Magical Mushrooms, Mischievous Molds

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We live in a world full of mysteries. Such unexplained stories remain so unless we succumb to our primal feeling of curiosity. Curiosity is, therefore, without a doubt, the antecedent of civilization and every aspect it entails, including all the disciplines of science. It starts out with a simple “what if” followed by experimentations, and voila! A solution is attained, and a mystery is debunked. It is these mysteries, such as the famous instances of bewitching during the pioneer era, among other things, that George Hudler expounds in his book Magical Mushrooms, Mischievous Molds.

The Meaning Behind Hudler’s Ironic Title

The title of the book is enticing as it seems that the author has no stance on whether he supports the fungi as a source of bewilderment by terming mushrooms as magical and then again calling them mischievous moulds, something that any housewife would like to exterminate at any time given the title. Whereas the author is not clear to the audience based on the title of the book, his intentions become clear once you get to reading the book as he covers all the aspects of the mushrooms, which includes all the positive sides such as nature disposal, a source of food and most of all, as a source of medicine.

Fungi as Decomposers and Agents of Disease

With humour and enthusiasm, the author’s first order of business is to give detailed information about fungi as a source of disease for foods and among the major culprits of tree disease in most forests. Just like any organism on the planet, fungi need to consume energy to survive (Hudler, 7), and the energy sources are mostly dead animal and plant matter, but sometimes, even living organisms can be the unwitting victims of nature’s recyclers.

Poisonous Mushrooms and Mycotoxins

Of all the mushrooms out there, only a selected few are good for human consumption. There are as many as 14 discrete types of poisonous mushrooms worldwide (Hudler, 34). However, this evidence is inconclusive as not all the fungal species are consumed. To better understand these, we first delve into how the poisoning works. Under perfect conditions of humidity and temperature, fungal spores are released into the air. When the spore reaches the organic matter, it consumes it and releases

mycotoxins, which function both as a deterrent to bacteria and other fungal species, only favouring its own and facilitating the death and decomposition of the organic matter.

How Fungal Toxins Affect the Human Body

Due to their precise nature, we inhale the spores, but this is never serious unless inhaled in large quantities. The only immediate danger usually arises from accidental ingestion of the spores. The mycotoxins work by inhibiting protein synthesis in cells and making our systems more susceptible to bacterial infection to facilitate our demise (Hudler, 42). However, not all the mycotoxins work in the same way, depending on the mushroom species, with effects ranging from mild food poisoning to death.

Indoor Mold and Respiratory Risk

Indoor moulds are another culprit of poisoning, especially in old buildings. The poisonous substances get into our systems through inhalation and cause a major allergic reaction in the body that can lead to death. Such species as the Stachybotrys can cause pulmonary haemorrhage if inhaled in large quantities, which may enable other respiratory pathogens to attack the host's body. However, research by the CDC did not give a conclusive report, which suggests that the lung disease might not have been caused by the fungi. Rather, it only provided the ideal conditions for the germs causing the diseases to develop. It is, therefore, necessary to note that the health effects caused by inhaled fungi are relative to the duration of exposure and the concentration of fungi.

Ingestion, Ritual Use, and Conclusive Harm

In general, fungi can cause more damage to humans, both directly and indirectly. Of all the possible ways that mycotoxin can get into our systems and cause adverse health effects, the only dangerous one is through ingestion. It is only this that gives conclusive evidence. It is for this reason that they have been used for centuries in death rituals across the globe, especially by the Aztecs and the Mayans.

From Toxic Compounds to Medicine

Perhaps the reason for the ironic title by the author is that the fungi might kill while they might also give life. The toxic compounds that fungi secrete might be used as medicine and are administered in the right way. Over the centuries, fungi have been used by cultures all over the world to cure diseases that would otherwise exterminate a whole society. While this discovery might have been purely accidental, modern medicine is not. Some types of fungi have been genetically engineered to produce metabolites that act as antibacterial and are used in anti-cancer drugs, just to mention a few.

Penicillin and the Medical Revolution

The first introduction of fungi in modern medicine is penicillin as an antibacterial. Discovered by Alexander Fleming in the 1920s, the drug revolutionized modern medicine and changed our view of fungi. However, the drug still contained the adverse effects of the toxins produced by the fungi, such as diarrhoea, seizures and skin rashes if administered wrongly. This did put medical advancement in the field of fungal medicine to a standstill as the drug also put the syphilis pandemic to a stop.

Antifungals and Antiprotozoal Treatments

More research into the medicinal aspects of fungi has led to the discovery of antifungals that cure mild fungal diseases such as athlete's foot and ringworm and antiprotozoals used in the treatment of trypanosomiasis or sleeping sickness. These are the best examples of how fungi have been manipulated in the field of medicine to become a saviour while they could have been shunned and exterminated on sight, as seen from the eyes of the author.

The Irish Potato Famine and an Evolving Pathogen

The case of the Irish potato famine is another disaster in history that the author covers in depth. He tells of its resurgence in 1984 in which he states that the second strain of P. infests was discovered (Hudler, 75). This new strain cannot be outdone by our modern efforts, which leads us to believe that the author is not only amazed by its evolution but also supports the idea that he praises the fungi's ability to transform. The Irish potato famine was a tragedy that almost wiped out the population of Northern Ireland by a quarter in the mid-19th century, which also prompted the Irish emigration to the New World.

Poverty, Dependence, and Starvation

The factors surrounding the tragedy include poverty, culture, and starvation. The potato was a staple in Ireland due to its availability in all households. This, together with the laws on such crops as corn, meant that potato was the only available source of food, meaning that most of the population relied on it. Even though there was little knowledge of the blight disease and infected potatoes had to be thrown away, the poverty of the majority meant that they had no option but to consume them, which led to the death of many starving Irish, especially children. This tragedy was to repeat itself in 1984 with a more mutated strain of the species, but luckily, it did not come to pass.

Fungi and the Salem Witch Trials

The author also shows us the depth of our folly and ignorance by covering the Salem witch trials back in the days when any woman spotting a mole on any part of the body was in bed with the devil. The American pioneers were an imprudent lot. Their foolhardiness arose mainly from ignorance and lack of discovery. The first colonies were mostly set in heavily forested habitats where humidity was always at an all-time high, the perfect condition for fungi.

Having to journey a lot also meant that they had to store their foods for longer periods of time, which, together with the humid air, gave the fungal spores a chance to thrive without their knowledge. Moreover, their introduction to a new ecosystem to which they had not been genetically accustomed made them susceptible to diseases they had not known before, and given that most of them were haplessly overzealous about the religions from the old country, it was all the work of the devil.

Ergotism, Stored Rye, and Accusations of Witchcraft

Women were, therefore, the possible victims of the devil's sweet tongue, given that it was not the first time a woman had fallen for the devil's lying ways. To back his theory, the author gives ergotism, also called Saint Anthony's fire, as a sign of bewitching (Huddler, 79). This was a disease that was rampant in regions where rye bread consumption was a norm. Being that the early settlers were only arriving in the new world, food production had to take a while, so they had to rely on the stored products. Rye was also among the dominant food crops, and when they got to store it, the weather conditions were not always on their side.

Now we know that ergot poisoning arises from the consumption of alkaloids produced by the *Claviceps purpurea* fungus that affects most cereal crops. The symptoms include mania and an attack of the central nervous system that results in convulsions and twisting of the limbs, which to the pioneers was a sign that the devil was living amongst them. We cannot blame the pioneers for their overzealousness or their ignorance; they were only getting to know the new country, and given the problems they faced, such as raiding by the natives, they had reached their pressure points, so the only explanation they could find was what they made themselves believe.

Yeast, Lichens, and the Benefits of Fungi

Finally, to bring both the adverse and beneficial effects of fungi on the same ground, the author rules out that they are more beneficial to us by examples of philosophical trials such as the use of yeast in bread production, the suggestion of the lucrative market of performing processed from lichens in Europe. These factors, coupled with the humorous air that each reader gets while reading the book,

point to the fact that George Hudler supports fungi and that all the negative effects attributed to them result merely from ignorance on our part.

Curiosity Beyond Fear and Ignorance

In conclusion, the author is more inclined to support fungi as more beneficial than dangerous. To do this, he paints us a picture beginning with what we see and what we want to believe then gradually getting to the aspects we have chosen to overlook because we are too ignorant to care. When we take a walk in our backyards and come across a mushroom growing on an old log, the first thought that comes to mind is extermination. We are not to blame, however, as evolution has taught us that anything associated with dead matter is dangerous, which is true, but if we choose to overlook this predisposition, we can attain medical wonders.

Work Cited

Hudler, George W. *Magical Mushrooms, Mischievous Molds*. Princeton, N.J: Princeton University Press, 2000. Print