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Plants Mind and Consciousness: A Theory of Plants Consciousness

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ABSTRACT

The purpose of this research is to find out whether plants species have mind and consciousness, or whether plants have conscious awareness of themselves and their environment comparable to the human mind and consciousness. To begin with, this Paper has hypothesized that plants, animals, and human beings meet certain natural challenges that compel them to develop attributes and capabilities through (their common urge to survive) to cope with those challenges in the world. Thus, all living organisms, plants, animal, and human beings face the challenges to feed and avoid being eaten (or find a way around being eaten as plants do), to pass on their genes to the next generation for the perpetuation of their species. Human beings do it, animals do it, and plants also do it. Secondly, to be able to adapt to your environment, pass on your genes, take care of your offspring for the perpetuation of your species that animals have, human beings have, and plants also have, you got to have consciousness in the first place. However, in the third place, human adaptation to their environment as well as human behavior is powered by human consciousness or (according to neuroscientists), the human brain. But what about plants that obviously do not have brains? What type of consciousness fuels plants ability to adapt to their environments for their obvious survival activities? The search for the type of consciousness that powers plants activities of survival has led to these postulates: Consciousness consists of two main parts namely: a) Cosmic Consciousness and b) brain derived consciousness. c) Human beings use their brain derived consciousness (known as objective consciousness) for their behavior, while plants use their Cosmic Consciousness for their activities of survival. Hence, consciousness is dual, not monist, but dual consisting of Cosmic Consciousness (that plants use) and brain consciousness (that is responsible for human behavior). This Paper has focused on Plants use of Cosmic Consciousness for their activities of survival with regards to the topic of crosspollination that will be clear evidence that plants have consciousness. Plants use their Cosmic Consciousness for their activities of survival in many ways but the most prominent use of Cosmic Consciousness by plants can be clearly demonstrated in plants intentional and conscious control of the process of their fertilization widely known as Crosspollination. This is what this

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Paper has laid out as valid proof beyond any scientific doubt that Plants indeed have consciousness. So, what is crosspollination? How do plants consciously control crosspollination?

Dedication

This Paper is dedicated to Sir David Attenborough (Author of The Private Life of Plants) Professor Monica Gagliano (Biological Science Professor (University of Sydney Australia) International Fraters and Soros…

1. The Conscious Plant: Plants Control of Crosspollination

Class: This research has focused on plants control of the mechanism for the survival and perpetuation of flowering plants known as crosspollination and seed dispersion to prove beyond any scientific doubt that plants (like human beings) have mind and consciousness. Therefore, in considering whether plants species have mind and consciousness, or whether plants have conscious or not, or whether plants have awareness of themselves and their environment or not, you must be prepared for what will blow your mind. This is because this research has examined the many different ways plants have overcome their environmental adversities to survive and thrive as seen all over the world.

Well, fasten your seatbelts for the roughest ride of all, for the indisputable scientific facts about plants' intentional and intelligent activities of survival driven by their innate urge to survive *that is inescapable evidence that plants do have consciousness*. This research about plants control of crosspollination and seed dispersion is more intriguing than all the arguments about human consciousness.

First of all, we all agree that we human beings have mind and consciousness in our brains, and that human conscious activities of survival although driven by the edge to survive (just like plants) arises out the human brain. However, the facts indicate that most of the human conscious activities of survival (out of their brains) to overcome their environmental difficulties are duplicated by plants (without brains). For example, human beings adapt to their environment, but so do plants. Human beings breathe in air (oxygen) for sustenance, so do plants (carbon dioxide) without lungs. Human beings feed, reproduce offspring, pass on their genes to the next generation, and take care of their offspring to ensure their continuous existence and perpetuation of their species, so do plants.

So, can it be that human beings consciously adapt to their environment to overcome their environmental adversities for survival out of careful thinking and planning out of their brains, while plants can also adapt to overcome similar environmental adversities (obviously without

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brains) and without being conscious, or without being aware of their environment, and without having any type of mind and consciousness? Or is it a case of plants ability to adapt to their environmental challenges, to reproduce, pass on their genes, and take care of their offspring, a result of plants special intelligence that is unknown to us human beings and science? And what could that special plants intelligence be without plants having consciousness?

Well, the scientific facts that are presented in this Paper based on evidence of plants intelligent control of crosspollination and the dispersal of seeds, clearly indicate that plants have mind and consciousness in spite of not having brains, and regardless of the fact that the scientific community have no idea that plants have consciousness. The facts and data about crosspollination and seed dispersion indicate that plants consciously and intentionally hire and pay for the services of the entire animal kingdom including us human beings (as unwitting ignorant laborers), to work for the sustenance of crosspollination and seed dispersion for rewards of daily food wages paid by plants to the benefits of the survival and perpetuation of plants.

These facts and data about plants intelligence, mind, and consciousness as well as plants intentional control of the mechanism known as crosspollination for the benefits of plants, come from world class scientists, researchers in the field, jungles, forests and deserts around the world that provide clear scientific evidence that plants indeed have mind and consciousness which the scientific community is unaware of, or conveniently choose to ignore.

Plants Self-pollination: self-fertilization before switching to Crosspollination

Evolution of all organisms dictates that for any organism namely, plants, animals, and human beings to perpetuate their species, they have to reproduce offspring. And the only method of reproduction of offspring was and still is the combination of two gametes of a sperm (from a male) and an egg (of a female) to form a diploid zygote that develops into a fetus or a zygote for fertilization to take place and become embryonic in the ovum of a female partner. In following this natural order, each plant being rooted to the soil in its spot by its roots and unable to move around to look for a mate, developed both male and female sexual organs namely, piston and pistil as well as stigma and anther for self-fertilization or rather asexual reproduction.

Plants “thought” that by each plant having both sexual organs to have asexual reproduction to deal with the problem of inability to move, their problem of sexual reproduction between a male and a female had been solved. Err not exactly. But it makes absolute sense for plants to solve their reproductive problem this way since male plants cannot move to find female plants to mate with. But what is crosspollination?

Here is a *definition of Crosspollination:* Crosspollination is plants use of outside help from animals as pollinators or workers to transfer pollen grains from the anther of one plant to the

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stigma of another plant of the same species. Crosspollination is also called xenorgamy. (ScienceDirect.com https://www.sciencedirect.com).

So, what was the need for plants to switch from self-fertilization or self-pollination also known as asexual reproduction to crosspollination? It turns out that self-fertilization or self-pollination which plants developed to solve their reproductive problem at first, was a form of asexual reproduction that is unlike heterosexual reproduction by the animal kingdom of a male animal finding a female animal to mate with.

So, what was wrong with asexual reproduction? Plants soon found out that asexual reproduction or self-fertilization perpetuate diseases within a plant species that threatened the continued existence of that plant species. Thus, plants found that asexual reproduction or self-pollination was the opposite of what they wanted namely, stable perpetuation of their species free from the continued transmission of diseases perpetuated by asexual reproduction.

Therefore, plants "realized" that they need a different form of reproductive method than asexual reproduction. So, plants went back to the drawing board and came up with a new method of reproducing their offspring which was a plan to use the services of the animal kingdom as intermediaries or as middlemen to transport male plant gametes namely, pollen grains to the eggs or gametes of female plants as a more stable method of heterosexual fertilization similar to animal kingdom's heterosexual fertilization. *This is the first evidence of the existence of plants consciousness. Otherwise, how can this realization and switch to a better form of stable reproduction method by crosspollination, not be evidence of plants consciousness?*

Advantages of cross-pollination

Of course, "realized" the advantages of crosspollination over asexual reproduction that the Encyclopedia Britannica points out which is why the majority of plants made the switch and instituted measures to combat the continued use of asexual reproduction by some plants. Plants recognized that; *Wind pollination*: Windblown pollen from the male cone of a lodgepole pine (*Pinus contorta*).When compared with self-pollination (the transfer of pollen within a flower or between flowers on the same plant), cross-pollination clearly has certain evolutionary advantages. The seeds formed by outbreeding may combine the hereditary traits of both parents, and the resulting offspring generally are more varied than would be the case after self-pollination.

In a changing environment, the genetic variability within a cross-pollinated population may enable some individuals to be adapted to their new situation, ensuring survival of the species, whereas the individuals resulting from self-pollination might all be unable to adjust. Self-pollination, or selfing, although foolproof in a stable environment, thus is an evolutionary cul-de-

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sac. Many flowering plants have evolved to limit self-pollination and facilitate cross-pollination. Self-pollination can be reduced or nearly eliminated by the structure of the flower. (Encyclopedia Britannica).

Mechanisms that prevent plants asexual behavior after the Cross pollination switch

Therefore, after plants chose crosspollination over asexual pollination and switched from self-pollination to crosspollination, they not only made the switch to crosspollination but they developed mechanisms to stop the practice of asexual pollination from being continued to be used by some plants that were reluctant to make the switch. Here are examples of the measures adopted by plants to make the switch from asexual reproduction to crosspollination reproduction permanent. So, plants resorted to the following four anti-asexual measures below; dichogamy, herkogamy, dioecious, and pistillate.

Dichogamy: Is the Unequal maturation of stamens and pistils in bisexual flowers (Anther and stigma of bisexual flowers mature at different times) developed by crosspollination plants to avoid the continuation of self-fertilization. Herkogamy: which is also another mechanism devised by crosspollination plants to stop the practice of self-fertilization or asexual reproduction is the Presence of mechanical barrier between male and female organs of the same flower. Plants also developed Male Sterility of the same plant so that that plant can be fertilized on by the pollen of another plant in lieu of self-fertilization. The last mechanism to stop plants from continuing to self-fertilized and switch to crosspollination is self- incompatibility.

Thus, not surprisingly, many species of plants have developed mechanisms that prevent self-pollination. Some—e.g., date palms (*Phoenix dactylifera*) and willows (*Salix* species)—have become dioecious; that is, some plants produce only “male” (staminate) flowers, with the rest producing only “female” (pistillate or ovule-producing) ones. In species in which staminate and pistillate flowers are found on the same individual (monoecious plants) and in those with hermaphroditic flowers (flowers possessing both stamens and pistils), a common way of preventing self-fertilization is to have the pollen shed either before or after the period during which the stigmas on the same plant are receptive, a situation known as dichogamy (Encyclopedia Britannica https://www.britannica.com).

Switch from Self-pollination to Crosspollination: Plants Intentional acts of Survival

Definition of Crosspollination: Crosspollination is plants use of outside help from animals as pollinators or workers to transfer pollen grains from the anther of one plant to the stigma of another plant of the same species. Crosspollination is also called xenorgamy.

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To the question: Why is cross-pollination considered more beneficial than self-pollination? According to the Cross-pollination is preferred because it brings about variation in species. Self-pollination does not bring about any variations. Variation brings new traits to the plant which may be advantageous to the plant. For example, the variety of new traits helps a plant to defend against attack by insects and viruses. This is what plants discovered about self-pollination or asexual reproduction and about crosspollination that made “plants to decide” to switch from self-pollination to crosspollination (Encyclopedia of Rose Science 2022).

Here are a few questions for scientists whose knowledge about consciousness is limited to the human brain – the Niedermeyer type of scientists; 1), if flowering plants did not “realize” the dangers of asexual reproduction which at first seemed perfectly suited to each individual plant, why would they switch to crosspollination which involved paying animal pollinators daily wages for their services? 2), if flowering plants do not have consciousness how would they “realize” that self-pollination is disease-prone and unfavorable for the survival and perpetuation of their species? 3), if flowering plants have no consciousness, how would they be able to hire animal pollinators to work for the maintenance of crosspollination for the survival and perpetuation of plants? Or else how would there be crosspollination?

The strongest scientific evidence that plants’ activities of survival and perpetuation of their species derives from plants consciousness and intelligence, relates to a major mechanism for the survival of flowering plants (angiosperms) known as Crosspollination. The scientific analysis of crosspollination indicates a conscious design and control of crosspollination by plants. The facts and data that clearly show beyond any scientific doubt that the entire animal kingdom including us human beings are unwitting and ignorant employees paid (in daily food wages) for servicing crosspollination for plants is astounding.

The scientific analysis of crosspollination shows plants on one side as the beneficiaries of crosspollination, and on the other side, animal pollinators involved in achieving successful crosspollination namely, insects, birds, mammals and us human beings as unsuspecting workers who receive daily wages of food rewards for our labor. So, like any productive company, crosspollination has creators and beneficiaries on one side and paid workers of animal pollinators on the other side. That is the precise definition of crosspollination, and that is exactly what sustains crosspollination, namely plants as managers versus hired and paid animal workers in the sustenance of crosspollination.

However, unlike human workers who may know the history and owners of the company they work for, workers in crosspollination especially the insects, birds, and other small mammals have no idea who the owners and beneficiaries of crosspollination are.

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When it comes to the dispersal of plants seeds, which is the method plants have used to spread to every piece of land on the surface of the earth, the story of plants hiring the workers involved such as birds mammals and yes us human beings too, and paying us in food wages without we humans beings knowing what is going on, is to say the least, remarkable. The fact is that workers of seed dispersion namely, birds, mammals and we humans do not know how they got hired and pressed into labor to disperse nuts and seeds far and wide in the service of plants need to spread over every piece of land on earth. *A fact that this research is now revealing to the world and to the scientific community.*

What the workers of crosspollination namely, insects, birds, mammals, and us humans that work for both crosspollination and seed dispersion think is that they receive daily food rewards for their labor to maintain their own survival, but not for the service of crosspollination. In this scenario, the animals and us human beings involved with crosspollination are unwitting laborers, and plants are the smart controllers of crosspollination and seed dispersion. Is that not the case? It must be pointed out that it was plants that needed crosspollination for the survival and perpetuation of their species in the first place not insects and later birds and small animals.

Therefore, what the success of crosspollination year after year comes down to is that as long as the workers for crosspollination get paid their daily food rewards, insects and animal pollinators will continue to work tirelessly for the continued sustenance of crosspollination for the mutual benefits of both plants, pollinators, and seed dispersers. And the only thing that threatens this arrangement between plants and animals is intransigent weather or climate change.

So what are the daily food rewards or food payments that makes workers of crosspollination committed to work tirelessly forever as long as the seasons come and go in the annual dance of the circle of life continues? As the creators of crosspollination, plants devised different types of food rewards for different types of insect pollinators, and animal pollinators in the animal kingdom including us humans namely, pollen, nectar, fruits and nuts, vegetables, and tubers, in short, all the edible food crops that sustain the all lives of insects, birds, mammals and us human beings. There you have it. You do not believe this fact?

Well, more detailed data of the story of how plants employ different animal pollinators and seed dispersers will open your eyes to see the display of plants conscious and intentional control of insects and animal pollinators and seed dispersers will help.

Examples of How Plants pay Insects and Animal Pollinators Daily Food Wages

Here is the details about how different plants selected different methods as well as different insects and animal pollinators for their crosspollination needs. First, before employing insects and animals in the crosspollination business, plants used what was naturally and easily available

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to transport their pollen grains namely, the wind or wind pollination. But soon, some of the plants discovered that wind pollination is very haphazard expensive. Windblown crosspollination required plants to produce large quantities of pollen for the wind to spray around all over the place for the anthers and stamens of the female plants that need to be fertilized to catch some of the pollen grains for successful fertilization to take place.

Furthermore, plants soon discovered that they have no way of controlling the winds that transport their pollen grains badly. In the meantime, the effects of wind pollination on us human beings is what causes the annual flu allergy as millions of pollen grains floating in the air carried by the wind to pollinate female plants, irritate our nostrils as we humans breathe in the pollen grains not meant for our nasal consumption. Got it class? Would it not be great if the grasses and plants that still use windblown pollination also choose insects pollinators over windblown pollination so that we human beings can stop suffering from annual pollen flu allergy?

On the other hand, Plants "realized" that in using windblown pollination as the vehicle for transporting pollen, much of their pollen grains were wasted by the winds. So plants "realized" one more time that they need a transport agent (other than the wind) that they can control and direct to deliver pollen grains more efficiently to the anthers of ovulating female plants in order to achieve successful crosspollination. Is it not a good thing (at least for us humans) that some plants "thought of" and started using insects and small birds to transport pollen grains, thereby reducing windblown pollination that reduced the annual windblown pollen flu allergy to us humans?

That is when some flowering plants "decided" to engage and use the services and labor of insects and birds to transport pollen from one plant to another plant. So, various plant species selected the type of insect or the type of bees, butterflies, and small birds to groom and depend on, as their special pollen couriers. Plants also established the plants/insect relationship that boils down to this;

The plants kingdom versus the animal kingdom,

The beneficiaries (of crosspollination) versus the workers (of crosspollination)

Plants versus animal/insects pollinators

Pollinator/labor versus wages/rewards

Managers/Controllers of crosspollination versus servants/employee of crosspollination

Owners of secret/knowledge versus unwitting/ignorant laborers

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Owners of seeds/nuts dispersion versus animal seeds/dispersers

Here is a list of plants and their chosen curriers of pollen grains for Crosspollination

For the purposes of switching from asexual reproduction to crosspollination which plants came to "realize" was better and more stable for the perpetuation of their species than asexual reproduction, *plants looked for better pollen transporting agents than the wind.* Plants had concluded that the wind was not a good agent for transporting pollen grains. However, there are plants that still use windblown pollen grains as their transporting agent. Plants such as grasses, sedges, conifers, walnut oak, birch, and hazel produce tiny flowers first for the wind to blow away their pollen before putting out their leaves to avoid hindering the wind to blow away their pollen grains.

On the other hand, plants that chose to use insects as better agents for crosspollination, gradually pressed the entire animal kingdom to serve as the solution for their crosspollination and seed dispersal problem. After choosing animal pollination over windblown pollination, the next problem for plants was; a), how to attract insects for the purposes of using them as agents for crosspollination, and b), how to pay the insects, pollinators, bird pollinators, and small animals m for their services participating in crosspollination. Gradually, different plants found different ways of hiring insect pollinators and how to pay them to do the job the way plants wanted. That is how certain plants started to select certain specific insects as their special carriers. (https://sciencedirect.com)

Pollen for Food Wage-payments that Plants use for their Insect Pollinators

According to Attenborough (1995), cycad plants are the first plants to use insects already flying around looking for food as their pollen grain transporter. Back then, the majority of plants still used windblown pollen grain as their sole pollen transporter. But gradually that began to change. Some species of smart cycads caught on the possibility of using insect pollen carriers.

Male cycads produce their pollen in enormous cone-shaped structures that develops in the center of the crown of stiff palm-like leaves. The majority of species still use the ancient and simple distribution technique of allowing their pollen to tumble out and the wind to catch it and carry it away. A few, however, exploit the insects that were already flying in considerable numbers and variety at the time the first cycads evolved. No plant on earth at that time had yet evolved colorful flowers. Nor had any, as far as we know, developed structures that might produce an irresistibly attractive perfume. But some, maybe, summoned their pollinators by a method which ones of their species practices even today. When its pollen is ready for distribution, this cycad raises the temperature of its central cone by a good two degrees. That attracts the attention of weevils. They alight on the cone and feast on the spilling pollen, getting themselves covered with

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it in the process. Then away they fly to find another meal in the center of another cycad, taking the pollen with them and so delivering it in a much more economical way than the wind would do.

The second plant to use insects as pollinators are water lilies who came up with a new strategy of not raising the temperature of their stamens, but developing white color flowers to attract beetles as their insect pollinators and offered the beetles pollen as food payment. Third, the gentian flower plant developed an elaborate scheme of how the bee can get pollen hidden deep down in a long stamen as a strategy of grooming bees to become their insect pollen carrier. *The pink gentian that grows in South Africa groomed carpenter bees as its selected pollen couriers.*

Gentians spread their flowers wide, revealing to all a curving white style and three large stamens. Each stamen ends in a long thick anther that seems to be covered in yellow pollen, an obvious temptation to any passing pollen-feeding insect. But that is something of an illusion. The yellow anther is hollow and the pollen is held inside. The only way it can escape is through a tiny-hole right at the top of the anther and there is only one way of extracting it. The bees know how. It arrives at the flower making a high-pitched buzzing noise with its wings as most bees do. As it alights on an anther, it continues beating its wings but lowers the frequency so that the note of its buzz suddenly falls to approximately middle C. This causes the anther to vibrate at just the right frequency needed to release the pollen and the grains sprout out of the hole at the top in a yellow fountain. The bee then industriously gathers it up and packs it into the carrying baskets on its back legs. Only these bees buzz at this frequency; so only these bees can harvest this pollen. But there is a further refinement in this customized courier service. There is no way a bee can tell whether one of the flowers has lost all its pollen, short of landing on it and shaking its anthers. And by that they have stayed long enough to transfer pollen that they have carelessly collected on their furry bodies to the style of the flower. So in these cases a flower may receive its fertilizing pollen without paying any cash on delivery as is usually required (Attenborough, 1995, p/ 100).

Fourth, the South American tibouchina shrub developed a trick of using bees to transport its pollen without paying them any wages at all. It developed two stamens, a tall one with fake pollen as decoy and a short one with true pollen. Bees land on the tall stamen to collet pollen, ignoring the short stamen in its underside. In its struggle to find pollen it gets dusted with pollen grains from the short stamen and flies away disappointed to another tibouchina shrub looking for pollen. Clearly, there is a pattern here where specific plants use a strategy to lure, attract, hire and pay specific insects with pollen as daily food wages for their services as their specific pollen carriers in achieving their crosspollination needs. And a pattern as listed below emerges as;

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Plant	strategy	insect courier	wages
1) Cycads	raising cone temperature	insect, weevils	pollen
2) Water Lilies	flower-attraction	insect, beetles	pollen
3) Gentian	pollen attraction	insect, Carpenter bees	pollen
4) Tibouchina shrub	fake pollen trick	all bees	no payment
5) Melastoma	fake pollen trick	all bees	no payment
6) Milkweeds	bright red colors	Monarch butterflies	pollen
7) Tickseed (Corepsis)	bright yellow color	all butterflies	pollen
8) Scarlet beebalm	lavender pink color	all butterflies	pollen
9) Black-eyed Susan	bright yellow color	all butterflies	pollen
10) Sunflowers	late summer bloomer	all butterflies	pollen

This list is not exhaustive. Many flowers are pollinated by wasps, flies, hoverflies, and bats. Flowers such as aster, mint, rose, milkweed goldenrod, Joe Pye weed, purple coneflower, blazing star (Liatris) are all served by butterflies as insect pollinators because they offer flower heads for butterflies to sit. However, honey bees (Apis spp.) are the number one insect pollinators. The question is, *how can specific plants develop specific strategies to employ or hire specific insects as their selected pollen couriers without having any form of consciousness or intelligence about insects in general and the type of insect they select as their special pollen transporters?*

Question: Some scientists claim that plants and insect pollinators have symbiotic relationship that allows crosspollination to take place. This means that each party relies on the other party for their livelihood and that is how their symbiotic relationship developed. Some scientists call the relationship between plants and their insect pollinators a case of mutualism, while other scientists call it coevolution.

Class: Does plants strategy of how they choose, groom, and trick their insect pollinators to become their unwitting pollen transporters described in these pages look anything like symbiotic relationship, coevolution, or mutualism to you? Or the relationship between plants and their insect pollinators look like an employer and employee relationship? Like a boss versus workers relationship? In that case, can the relationship between plants and human seed dispersers be described as symbiotic?

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Nectar as Food Wage-payment by Plants: For their Insects and Bird Pollinators

With the use of nectar as food payment to birds and other animals, we can clearly see different plants strategies for recruiting insects by using pollen as food payment, and now plants use of nectar also as food payment**.** Here are a list of plants that went further than just providing pollen which they naturally make as food wages for their chosen plant pollinators by using nectar as daily wages to birds, and animals for their crosspollination needs. *These group of plants developed three new strategies namely, nectar, shiny colorful large flowers, and perfume to attract, hire, and pay insects and bird pollinators with* their daily food payment for their insect and bird pollinators. For example, foxgloves, irises, pansies, rhododendrons, primrose, gentians, mountain laurels, mostly use nectar to pay for the services of their pollen transporters.

Unlike pollen for food rewards that plants naturally develop as their eggs and sperms in the process of reproduction, some plants developed nectar as food rewards or food wage payment for the services of insects that now included birds. Besides nectar, some plants developed perfume for some specific bees. And most spectacular of all, plants that develop nectar for food payment to their pollen carriers further developed shiny colorful flowers as advertising billboards that they have nectar for insects, birds, and small animals to come and drink. The remarkable thing about plants production of nectar is that *unlike pollen grains, plants have no use for nectar for themselves, except to use nectar as food rewards for insects and bird pollinators.*

So, how does plants development of nectar for the sole purpose of using it as food rewards for pollen transporters *not be scientific evidence of the existence of plants consciousness and plants awareness of other animals such as insects, birds and other animals?*

Definition of Nectar

So, what is nectar? Let us listen to the celebrated Attenborough explain what nectar is, how nectar is made by plants, and what plants use nectar for (Attenborough, 1995).

The most widely practiced economy of all, however, is to provide payment that is nothing more than sweetened water – nectar. A plant produces this from special glands, nectaries that are usually hidden deep in the depths of a flower. Positioning them in this way has two advantages. It reduces loss of nectar by evaporation or dilution by rain; and it compels a visiting messenger to brush past the anthers and so collect its load of pollen. But this reward has to be advertised; and that is the function of flower petals. (pp.101).

The perfume that flowering plants produce is mostly for insets because plants found out in their dealing with insects that most insects have a very highly developed sense of smell, so they can be attracted by perfume, even though many insects also have excellent vision. However, plants also

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discovered that birds have no sense of smell at all, hence with birds, it made no sense to attract them with perfume. But plants found out that birds have acute eyesight, so plants learned to develop shiny colorful petals of flowers to advertise to birds to come and drink nectar. Today, birds rival insects as pollinators (sciencedirect.com). Let us hear from Attenborough again.

To enlist their services, however, plants have to use very different methods. Birds lack almost totally a sense of smell. Perfume would be wasted on them and flowers seeking to attract them do not waste energy in producing it. On the other hand, birds' eyes are very acute and much more like ours than those of insects. Plants, when they advertised to insects, tended to neglect the red end of the spectrum since insects are largely insensitive to it. Red was therefore available for advertising to birds and many plants used it in this way. Birds are, of course, much bigger than insects and the plants that employ them must also make special provision for that fact. Their flowers must be large enough to accommodate the head of a bird as it seeks nectar and coincidentally collects its load of pollen, and the petals must be relatively strong to withstand such vigorous treatment. So, if a flower is large, robust, and red and lacks smell, it is very likely that it is pollinated by birds. (pp.101)…

In other words, bird-pollinating plants know all these characteristics about birds and insects and therefore, make provisions to host birds by providing nectar to them and ensuring that the birds are loaded with pollen for delivery for the nectar that the birds think they are drinking for free.

The question is, how can plants that do not see, nor hear sounds, plants that are seemingly unconscious; know that 1), birds have no sense of smell, 2) that birds are bigger and heavier than insects. 3), that they must make their flowers large enough to accommodate the head of a bird that seeks to drink nectar that is hidden deep down their tubular stamens 4), that they must make their petals strong enough to support the weight of a bird? 5), that birds, have acute eyesight that responds to red hue more than blue in the zone of colors? 6), and more importantly, how to hold their anther and stamen-filled pollen in a position to load birds with pollen grains as they drink nectar to transport their load of pollen grains to the next plants to achieve their much needed crosspollination activities?

How can plants have such detailed knowledge about birds without having consciousness? How can plants knowledge about nectar drinking birds and small animals not be scientific evidence of plants consciousness? And more importantly, how can plants have any knowledge about insects and birds without having awareness of themselves as being separate from the birds that alight on their branches and petals of flowers?

And how can plants not be aware of insects and birds that alight on them for pollen or nectar as flying creatures that are separate and different from themselves as plants, that need and hire the

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services of birds and animals they court and advertise to, with perfume and colorful flowers to transport their pollen grains? *Without plants having any form of consciousness?* Take a moment to think about this class!

Again, here is a list of nectar drinking insects and birds, their food/wage payment and their services

Plant	strategy	insect/bird courier	wages
Short Kangaroo-paws	point their flowers downwards	ground hopping birds,	nectar
Tall kangaroo-paws	stouter stems to support birds,	honey-eater birds,	nectar
African tulip	strong flowers to support birds,	birds,	nectar
Mistletoes	bright red flowers	humming birds	nectar
Mangels	robust stem	honey-eater/sunbirds,	nectar
Grevillea	bright red colors	Aussie lorikeets	nectar
Strelitzia	blue shroud	sunbirds	nectar
Comfrey	bright reed colors	bumblebee	nectar
Bucket Orchid	obstacle course/perfume	iridescent bees	perfume
Madagascan Orchid	long trailing spurs	hawk moth	nectar
S/African gentian	most secured nectar sack	carpenter bee	nectar
S/African twin spurs	two tubular spurs	solitary bees,	oil
Meadow cranesbill	ultra-violet line directions	bees, hoverflies,	pollen
New Zealand flax	strong stem/blue shroud	geckos,	nectar
Baobabs	open at night/perfume	large bats	nectar/juicy bracts
Wild bananas	nightly bract exposure	bats	nectar
Organ-pipe/cardon cacti	open at dusk/night	bats	nectar

The list of plants, their special strategies and their selected insects, birds and small animals provided herein is by no means exhaustive. *Let us conclude with a statement from*

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Attenborough (1995) about the evidence of plants consciousness and intelligence with regards to how different plants hire and pay animal pollinators for their services for crosspollination to be successful

Cacti, too, favor bats as pollinators… by this time they (cacti) may well have been visited by bats, particularly since they arrange their flowering season to coincide with the northward migration of bats from Mexico up to the southern United States. For the bats, the cacti with abundant nectar provide an invaluable pit-stop on their long, eight hundred mile journey. For the cacti, the bats are a transient but invaluable regiment of messengers. Some plants reward all kinds of animals – bats, and birds and overwhelmingly, insects – for carrying their pollen. The arrangement seems fair. But there is no morality in the natural world and there are plants that achieve the same result without rewarding their couriers in any way. Indeed, some trap and seemingly punish them. Orchids, in particular, have developed a range of enticements that in the event provide no reward whatsoever for those that succumb… (pp. 124)

Did you hear that Class? Did you hear that the cacti along the Mexico/United States border "arrange their flowering season to coincide with the northward migration of bats from Mexico up to the southern United States"? That cacti arranging their flowering season to coincide with the annual migration patterns of bats from Mexico to southern United States? Cacti know the migratory information of bats and use this knowledge to benefit their crosspollination needs? *How can this not be clear indisputable scientific evidence of plants consciousness?* How can the cacti along the Mexico border have knowledge of migrating bats without being aware of the migration patterns of bats that encounter them? And how can the cacti's knowledge in this instance of migrating bats *not be evidence of the cacti's awareness of their environment?*

The foregoing analysis of plants conscious and intentional control of the insects and animal pollinators involved in crosspollination and seed dispersion seem like a preamble to the introduction of the consciousness, mind, and intelligence of plants that pushed plants to the idea of engaging the animal kingdom in crosspollination for the perpetuation of their own species.

But before summarizing the details of crosspollination and seed dispersion (the two go together), let us explore why plants needed crosspollination in the first place, while animals that had no need of crosspollination were cleverly hired by plants for their crosspollination needs as a permanent solution for the continued reproduction of their offspring and survival of their species.

A simple comparison between plants and the animal kingdom, quickly shows that plants mostly stuck in the soil and held by their roots to their individual spots, lack 1) the type of motion that animals have. 2) Plants lack the five physical sense organs that animals use to become aware of their environment, including speech communication that help animals learn to teach their

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offspring how to do things. 3). Plants, unlike animals, apparently lack mind and consciousness that directs animal activities of survival. But in reality, do plants really lack motion, awareness of their environment, mind, and consciousness?

How would it be possible for plants that need crosspollination for the reproduction of their offspring design crosspollination and engage the animal kingdom as workers for their benefits if plants have no mind and consciousness, or if plants are not aware of their environment?

The fact is that nature did not create crosspollination as we currently see it. Plants did. Plants consciously and intentionally invented crosspollination out of necessity and plants control crosspollination as it is.

The mechanism of Crosspollination invented by plants is not at all similar to the adaptation of different beaks to feed on different seeds and nuts in different environments by Darwin's finches on the Galapagos Island. Crosspollination was carefully planned by plants, and each insect and animal pollinator agent was carefully chosen as a special pollen carrier that was carefully groomed and controlled for specific jobs by various plants that were the beneficiaries of crosspollination. If such was not the case, how does science explain how different bees and birds were selected by different flowering plants to be their specific pollinators if plants have no consciousness?

The fact that life is based on food intake by animal including us human beings makes the animal kingdom completely dependent on the survival of plants is unquestionable. Without plants achievements in crosspollination and seed dispersion, there would be no food for the insects, birds, mammals and us human beings, and there goes our survival as living organisms. Does the layman know the importance of crosspollination and seed dispersion to the survival of us human beings? Does the layman understand the enormous power of life and death that plants wield over the animal kingdom with food rewards for the services we provide for crosspollination? The reason why we humans freak out when crosspollination is threatened is by climate change is because our life and survival depend on it.

Successful crosspollination ensures the abundance of fruits, seeds and nuts that our nutritious diet depend on. And yet some people are ignorant of the fact that plants consciously provide food rewards as payment for the services of insects, birds, and animals as well as our human labor of maintaining successful crosspollination. So, starting with the design and control of crosspollination and seed dispersion by plants, the scientific evidence of whether plants have mind, consciousness, and intentionality, is what this research is about to surface for scientists as well as the layperson to see as important quasi-scientific evidence of plants consciousness.

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Again, the design and control of crosspollination and seed dispersion by plants is the fundamental underlying key that reveals plants mind, consciousness, and intentional acts of survival. So, what is seed dispersion?

Seed Dispersion: Plants use of birds and animals as Seed Dispersers

Crosspollination is one half of plants method of spreading themselves on lands everywhere they can on the surface of the earth for the perpetuation of their species. The other half is known as seed dispersion. When it comes to dispersing their seeds far and wide known as seed dispersion in textbooks, plants used what is readily available to them from nature namely, wind, gravity, ballistic, water, explosion and even fire. The use of animals including us human beings for the purposes of plants seed dispersion was a last resort, hence plants first used the autochory method of dispersing their seeds before employing the services of birds and animals as dispersers of nuts and seeds around the world.

Seed Dispersion by (Autochory):

Plants ability to disperse their own seeds is known as autochory. The question is; what is the definition of seed dispersion? Seed dispersion is the intentional or often unintentional movement or transportation of seeds usually far away from their parent plant. Unlike crosspollination where plants jumped to employing animal pollinators after finding windblown pollination hazardous and unreliable; in seed dispersion, plants tried several methods of dispersing their seeds by themselves before engaging animal seed dispersers. For example, plants first tried seed dispersing methods on their own. Plants ability to disperse their own seeds is known as autochory; which is spreading seeds by the plants own capabilities.

Here are examples of seed dispersion by autochory: Some common methods of plant autochory are the use of gravity, wind, ballistic, water, explosion, fire. Some plants are serotinous who disperse their seeds in response to external stimulus such as fire. Plants using outside help from animals and us human beings is known as the practice of zoochory or allochory. With autochory, plants took and still take advantage of for example; *Gravity* known as *barochory*. Plants that use barochory are, apples, commelina, canna, coconut, calabash, passion fruit are some of the plants that use gravity to disperse their fruits and seeds. These plants just drop their seeds or fruits from a height that rolls away to some distance from the parent tree sometimes aided by the wind. Some fruits have hard shells such as the conkers of horse chestnut that split open and scatter their seeds. This means these plants knew about gravity millions of years before Newton and Einstein talked about gravity. Morning Ag Clips (tree.Feb 8, 2022) https://www.morningagclips.com

Ballochory or ballistic; is plants use of force to expel their seeds spreading them far and wide. For example, gorse flower seeds are packed in pods which dry out in the warm tropical whether.

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When the moisture of the pod dries out the pod splits open to fling the seeds some distance from the parent tree. It has been said that in the hot summer season, one can "hear the telltale popping sound of this clever method in action". Reid Park Zoo describes plants using their own methods of dispersing their seeds as "the silent drive to survive" (https://reidparkzoo.org)

Anemochory also known as *windblown seed Dispersion***:** This refers to the dispersal of seeds and fruits by wind, often aided by specific structures such as wings, hairs, and plumes. This type of floating away is commonly observed in pioneer vegetation and barren lands. For example, *dandelion seeds* float away in the wind. To make sure at least some of the seeds land in suitable growing place, the plant has to produce lots of seeds. In fact, wind is one of the most common ways plants disperse their seeds.

Hydrochory**:** Also known as seed dispersion by water, is especially common in species which colonize low-lying areas that are flooded for longer periods (Goulding, (1980, 1983; Oliveira-Wittmann et al., 2006). After dropping into the water, the diaspores are subjected to varying periods of buoyancy and/or submergence. Coconuts float their seeds by applying the principles of buoyancy on rivers seas and oceans. (Sciencedirect.com)

Pyrophytic Plants: Amazing Adaptations of fire-activated seed-plants. Some plants, such as thelodgepole, pine, eucalyptus, banksia and others, have serotinous cones or fruits that are completely sealed with resin. These cones/fruits can only open to release their seeds after the heat of a fire has physically melted the resin. (Britannicahttps://www.britannica.com). Class; notice how The Encyclopedia Britannica uses the words*; amazing adaptations of fire-activated plants?* So, according to the Encyclopedia Britannica, some plants use amazing adaptations.

It must be remember that one of the main pillars of Darwin's theory of evolution was adaptation such as citing the different beaks of the finches to explain that the different beaks of the finches were the results of the birds' adaptation to changing environment and the different types of seeds each species of finches fed on? The second pillar of Darwin's theory of evolution was natural selection. Thus, adaptation and natural selection are the two pillars of Darwin's theory of evolution. Nobody doubts that Darwin's finches were conscious of their changing environment which the cause of the different beaks of different finches in the same region.

If as it turns out that plants used one of the pillars of the theory of evolution namely, adaptation, *how can (this ability of plants to adapt to the advantages of reproduction by crosspollination over asexual reproduction, not be indisputable scientific evidence that plants have consciousness?* It needs pointing out that plants sealing their seeds with resin (which they specifically make) seal and close their seeds from being burned and totally destroyed by fire as method of protection of their seeds for the next generation is an example of adaptive behavior by

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plants. Thus being rooted to their spots on the ground and unlike animals are unable to run away from perennial fires (we have just gone through the 2024 annual large summer fires both in Europe and The United States of America). Plants have had to learn how to protect their seeds (which is their babies) for the next generation for the perpetuation of their species.

"Giant Sequoia cones are serotinous, which means that fire on the forest floor causes them to dry out, open and release their seeds. This adaptation ensures that sequoia trees time the release of most of its seeds to coincide with fire, which creates ideal conditions for regeneration success". There we go again. *Giant sequoia trees timing the release of their seeds to coincide with the outbreak of perennial summer fires.*

Explosion: "Cardamine hirsuta is a relative of Arabidopsis that uses an explosive force to disperse its seeds. Other plants such as violets, poisonous squirting cucumbers, and touch-me-nots or Impatiens capensis (not to be confused with these touch-me-nots) have an effective way of dispersing their seeds: They burst – creating tension, the fruit splits open, flinging the seeds out with force." Future of Information Alliance - University of Maryland (https://fia.umd.edu)

Seed Dispersion by Zoochory or Allochory:

Plants using outside help from animals and us human beings is known as zoochory or allochory. Animals who eat seeds are an excellent source of seed dispersal. Humans eat various fruits and nuts, seeds and vegetables and throw their seeds after eating. These seeds when they get adequate conditions germinate and grow to become plants. In this way, humans help in seed dispersal. What are two ways humans intentionally disperse seeds? Humans disseminate seeds and nuts both intentionally and unintentionally. Since the beginnings of agriculture, we have collected and propagated seeds, traded seeds, given them as gifts, and sold them in the marketplace. *We have also dispersed seeds unknowingly through travel and commerce* (sciencedirect.com, 2014)

Class: Did you hear that when we humans eat fruits and nuts or trade seeds and nuts, or give them as gifts, or sell them in the marketplace, we have dispersed the seeds unknowingly? In other words, except farmers who intentionally preserve seeds for farming and plant them as profitable food crops annually and seasonally, the rest of the people who form the baulk of humanity who eat fruits and nuts and throw away their seeds such as mangoes, apples, oranges, watermelon, pumpkins, papayas, have been *unwittingly and unknowingly* helping those plants disperse their seeds? In other words, *plants have employed us humans in their strategy of plants seed dispersion, and pays us through the fruits, nuts and vegies we eat that we see as a very important part of our diet?*

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This is why we start the evidence of plants strategy of using the animal kingdom to help in their need and strategy of dispersing their seeds with human beings first. This is to show how deep our human ignorance of the fact that plants have consciousness, and that plants can and do use us human beings who think that we are conscious beings and that plants have no consciousness. But plants have the audacity to stealthily press us into the service of dispersing plant seeds, without us humans having an inkling of what plants know about us, and how plants have been manipulating us humans to do their bidding by giving us daily food wages since Adam and Eve first opened their eyes to a world already full of flowers, trees, and flush jungles.

Now, let us move on to other animals that plants have pressed into the service of seed dispersion for the perpetuation of the life of the plants kingdom. Plants lure animals into dispersing their seeds by producing yummy nuts, fruits, and seeds for them to eat. Once the animal has eaten and. Trees may not be able to move, but some are good at procuring the services of animals that can. (sciencedirect.com)

Frugivory: Refers to the consumption of fruits by animals, which is sometimes included under the broader term *herbivory*. So, after using autochory for dispersing their seeds by themselves, plants later resorted to using allochory which means using outside help for their seed dispersal needs. So, plants started pressing animals to the service of seed dispersion using their usual payment system of food wages. And plants started off with frugovory or herbivory for fruit eating animals. But the first strategy of plants used in making animals transport their seeds far away from the parent plant was to use *seed dispersal by fur*. *(*sciencedirect.com, 2014).

The seed of these plants catches on the fur of animals and are carried away to different places, far from their parent plants. Dates, rambutan, sea grapes sea holly, tamarind, raspberry, sunflower, and tomatoes are a few examples of plants whose seeds are dispersed by animals and birds. And the animals used are squirrels, monkeys, grizzly and Andean bears, ring-tailed and black-and-white ruffed lemurs, and gibbons. And, of course, our bird species all have diets that include fruit, seeds, and nuts. This means they are direct seed dispersers through the digestion and deposition of seeds. Xanthium seeds are produced inside a hard, spiny, double-chambered, single-seeded bur which is 0.8 to 2.01 cm long. As the seed is covered with stiff spines that are hooked, they stick to the fur of animals (science.direct.com)

Just as there is a greater diversity of plant species and animal species in the tropics than in other regions, there is also a greater diversity of seed-dispersal strategies and patterns. Seed dispersal by animals predominates – it is the main strategy of 70% - 90% of tropical forest plant species (Willson et al) Gorrilas, sloths, monkeys, gray fox, coyote, bobcat, elephants macaws, are known as great seed dispersers,;; opossums (didelphidae), raccoons, mountain dogs (aprocyonidae) are night seed dispersers. In the tropics, large-animal seed dispersers such as

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tapirs, chimpanzees, black-and-white colobus, toucans and hornbills may disperse large seeds that have few other seed dispersal agents (www.sciencedirect.dom)

Animal poo/dung: This refers to animal droppings or waste. Dung is a tidy word for an untidy substance – animal poop. When farmers talk about cow dung or chicken dung, they'll probably call it manure instead. How an animal can disperse seeds by eating a fruit? This usually happens with fruit bearing plants, where the sweet fruit entices the animal into eating the seeds. It does what it does and later excretes the seeds in another location, which can then grow. The most common examples are berries, such as raspberries (Kew Gardens https://www.kew.org).

"Fruit-bearing trees such as rowan offer birds a tasty reward for carrying off their seeds. Encased in nutritious, brightly colored pulp, some may be plucked from the tree and dropped en route to a new location. Other berries are eaten, and an indigestible coating protects the seed inside as it travels through the digestive system. Once the seed exits it may be far from the parent tree, and deposited in a handy dollop of fertilizer too".

Oaks go a step further. They take advantage of the storing behavior of jays and squirrels to get their seeds both transported and ready planted. These animals put aside food to see them through the winter, often burying acorns in caches around their territory. While their memories are good, some acorns are inevitably forgotten. Those that escape a winter feast may germinate to sprout new trees. Animals disperse seeds by excreting them or attaching seeds to their fur. The seeds are carried to distinct places, and when the conditions are favorable and less-competitive, the seeds begin to germinate and grow.

There are some types of seeds that have hooks or barbs that catch onto an animal's fur, or a human beings' clothes, or skin. Plants like pittosporum have sticky seeds that can be carried away by birds. Humans can also spread seeds if they get stuck to our clothing or shoes – and if we throw fruit pips as stones out of the car window. Gibbons may well be the most effective of all mammalian seed-dispersal agents, consuming large quantities of many species of fruits and nuts, swallowing most seeds, and then defecating them intact over their large home-ranges". (sciencedirect.com, 2014)

Here is a list of plants, their strategy, animals used, and daily food wage/payments

Plant	strategy	animal courier	wages
Oaks	storing behavior	of jays/squirrels	cashes of acorns
Raspberries	animal poo/dung	raccoons/black bears	berries/fruits

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Xanthium	stiff spines to animal fur	monkeys/grizzly	seeds/nuts
Tamarind	sticky spines to animal fur	lemurs/gibbons	seeds/nuts
Pittosporum	sticky seeds/fur	birds,	seeds/nuts
Dates	animal poo/dun	sloths	seeds/nuts
Tomatoes	animal poo/scat	raccoons/squirrels	seeds/nuts
Grapes	animal poo/dropping	macaws,	seeds/nuts
Sunflower	animal poo/scat	coyote	seeds/nuts

(CREW Land & Water Trust https://crewtrust.org)

What is Plants Consciousness? And how does Plants Consciousness Work?

Class: The question of plants having consciousness is the big elephant in the room that scares the hell out of scientists especially, physicists and neuroscientists whose knowledge of consciousness is limited to the human brain. To comprehend what plants consciousness is, one has to have a clear knowledge of the faculties of mind that was a big subject in philosophy, psychology, and psychiatry from the time of Plato all the way to the 20th Century. Then from the 1900s up to the 1990s which is not a long time ago, is when physicists and neuroscientists adopted the word consciousness to replace mind *and got rid of the concept of faculties of mind* which seemed quite confusing the way Freud had described it.

So, class: listen carefully, *if you do not know anything about the faculties of mind, you know nothing about human consciousness, nothing about animal consciousness, or in this case the consciousness of plants, and how plants consciousness works.*

I have explained in my recent research Paper, that consciousness consists of two main faculties of mind namely, Cosmic Consciousness and brain consciousness. That we human beings use brain consciousness and other living organism that do not have brains such as plants use Cosmic Consciousness for their activities of survival and perpetuation of their species.

In other words, it is the faculty of mind known as Cosmic Consciousness that plants have used to 1) find out the advantages of crosspollination over asexual or self-pollination, and consequently switched to crosspollination that is the subject of this research. 2) that it is plants use of their Cosmic Consciousness that enabled plants to have detailed knowledge about insects, birds, other animals, and yes we humans for plants to be able to hire and pay for the services of the animal

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kingdom (without even us humans beings knowing) that we have been workers in the service of crosspollination, until this research laid bare this fact for the scientific community.

That is where plants consciousness comes from – from Cosmic Consciousness which is one of the faculties of mind. Using the example of Cosmic Consciousness versus brain consciousness is the only way to explain the type of consciousness plants have. Class; There you have it. The source of plants consciousness is derived from their Cosmic Consciousness. The presence of Cosmic Consciousness in plants is and should be the type of knowledge our scientific community need to understand, and recognize Cosmic Consciousness as the source of plants intelligence, sentience, intentionality, and consciousness.

How Cosmic Consciousness work to make Plants Aware of their Environment

For consciousness to be responsible for an organism's activities of survival and behavior such as plants, animals, and us humans, that type of consciousness should be infused throughout the physical body of such organism under discussion. In other words, the consciousness of an organism be it Cosmic Consciousness, or brain consciousness cannot hover around the organism like a shadow. Consciousness should be thoroughly infused in the physical body of any organism that is being analyzed in order for consciousness to be able (and this is very important) to supervene the physical body to push any part of the physical body to action. That is how a person's consciousness has upward and downward causation supervening power over the physical body (refer to the supervenience of consciousness).

This brings this research to the concept of consciousness and its power of supervenience over the physical body because consciousness cannot exist in any organism without having supervening power to move the physical body, or any part of the physical body of an organism to action and behavior that such an organism wants to express. Thus, Cosmic Consciousness is the natural supervening urge to survive in plants that has guided plants activities of crosspollination and seed dispersal strategies laid out in this research Paper.

How do Plants Acquire Knowledge?

The questions is; taking for granted that plants have Cosmic Consciousness as their natural intelligence, how does Cosmic Consciousness of plants actually work? The answer can be easily imagined by using the analogy of asking the same question about human beings namely, how does brain consciousness work? How do human beings acquire knowledge? We human beings acquire knowledge by using our brains right? We human beings acquire knowledge by using our brain consciousness to think, analyze situations, formulate plans, and take action as a result of what our consciousness (brains) tells us to do. That is how our human consciousness work.

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Now, compare that to how plants Cosmic Consciousness give plants knowledge about insects, birds, and animals that plants have to deal with in their daily activities? Plants that obviously do not have brains do not think like humans with brains. *Hence, plants do not use their Cosmic Consciousness to think.* Instead, plants use their Cosmic Consciousness to receive knowledge, *answers and solutions to their problems by way of intuition*. Here is the important distinction between the methods of how human brain consciousness acquire knowledge by thinking and plants Cosmic Consciousness receive knowledge by intuition.

Brain consciousness thinks, analyzes, and calculates events to acquire knowledge. Plants Cosmic Consciousness does not have to think or analyze in order to receive knowledge. Cosmic Consciousness gives plants knowledge by intuition. In other words, organisms that depend on brain consciousness have to think or at least perceive objects of their environment in order to acquire knowledge. Organisms that depend on their Cosmic Consciousness merely intuits or receive knowledge. Thus, brain consciousness thinks (as we humans do), but plants Cosmic Consciousness receives knowledge by way of intuition (as plants do). Two different types of consciousness, two different methods of acquiring or giving knowledge. Got it Class?

So, **what is Intuition?** Intuition is a way of receiving knowledge that comes to a person suddenly as an inspiration. Intuition often occurs after much thought about a problem in vain without finding the solution or answer to a problem. Then all of a sudden, the answer or solution hits your mind out of nowhere and you have an "Archimedes Eureka moment". Remember the story of the ancient Greek scientist called Archimedes suddenly found the solution to how to apply the principles of buoyancy to make a heavy object float on water, and he ran into the streets shouting Eureka!, Eureka? I have found the answer to the Kings problem!

That is how intuition works. *For those who do not know the difference between thinking and intuition,* intuition is the opposite of thinking, or rather the process of thinking to acquire knowledge is the opposite of knowledge by received by intuition. It is already clear that we use o brainpower in thinking to acquire knowledge and arrive at an answer or solution to a problem.

Intuition is the opposite of thinking or of brainstorming for an answer or solution to a problem. Intuition is simply receiving an answer to a problem, which is why intuition is the favored method of receiving knowledge by plants that have no brains to brainstorm their problems. Therefore, human beings use their brain consciousness to acquire knowledge to solve their problems, while plants use their Cosmic Consciousness to receive knowledge (about insects, birds, and animals including us humans) in order to hire and press the animal kingdom to plants need for crosspollination and seed dispersion for the perpetuation of their species. Class; who do not understand this basic explanation of the difference between thinking and intuition?

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Plants Cosmic Consciousness found in their Roots

Granted that we humans use our brainpower to acquire knowledge, and plants use their Cosmic Consciousness to receive knowledge; the question still remains that human consciousness is centered in our brains. But where is a plants' Cosmic Consciousness centered in a plant? The answer is that *a Plants' Cosmic Consciousness is centered in their roots deep down the soil in the ground or rather underground in the soil*. It is the Cosmic Consciousness in plants located in the roots of plants that makes plants roots kinetic to be able to move in search of nutrients in the soil. When the roots of a plant moves in the soil in search of nutrients, it meets and hits the roots of other plants in the area also in search of specific nutrients for themselves.

Evolution teaches that the roots of different plants in the same area in close neighborhoods, select different types of nutrients that leaves other nutrients to other plants to limit the competition for the same nutrient. That is how different plants develop different enzymes according to the type of nutrients they select for their seed and fruit production. This is how many different plants produce different fruits, nuts and seeds for example, tomatoes, onions, peppers, peas all growing in close quarters in one area, develop different fruits and seeds because their roots are able to select different nutrients from a variety of nutrients in a specific area.

Here is how the National Institute of Health (NIH) describes how the roots of a plant decides to select the nutrients it needs. "In summary, though many details are still lacking, plants appear capable of organism-level decision making through distributed mechanisms, such as bacteria", Decision Making in Plants: A Rooted Perspective (2023), (National Institutes of Health (NIH) .gov (https://www.ncbi.nlm.nih.gov). class, notice that the NIH assigns the decision making of the roots of plants to bacteria. This is because the NIH has no theory for plants consciousness. This research Paper assigns the decision making of a plant to a plants Cosmic Consciousness centered in the roots of a plant because *this research has propounded a theory which states that: Cosmic Consciousness is the source of plants intelligent behavior*

There you have it class: At least, we have one credible institution namely, the NIH admitting that "plants appear to be capable of making decisions" The question is, "plants appear to be capable of making decisions" with or without consciousness? What type of consciousness do plants appear to make decisions with? The statement by the NIH about Plants ability to make decisions implies that plants have some form of consciousness in the first place. But what type of consciousness do plants have? And the simple answer is that plants consciousness and awareness of their environment derives from their Cosmic Consciousness, *and not from bacteria as the NIH has inadvertently or incorrectly stated;*

"Plants compete for nutrients by pre-empting nutrient supplies from coming into contact

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with neighbors, which requires maximizing root length"
British Ecological Society (2013).https://besjournals.onlinelibrary.wiley.com)

According to RHS Gardening, the roots of a plant "explore the soil, seeking out water and mineral nutrients. They make dense networks and have a large absorbent surface area due to thousands of root hairs just behind their tips" RHS Gardening RHS https://www.rhs.org.uk. The question is; how do the roots of a plant explore the soil? Do the roots of a plant explore the soil consciously or unconsciously? The roots of a plant "explores the soil" for specific nutrients for a specific plant. But how does the roots of a plant identify specific nutrients in the soil that a specific plant needs without consciousness?

Of course, you do not expect a gardener or a botanist to mention the consciousness in the roots of a plant in exploring the soil for nutrients. Only a theorist such as the writer of this research Paper can postulate that plants use their Cosmic Consciousness to explore the soil and identify the specific nutrients they need for a specific plant in order for it to grow and do what it wants to do. Otherwise how do plants explore the soil to identify specific nutrients it needs to feed itself to grow and thrive?

Next, according to (RFH Giehl, 2014) — "*Plants are* able to adapt to *nutrient* shortage or localized *nutrient* availability by altering their *root* system architecture to efficiently explore *soil* zones Understanding how plants communicate". Here again, it begs the question how plants are able to adapt to nutrient shortage without the plant being conscious.

Evidence of plants ability to communicate information of danger

Here is a list of evidence from various research findings posted on websites such as ; 1), The National Institute of Health (NIH), 2) Quora, 3) Hidden Valley Hibiscus, 4) Time Magazine, 5) Esalq website and others.

Thus, any type of danger that threatens the lives of plants, plants often communicate such threats to their neighbors as advance warning for their neighbors to prepare to counter or reduce the damage such as insects and virus attacks or chemical attacks from herbicides". For example, according to The National Institute of Health (NIH), "Plants emit volatile organic compounds (VOCs) as a means to warn other plants of impending danger. Nearby plants exposed to the induced VOCs prepare their own defense weapons in response". Plant communication -National Institutes of Health (NIH) .gov, (https://www.ncbi.nlm.nih.gov).

Hence, to the question; do plants know they are near each other? Quora (2017) says"Yea. Some plants release hormones that can signal to nearby plants. Some plants can also detect when other

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plants are blocking sunlight overhead, or using up minerals in the soil near their root system. Lastly, plants can also respond to physical stimuli such as another plant growing or falling onto them". (Quora, Feb 6, 2017, (https://www.quora.com).

This is remarkably important. According to the Hidden Valley Hibiscus website, "Some plants communicate through their roots by secreting tiny amounts of special chemicals into the soil all through the plants root zone – what scientists call the rhizosphere. These chemicals, called root exudates, send signals to every other living thing in the root zone". Botany Made Easy ~ Plant Communication, Hidden Valley Hibiscus (https://www.hiddenvalleyhibiscus.com). Class: The Hidden Valley Hibiscus flower researchers have hit the nail on the head in showing how plants use their ("conscious roots power") to communicate with other plants. If plants communicating with other plants in their neighborhood does not indicate that plants are aware of their environment, what argument can any physicist or neuroscientist advance against such foolproof evidence of plants consciousness?

Here is another example of plants showing their awareness of their environment and of other plants growing near them. "Talking Tomatoes: Sick Plants Warn Their Neighbors, Chemical signaling allows healthy plants to defend themselves and each other when a single neighbor is under attack—a result of communication among species Time Magazine. (https://time.com May 1, 2014).

And now, finally, a group of plant researcher have mention "plant consciousness" in their statement and response to the question; are plants aware of other plants? *"Roots of plants are exquisitely conscious of and aware of self and not-self,* and engage in sophisticated interactions with a wide range of living organisms. The plant roots enter into symbiotic relationships with bacteria, fungi, and communicate with other plants that are highly sophisticated. Plant Consciousness: The Fascinating Evidence Showing Plants Have…" What an astounding admission of plants having consciousness by Luiz de Queiroz College of Agriculture, Brazil. The University of Sao Paulo (USP) Esalq website (Esalq http://www.esalq.usp.br). Class: what more scientific proof do you need in order to recognize that plants have consciousness, and that plants use their Cosmic Consciousness to pursue their activities of survival such as crosspollination?

Recommendation for further studies about Plants Consciousness

This Paper about a theory of a specific type of plants consciousness known as Cosmic Consciousness is the first definitive theory about plants having consciousness that allows plants 1) to be aware of themselves as individual plants, 2) to be aware of who or what plant is growing next to them, 3) to recognize dangerous things such as herbicides, or cutting that threatens their

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lives and 4) to communicate such by chemical means information as warning a to other plants in the neighborhood.

Some botanists, biologists and other scientists have noticed these conscious abilities of plants but they are scared to attribute such “mental capabilities” to plants as having consciousness. Instead, scientists have attributed plants apparent capabilities of communication to bacteria as the transmitting agent of plants communication. On the other hand, (the findings of this research) urge scientists to reexamine plants consciousness with the view of calling a spade a spade, and to affirm the fact that plants have a specific type of consciousness called Cosmic Consciousness that is different from human brain consciousness.

National Institutes of Health (NIH) does not attribute consciousness to plants yet the NIH talks about plants using adaptation just like Darwin’s finches used adaptation as survival mechanism towards their changing environment. But at least, Darwin’s finches were presumed to have brain consciousness right? How can plants without any type of consciousness ”be able to adapt to nutrient shortage or localized nutrient availability? The answer to this puzzle is of course plants use their Cosmic Consciousness to adapt to nutrient shortage or localized nutrient availability in the soil as laid out in this research Paper.

Conclusion

In conclusion, this research has found that the question of plants having mind and consciousness is a scientific nightmare that physicists and neuroscientists wish they never have to face. But there it is. This research has posed the question as to whether plants have consciousness or not to the scientific community after finding credible scientific evidence that in fact, plants do have consciousness. Therefore, it is incumbent on scientists to examine the evidence produced by this research Paper and to investigate the question of plants consciousness. However, whether plants have consciousness or not, whether the claim by this research Paper is true or not, science is now obligated to investigate and analyze any discoveries of any hidden truths about plants out there. This is the duty of science, this is what science is supposed to do.

If scientists can explore the outer reaches of the universe with space telescopes and propound theories about the multiverse and meta-verse, science should be able to find a way to investigate whether plants have consciousness or not. This is because plants affect our human lives a great deal. And if as this research Paper has claimed that *plants have consciousness that has enabled plants to hire and pay us humans beings to work as unwitting and ignorant workers for crosspollination and the dispersal of seeds,* should science not find itself obligated to investigate the evidence for such a claim?

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Right now, the problem is that neuroscientists and physicists have tried to define consciousness (which is a new term coined by scientists to replace the old philosophers term mind), in terms of quantum mechanics. But these scientists limit their investigation of consciousness to the human brain only and they will not accept anything else beyond the brain. Now, since the question of whether plants have consciousness or not is definitely beyond brain consciousness, do scientists have the right to avoid or ignore the question of plants consciousness? The answer is a big no.

As a matter of fact, scientists do not have the right to ignore the question of whether plants have consciousness or not. Again, this is because our human lives are intertwined with the lives of plants. In fact, our human life depends on plants more than plants life is dependent on humans. Physicists know that they can no longer avoid the question of plants having consciousness, which is why some of them have started trying to explain plants consciousness in terms of quantum mechanics which is the only way they think they can have any meaningful discussion about plants consciousness.

The fact is that describing consciousness in terms of quantum physics in the language of physics in no way matches the facts on the ground about plants consciousness and how plants have used their type of consciousness to meet their adversities in the natural world in order to survive and thrive as we see all over the world. This is because for any scientist to have any meaningful investigation, analysis, and discussion of plants consciousness, they have to accept certain basic assumptions namely, 1) the concept of faculties of mind, 2) that consciousness is not a single entity, or monist, but dual in nature and in principle, 3) that there are two main types of consciousness namely, Cosmic Consciousness and brain consciousness. 4) that human beings having brains, use brain consciousness for our activities of survival and behavior, while plants without brains use their Cosmic Consciousness for their activities of survival and behavior.

Therefore, for physicists to define or describe consciousness in terms of quantum mechanics without breaking down consciousness into its constituent parts is a problem. As a matter of fact, consciousness can be broken into its constituent parts. At least this research Paper has shown two constituent parts of consciousness as Cosmic Consciousness and brain consciousness. Human consciousness that scientists are touting as deriving from the brain can also be broken into its constituent parts too. But scientists have never considered the possibility that brain consciousness can be broken into its constituent parts. In my next research Paper, I am going to break down the constituent parts of consciousness.

Nonetheless, this research has thrown down the gantlet to physicists and neuroscientists that they can no longer ignore the existence of plants consciousness, a topic so vital to our human life. This is as a result of the fact that there has been numerous scientific experiments and observations of plants activities of survival that indicate beyond any scientific doubt that plants

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have consciousness and that plants use their type of consciousness in similar ways as we humans do. One remarkable example of scientific experimentation that proves beyond any reasonable scientific doubt *that plants have consciousness was done by Professor Monica Gagliano at The University of Sidney, in Australia.*

The Professor's experiment about plants consciousness meets the most rigorous scientific method. She used a control group of the sensitive and a placebo group of the sensitive Mimosa plant repeatedly to show that 1) plants can and do learn, and that 2) plants remember past experiences they have learned, and 3) most important of all, that plants are aware of their neighbors and who is growing next to any plant. What more scientific proof of plants consciousness does neuroscientists and physicists want?

Sadly, when some scientists took a look at the results of this remarkable experiment and being dumbfounded, a prominent scientist told this brilliant Professor of biological science, "I do not believe you". In response, the Professor replied that this is not philosophy where the interpretation of facts are subject to a philosopher's subjective thoughts. This is science, and this is the data, can we talk about the experimental data? That is when this world class scientist was sidelined, and ignored. Is this not sad for humanity?

Not only that. I listened to David Attenborough's expose on plants consciousness in a series of weekly productions on national TV in New York City in The US, when I was thinking about writing a book about plants consciousness, and I was facing the fact that I did not have any experimental data to support such a book. Then one morning, I listened to Mr. Attenborough's monologues on plants consciousness, and I said to myself; thanks to this man I will have enough scientific data for a book on plants consciousness. However, when I saw his book about the evidence he had collected about plants consciousness titled: The Private Life of Plants? I was saddened, because I knew what had happened.

I guess Mr. Attenborough may have wanted to title his book evidence of plants intelligence and consciousness, but his publishers impressed on him that the scientific community has no theory of plants consciousness, and he will face the question: what is the theory of plants consciousness you are referring to? So, Mr. Attenborough caved and settled with a title different from anything about plants consciousness which he had ample evidence for, than the evidence Darwin provided out of his exploration of animals in the Galapagos, which Darwin used for his big theory of evolution.

That is why I have dedicated this research Paper to these two advocates of plants consciousness for their boldness and work about plants consciousness, even though I have never met any of them. This is the end of the lecture on plants consciousness. Class dismiss!

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