of knowledge to you, given to us by our elders. May your curiosity be fueled with each scientific discovery..... Remembering that nature is wellspring of knowledge and ultimately we are its students.

I am honored to be traveling with you on this path. To our future, with deep respect to our ancestors, and with acknowledgement to our descendants, we lean forward and walk together.

Hold your heads high, Class of 2012, the future and the planet depends upon you!

Thank you!

*Paul Stamets*