PSYCHODENDROLOGY. A REVIEW OF THE SCIENTIFIC LITERATURE ON *PSYCHODENDRON PEREGRINUM*

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Abstract

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This paper is an interdisciplinary review of the scientific literature on *Psychodendron peregrinum* (‚soultrees'). The first part offers a review of the current state of the literature on *Psychodendron* morphology, physiology, and ecology. The second part recounts some of the hypotheses in the still highly speculative field of ‚vegetate' and ‚soulgarden' psychology. The third part discusses the current theories on the origin of *Psychodendron*.

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Keywords: *Psychodendron peregrinum*, Soultree, Soulgarden, Xenobiology, Psychodendrology

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Introduction

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Up until the appearance of *Psychodendron peregrinum*, the Earth's biosphere could be considered a closed ecological system. However, the novel species' presence on the planet and its broad interaction with native populations – and with *Homo sapiens* in particular – challenges this assumption. Already more than a decade ago, biologist and evolutionary theorist Sandra Ferrara argued that the appearance of the so-called ‚soultrees' on Earth implied the integration of our biosphere as a whole into an even broader ecological system of still unknown proportions. According to Ferrara, because of its consequences for our planet's ecology, this event is more relevant than any of the previous mass-extinction events that revolutionized

it in the past and could be considered the most significant event in Earth's history since the origin of life itself (Ferrara, 2041).

In the last decade or so, and given the impact of the proliferation of soulgardens around the globe, this view has become more mainstream. It has been maintained that *Psychodendron*'s arrival on our planet is also more significant than the advent of *Homo sapiens* and, thus, even more worthy of being considered the beginning of a new geological era that will effect profound changes on the face of the Earth. For instance, a recent estimate shows that, in the last decade, *Psychodendron* has already been responsible for the reforestation of over 300,000 km2 of land worldwide (Meyer & Torres, 2051). The spreading of soulgardens in tropical and equatorial regions also correlates with the reversal of several indicators of climate change in recent years (Katz et al., 2050). In a seminal article on the theme, philosopher of science Akemi Fusè dubbed this new era, which would cut short the already contentious Anthropocene, the „Psychodendrocene" (Fusè, 2050).

Accordingly, worldwide scientific interest in *Psychodendron peregrinum* has been massive, spawning heated debates and opening up whole new fields of research within the life sciences and beyond. It is the goal of this paper to offer an overview of the developments in the different fields of the novel science of ‚psychodendrology' (Bornholmer & Roth, 2050) in its intersections with other scientific disciplines.

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1. *Psychodendron* Morphology and Physiology

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a) Problems of taxonomy

The scientific community has not yet arrived at a consensus concerning various aspects of the morphological description and taxonomical classification of *Psychodendron peregrinum*. Obviously, it is the only species in its genus. Some have even argued that *Psychodendron* should be classified in a separate kingdom altogether (Surkov, 2047). Others point out significant similarities with local flora that might suggest remote common ancestry (Bornholmer et al., 2049; Bornholmer, 2050).

Furthermore, it is a well-known fact that, despite its unparalleled ability to enter mutualistic bonds with other living beings, *Psychodendra* can only fully develop in symbiosis with a human organism. So far, there has been no record of a fully functional non-human vegetate, and artificial

insemination attempts both in vivo and in vitro have failed (Urbanski & Baldakian, 2043; Cunha et al., 2043). This obligatory symbiosis of *Psychodendron* with a human organism has led some theorists to argue that the symbiotic whole of these two organisms should be considered a species of its own. In this context, the term ‚holobiont', proposed independently by Adolf Meyer-Abich in the 1940s and by Lynn Margulis in her 1991 book *Symbiosis as a Source of Evolutionary Innovation* to describe a symbiotic multi-species organism (cf. Baedke et al. 2020), has gained in popularity in the last decades. The holobiont has been defined as the biological unit whose genome (holobiome) is the sum of the genomes of all the genetically distinct symbiotic partners that compose it (Zilber-Rosenberg & Rosenberg 2008, Guerrero et al. 2013, Harrison & Mikkola 2029). The fully developed *Homo sapiens / Psychodendron peregrinum* holobiont has become popularly known as a ‚vegetate', but attempts are being made by some to establish a scientific nomenclature for it.

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b) Stages of soultree development (lignification)

In order to germinate, *Psychodendron*'s seeds must reach the digestive tract of an appropriate symbiont. This happens mostly through direct ingestion of the soultree's fruit.

In the still relatively short time since the first documented occurrence of soultrees on Earth, many studies have been conducted to establish the characteristics of *Psychodendron's* physiological processes and their interactions with the human body as the symbiotic link is being established. Prof. Herbert Rasmussen at the University of California in Berkeley, who conducted the most extensive studies of the soultree lifecycle so far, has repurposed the vocabulary used to describe the growth stages of many plants to divide the development of the soultree within its symbiotic partner's body into four main phases. The whole of the process, which begins with insemination and ends with transplantation when the holobiont reaches maturity, has been labeled *lignification,* and its stages, as proposed by Rasmussen (2046), are as follows:

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1. *Sprout.* Once a seed reaches a human being's digestive tract, it sprouts and takes root inside the large intestine, where it can feed on the symbiotic partner's nutrient-rich bodily waste. Since the sprout has no access

to sunlight at this stage, it will rely completely on its partner to nourish it throughout the early stages of its growth.

This is a delicate phase for the young soultree, and many do not survive it.[1] Already at this early stage, the soultree's roots establish their first connections with the partner's circulatory and nervous systems. This kicks off a complex (and for the most part still obscure) set of electrical and chemical interactions with the partner, which will be progressively reinforced and extended throughout the soultree's development.

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2. *Seedling.* Within a few days, if the sprouting is successful, the soultree's roots acquire a firm hold of the partner's innards and begin to spread flexible rootlets throughout their organism. Simultaneously, branch-like vessels permeate the symbiotic partner's flesh to reach the epidermis. Once there, they develop subcutaneous structures that allow the soultree to photosynthesize.

These so-called ‚soulmarks' sprout from nodal points dubbed ‚meristems' in analogy with the tissues associated with growth in native plants. They consist of roughly circular patches of striated cellulose tissue interspersed with chlorophyll-rich cells that slowly expand as the soultree matures. It is due to these structures, vital to the soultree's survival, that patients from the seedling stage on acquire the characteristic green hue of their skin.

Professor Vieira's team at Wageningen University has demonstrated that photosynthesis benefits not only the soultree but also its symbiotic partner, who will also require less calorie intake as the soulmarks increase in surface area and the soultree's photosynthetic activity intensifies. Vieira has also shown that a subject will require more nourishment if deprived of sunlight and that the absence of the latter for extended periods of time entails a rapid degradation of both symbiotic partners' vitality (Vieira et al., 2049).

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[1] It has been suggested that the partner's diet can influence the success rate of the soultree sprout reaching the epidermis before its energy is depleted and thus commencing to sustain itself through photosynthesis (Rasmussen et al., 2047). Conversely, this would mean that the ingestion of certain substances could render humans more resistant to Psychodendron. However, no attempts in this sense have proven effective to date. The most promising work in this sense is that of Prof. Jeong Bong-Cha at Pyongyang University, who is experimenting with milk protein and sugars to produce a gut environment hostile to Psychodendron peregrinum (Jeong et al. 2049).

Simultaneously, the chemical interactions between both symbionts become increasingly complex, and there is a constant and measurable exchange of electrical impulses between the soultree's roots and the partner's nervous system (Patel et al., 2049). The electrical impulses stemming from the soultree are many times weaker and slower than those in the human nervous system, but it is suspected that different substances akin to neurotransmitters found at the junction of the rootlets and the human nerve endings play a role in converting the stimuli as they move back and forth between the symbiotic partners (Patel et al., 2049a).

This increased neurological interaction between both symbionts can be considered another main characteristic of this phase of lignification. Its profound psychological implications will be discussed separately in the next section. For now, it suffices to say that, through the soultree's mediation, the partner acquires the ability to perceive, interpret, and respond to chemical signals not only from the soultree itself but from various other organisms (mainly insects, plants, fungi, microorganisms; in a lesser extent, other vertebrates), as well as to produce and release their own chemical compounds to induce certain states in them and to elicit specific behaviors from them.

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3. *Sapling.* At this stage, the human partner's body progressively develops visible plant-like features. The skin around the subcutaneous leaves hardens and acquires a texture similar to tree bark. An increase of cellulose-coated cells in parts of the skin as the symbiotic process advances was observed by different parties (Pearson, 2047; Beenhouwer et al., 2048).[2]

[2] In this paper, I will not discuss the cytology and genetics of soultrees. The studies in this field are still very preliminary and contradictory. What has been established is that Psychodendron has the ability to develop a great variety of differentiated cell tissues, so much so that it defies our conventional understanding of gene expression and epigenetics. The soultree's DNA, which seems to share its basic structures with native eukaryotic life forms (linear double-helix packed together as a chromosome), has been estimated to contain about 900 million base pairs – less than one-third of the human genome (Hussein et al., 2048). However, it has long been known that genome size does not correlate with an organism's complexity (Van Straalen & Roelofs, 2006). Observations suggest that gene expression in soultrees might involve previously unknown mechanisms, which may account for its unparalleled ability to establish meaningful interactions with other species (Ruggiero, 2050). – One more interesting preliminary result in this field worth noting due to its relevance to the speculations to be presented in section 3 of this paper is that the analysis of the soultree's mitochondrial and chloroplast DNA suggests a common ancestry with native eukaryotic life that dates back to at least 1.5 billion years ago, which roughly coincides with the estimated

Another characteristic of this late stage is the slowing down of the partner's metabolism, reflexes, and voluntary movements. The cause of this change is yet to be established, but there is a strong indication that it might have a neurological basis as well as a merely physical one (Patel et al., 2049a).

This phase is also characterized by an increasing aversion to most human nourishment, as the soultree takes over most of the energy production for its partner. Conversely, the need for sunlight becomes vital, and both symbiotic partners show a rapid decline in metabolism when kept away from it for longer than 24 hours (Vieira et al., 2049).

Another typical phenomenon at this stage is what has been dubbed ‚emergence' or – more crudely – ‚bursting': once the coverage with subcutaneous leaves reaches a certain level, the meristems begin to grow vertical stems that break through the partner's skin into the open. In some cases, these can display leaves and even flowers before transplantation. The emergence of roots through the abdomen's walls, though not always present, marks the end of this stage and the need for the sapling to be transplanted into soil.

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4. *Vegetate*. Once the body is completely lignified, it ceases all perceptible motion, and the soultree is transplanted into the ground along with its partner. The roots of a fully lignified subject will spontaneously reach into the ground and gradually drag the host underground.

However, this, too, is a very delicate stage in the development of the symbiotic partnership, since the emergence of the soultree's roots might produce open wounds on the partner's body that are at risk of infection. Transplantation as a practice facilitates the transition into vegetation and aims at avoiding the risks associated with an unassisted passage into the vegetative stage.

Once the roots take hold in the soil, the soultree sprouts from the spot where the body is buried. The tree's roots spread from the transplanted holobiont underground, forming a chamber around the rootstock in which the symbiotic partner's body lies, enveloped by the soultree's roots. The latter expand indefinitely through the surrounding soil (soultree roots have been found as far as two kilometers away from the nearest rootstock, and it is

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origin of eukaryotic cells on Earth (Bornholmer et al., 2049). – For a review of the research into soultree cytology cf. D'Avila, 2051.

suspected that they may reach even further, depending on circumstances; cf. Quaid & Hauser 2047).

This final stage of the human-soultree symbiotic relationship is doubtlessly the most obscure one to date. Once a soultree and its partner are transplanted, their behavior changes radically. Soulgardens are autonomous units that will employ a vast array of tactics to defend themselves against invasions and threats, and, unfortunately, this includes curious scholars. However, from the little that is known so far, it is clear that the partner's vital functions remain active even after full lignification, although slowed to an almost imperceptible pace. It has been observed that vegetates react to direct stimuli and that limited movement is still possible. On the other hand, at least some basic physiological functions – such as digestion, for instance – seem to become obsolete at this point.[3]

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c) Vegetate morphology and physiology

After transplantation, the soultree produces a trunk with a smooth, soft bark of a very dark, purplish color. Its large dark-green leaves (10-20 cm) are thick and glossy and have veins running through them, not unlike the leaves of dicotyledons native to Earth. Also like many native *Angiospermae*, mature soultrees are monoecious and produce perfect flowers. These have a crimson corolla of five petals about 10 cm long surrounding the black stamens and pistils in the core.

The soultree's fruit is quite large (its average length ranges between 20 and 30 cm, weighing from 200 to 500 grams) and elongated like a pear. It has smooth beige skin and a red, fleshy pericarp with dozens of small black seeds embedded in it.[4]

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[3] The most valuable work so far in this area is doubtlessly that of Prof. Yihan Chen at Nanjing Agricultural University, who managed – at great cost – to register some data on vegetate physiological functions within a soulgarden located in the area of the Zhongshan Mountain National Park (Chen et al., 2047, 2047a; Kelly, 2047). The french anthropologist Romain Rouget (2050) compiled a great number of accounts about soulgardens around Europe that document the practices and experiences of so-called germinators, some of which touch on the subject of vegetate physiology and behavior. However, since such accounts are mostly interspersed with a good deal of mythology and superstition and stem almost invariably from uneducated laymen, their scientific value is questionable at best.

[4] Rouget and others have reported on the supposed psychotropic effects of the ritual consumption of soultree fruit within soulgarden communities. At the moment it is unclear if the fruit requires some kind of special preparation in order to acquire psychotropic

Naturally, this very vague description pertains to what we might call an ‚ideal' or ‚ur'-soultree, which, as such, cannot be found in the wild. As has been widely documented, *Psychodendron*'s structures are incredibly plastic and can be adapted to serve countless purposes, depending on the circumstances and the ecological conditions of its surroundings (Dominguez, 2047).

As we can see from the schema above, *Psychodendron peregrinum*'s relationship with its symbiotic partner is marked by a final reversal of the endosymbiotic relationship occurring in the passage from stage 3 to stage 4 of its development. Here, the soultree ‚emerges' from its ‚host' and, in turn, converts it into an endosymbiont of its own. I make this observation with the caveat that, in accordance with the currently accepted terminology, it is misleading to consider one of the symbionts the ‚host' of the other.[5] To avoid confusion, Rasmussen follows the established use and refers to the organic unit encompassing a soultree and its symbiotic partner at this final stage as a ‚vegetate'. I will be adopting this terminology.

However, it would also be a mistake to consider the vegetate a discrete organic unit, since it is characterized precisely by an extensive – and progressive – integration of both partners' organic functions into an ever-broadening network of cross-species interactions. In this, the soultree seems to act as a mediator, transforming physical, chemical, and electrical signals picked up through the air or the soil into stimuli that the partner's nervous

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properties. Chemical analyses and in vivo tests were inconclusive (Rouget, 2050; Áquila, 2046; Hansen & Nielsen, 2049; Torres, 2046).

[5] Formerly, co-evolution was often framed as a hierarchized process, and terminology distinguished between a host organism and other bionts associated with it (the host's, microbiome, virome, etc.). Such a distinction might be useful in asymmetric interactions such as commensalism and parasitism, but – not unlike competition – mutualist and symbiotic relations are characterized by the fact that the ecological interaction remains the same from both points of view: here, there are no ‚hosts' and ‚guests', no ‚givers' on one side and ‚takers' on the other. When certain fungi and algae, for instance, enter a symbiotic relationship to form a lichen, how are we to say who is a ‚host' to whom? Or, in the case of mitochondria in eukaryotic cells: since the former lives within the cellular structure of the latter, we tend to identify the eukaryote as the prokaryote's ‚host', which at some point incorporated it to exploit its ability to produce ATP. However, although it is true that a mitochondrion cannot survive outside the eukaryotic cell, the latter is just as vitally dependent on its mitochondria. That is to say, strictly speaking, in symbiosis, there is no subordination or assimilation of one organism by another, but rather the production of a higher unity – a holobiont –, which is distinct from the individual organisms integrated into it and relates to them like an organism to its organs. Accordingly, throughout this paper, I avoid speaking of the ‚host' and its ‚biomes', but instead designate the organisms that compose a holobiont as ‚symbiotic partners'.

system can interpret and act upon. The result of this extraordinary behavior is that the actual constitution of each vegetate is unique, varying from ecosystem to ecosystem as well as from individual to individual within the same ecosystem, even within a single soulgarden.[6]

In vitro studies have shown that, like many plants native to Earth, once a soultree reaches the vegetative phase, it will grow indefinitely and is, as such, virtually imperishable. The meristem-like structures on its branches and roots constantly produce new undifferentiated cells which allow it to grow new tissues as needed (Pearson 2049). In all of this, soultrees are similar to many perennial plants found on Earth, as well as sea sponges and corals.

However, what is most striking about the human-soultree holobiont, is that the soultree's symbiotic partners acquire similar traits. Observations show that from the moment the symbiotic link is established between the soultree and its human symbiotic partner, the aging process of the latter starts grinding to a halt. At first, it was believed that this effect was due to the slowing down of the partner's metabolism, but it was later discovered that senescence had stopped at the cellular level as well: just like the soultree's, the partner's tissues also remain able to grow and regenerate indefinitely. The actual mechanism which operates this change is still unknown, but some data point to the soultree actively producing telomerase and substituting cell senescence with external mechanisms of growth control (Chen et al., 2047a). Additionally, it has been observed that the symbiotic partner's animal tissues continue to grow together with those of the soultree. Samples taken from soultree roots showed the presence of human blood and nerve cells, as well as those of other animals, plants, and fungi (ibid.).

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d) Soulgarden physioecology

Another distinguishing feature of the vegetate is that it doesn't only maintain an obligatory symbiotic relationship with a single partner and a host of elective symbiotic relationships with countless other organisms of various species, but also has the ability to synergetically coordinate with other

[6] There is still little to be said from a biological perspective about the vegetate's unparalleled ability to establish symbiotic relationships with virtually every population of living beings in its surroundings. The mechanisms behind it are so complex and so conflicting with our conventional understanding of natural evolution and ecology that scholars have so far unable to make any significant advances in delivering a satisfactory naturalistic explanation for it (whereas, naturally, pseudoscientific ‚explanations' abound, none of which are worth mentioning here).

surrounding vegetates to form fully integrated superorganisms. Once the vegetative stage is reached and the holobiont is transplanted, it will actively seek to link itself to as many other individuals as possible, producing a network colloquially known as a ‚soulgarden'. Thus, soulgardens are these higher-level synergetically coordinated superorganisms (‚super-holobionts'?) that arise from the interaction of a network of vegetates with each other and the surrounding fauna and flora.

This unique feature of the soulgarden characterizes it at once as an ecosystem and as a superorganism in which single vegetates are integrated in a manner analogous to organs within an organism. A vegetate's physiological functions are largely subordinated to those of the soulgarden, and individual vegetates build only relatively independent units within it. This has led to much debate around the relative biological status of the soulgarden and the vegetates that integrate it.[7]

More generally, the study of soulgardens has deepened the already ongoing crisis concerning some of the most fundamental concepts of ecology and evolutionary science. A more prominent example of such revisionism is J. E. Morris' critique of the concepts of species and organism, laid out in his controversial work on what he calls ‚physioecology' (Morris, 2047).

According to him, soulgarden ecology is nothing more than the intensification of processes already essential to life on Earth. Morris contends that, since every organism is always engaged in vital interactions with other organisms and thus only a relatively closed system, the limits of any organism as a concrete unit are themselves blurry and more or less arbitrary. All organisms are, at the very least, potentially open to being integrated into a holobiont of a higher level of organization. Consequently, not only the definition of a species as a taxonomical unit but also the delimitation of a concrete biological unit (an organism) would be based merely on heuristic criteria.

In an analogy with the soulgarden, Morris proposes a synthetic view of the evolving biosphere as a single – although internally differentiated – holobiont developing through time, which science divides into discrete units to produce an organized system of knowledge that more or less depicts its complex unity.[8]

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[7] See the discussions in Bornholmer & Roth (2050).
[8] For a critique of Morris' position cf. Braun & Drusic (2047).

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2. Vegetate and Soulgarden Psychology

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a) The Vegetate

Among all the uncertainties surrounding the study of *Psychodendron peregrinum,* there is probably no topic more controversial than that of vegetate and soulgarden psychology.[9]

In its earlier stages, this debate was dominated by two extreme positions which have been repeated in countless variations by scientists and echoed by society more broadly. Ultimately, both lead to the same agnostic attitude toward the possibility of acquiring any kind of scientific knowledge on the psychological experience of vegetates. Only more recent developments in the field of vegetate physiology delivered a somewhat more stable basis for establishing some general hypotheses on vegetate psychology.

The first one of the early theories, already sufficiently refuted by the data available today, stated that the consciousness of the human symbiotic partner does not survive transplantation, but that instead all their organic functions, including their nervous system, are coopted and repurposed by the soultree. We may call this hypothesis – first proposed by Brendan Connor (2040) and then popularized by alarmist psychodendrophobes such as Glen Dukakis in his 2041 documentary *A Case for Humanity* and neohumanist savvysphere influencer Trisha Taylor – the ‚psychic death hypothesis'. It is derived from the initially widespread assumption that *Psychodendron* would simply kill its symbiotic partner once lignification was completed and consume its rotting corpse. It was only the overwhelming evidence of the continuation of human organic processes even after transplantation that forced the proponents of this bleak view to substitute full organic death with a mere ‚psychic death'.

The second hypothesis, which, at first, might seem more nuanced, posed that human subjects do not simply disappear with lignification but that, nevertheless, their psychic structure is so profoundly altered that any attempt

[9] In this section, I will only be reviewing the literature on Psychodendron psychology and epistemology. The profound cultural and socio-economic impacts of the establishment of soulgardens around the globe – especially considering their geographical distribution – have been widely debated. More recently they have been the object of a panel hosted in 2051 by the UN and the World Bank in Oslo.

at communicating with or even at studying them would be futile (e. g. Zaitsev, 2042; Cuervo, 2045). It has been argued that, concerning the possibility of establishing vegetate psychology as a scientific discipline, there is no substantial difference between this hypothesis – which we might call ‚psychic metamorphosis' – and that of plain psychic death (Abbot, 2048).

In more recent years, a growing body of evidence, especially from the life sciences, has rendered both the hypothesis of psychic death and that of psychic metamorphosis all but obsolete. To begin with, research shows that there is no basis to assume that the soultree itself is conscious, at least not in the usual sense of the term (ibid.). Although, as mentioned, there is a measurable exchange of information between the soultree's tissues and its partner's nervous system, *Psychodendron* itself does not exhibit anything akin to a central nervous system, which one would assume to be the biological basis for something analogous to what human beings experience as consciousness. Thus, the notion that there might be a superior alien intelligence controlling or somehow subsuming the human consciousness within the vegetate lacks an empirical basis. Early observations have shown that, as such, soultrees most probably have, at best, a sort of vegetative drive analogous to that of plants (Bates & Surkov, 2046). This has been confirmed by more rigorous studies in more recent times (Marxheimer et al., 2051).

Consequently, concerning psychological traits such as consciousness, memory, and personality, there is no evidence to back the notion that fully lignified vegetates are not still the same human beings as before. Like their physiological functions, their psychological processes most likely remain as they were, and are altered only through their integration into a broader network of organic interactions. However, on the other hand, because of this integration, one must suppose that a vegetate's subjective experience of the world differs greatly from regular human experience.[10] In what follows we will briefly summarize the main hypotheses on which the more recent research in the emergent field of vegetate psychology is based.

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1. *Psychological drives.* Since direct access to fully developed vegetates is next to impossible for the scientific community, most of our current insights into vegetate psychology are extrapolations from what has been observed in subjects at earlier stages of lignification. For the most part, these

[10] Angelopoulos & Roberts (2050) is representative of the more recent trends in the novel field of what they call ‚dendropsychology'.

extrapolations have yet to be empirically confirmed, but, as Taleb (2048) points out, there are good reasons to assume that the psychological experience of lignification runs parallel to the organic transformations described in the previous section. Already from the very beginning (‚sprout' stage), the soultree will start to influence its partner's organic processes to communicate its own needs. In the partner's conscious mind, this is perceived as a gradual change in drives and inclinations that will lead them to naturally provide for the soultree along with themselves (ibid.). Experiments with patients at the sprout and seedling stages of development have shown that these drives are perceived by the subject as their own and seem to be subjectively indistinguishable from the urges stemming from their animal organism, although they are able to cognitively make this distinction (Donovan et al., 2049b).

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2. *Senses.* Parallel to this shift in the subject's drive economy, a progressive expansion of its experience of both its internal organic processes and the surrounding world has been observed, especially from the ‚seedling' stage onward. Subjects show signs of being intuitively attuned to environmental conditions, which they pick up subconsciously from cues such as the temperature and humidity of soil and air, the chemical makeup of vapors emanating from the ground, and chemical signals such as pheromones from insects and other animals and aromatic benzenes from plants and fungi (Donovan et al., 2049, 2049a).

Through this, the scope of the human subjects' perception is enhanced far beyond the functions commonly associated with consciousness. This perception is simultaneously very diffuse and, at least in some cases, incredibly precise. On a conscious level, the signals transmitted through the soultree seem to be perceived immediately as given sensations, which subjects can consciously act upon. As described by subjects in early stages of lignification, this novel sensory data, albeit not producing an actual representation of its object, can, nonetheless, interact synesthetically with other senses, adding layers of information to data delivered by the latter (Taleb, 2048). In this sense, the visual data, for instance, of observing a given object, can be enriched with data from non-human sensory sources to produce a more complex visual representation of the object. It is believed that this synesthetic experience – which doesn't always occur and seems to vary from individual to individual – is the product of an attempt by the subject's nervous

system to integrate this new dimension of experience into a coherent unity (Palmieri, 2049).

Since the conclusion of the lignification process consists of an inversion of the endosymbiotic relationship between the soultree and its human partner, one must assume that vegetate perception is characterized by a similar inversion, that is, the non-human sensory apparatus mediated by the soultree should become prevalent, with the sensory data provided by the normal human senses becoming relatively negligible (ibid.).

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3. *Agency.* Finally, similar to what was discussed in the case of perception, the extraordinary modes of action made possible through symbiosis with *Psychodendron* are perceived by the subjects as immediate effects of their volition. Just like the mind of a regular human being is not aware of the chemical processes involved in transforming electrical impulses issued by its brain into action, subjects affected by *Psychodendron* have no consciousness of the organic processes underlying the actions they perform thanks to their symbiotic link to the soultree (Edwards & Montgomery, 2046). One can only assume that the same goes for fully lignified and transplanted vegetates (Palmieri, 2049).

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4. *Time perception.* Among the myths and superstitions surrounding soulgardens, accounts of their prescience are doubtlessly some of the most intriguing. Anthropological surveys like that of Rouget (2050) are full of them.

It has been observed that the lignification process, although relatively constant, accelerates exponentially from the subject's point of view. As they go through the various stages of the soultree's development, their time perception seems to accelerate or contract progressively, so that each moment seems to go by faster and faster. (Sanchez & Horowitz 2050).

Based on medical and psychological tests run on subjects at various stages of lignification, Rafaela Sanchez proposed an analogy that provides an approximation of what time is to a vegetate: one must imagine that, for a vegetate, each day is like a breath, and each year like a day. Since humans take around 20,000 breaths a day, one would have to imagine Vegetates as extremely slow, deep-breathing creatures – as plants, in fact, are. (Sanchez 2050).

The effects of this altered time perception – paired with a potentially unlimited lifespan – are decisive for vegetate psychology. It has long been known that time perception varies greatly in different animals (e. g. Healy et al., 2013). Because vegetates perceive time differently, their view on history and evolution must also be quite different from that of humans. It is broader, but also more personal and intimate. A simple analysis would suggest that, proportionally to a human, taking into account its life span and the rate of its time perception, a vegetate would look back on three or four hundred years much like a man would look back on a single year.

Based on similar comparisons, neuroscientist and neopragmatist Richard E. Jones argues that, since lignification allows consciousness to last uninterrupted for thousands of years, potentially even forever, and since all of the soulgarden's minds are integrated into an intuitive network of mutual understanding, the cumbersome and imprecise work of cultural transmission is practically abolished, the psychic equivalent of countless human generations being contained in a single collective mind developing continuously throughout the ages. Consequently, having a much wider consciousness of the development of things, vegetates are also able to foresee and plan on a much larger scale than any human community. This would mean that the soulgarden's projects span over millennia and that a vegetate plans for a whole year just like a man would plan for a single day (Jones, 2045).

Based on this, Jones argues that soulgardens don't possess a time-bending divinatory ability. Rather, they see the future the same way we see it when we predict that an object moving through the air in a certain direction will hit us in the face if we don't dodge it. We don't actually predict anything, but rely on our senses and memories and ultimately on the bulk of our whole experience to *act* a certain way and, in this way, *produce* a certain future. Ultimately, Jones' argument is based on the notion that, while the past is an object of knowledge, the future is a product of action. The difference between us and the vegetates is that both their senses and their lived experience are many times vaster than ours (ibid.).

In more recent times, this view has been backed by empirical studies such as those of Sanchez and her team at Princeton University.

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b) The Soulgarden

In more recent years, as the reality of the continued conscious existence of fully lignified human beings has become more and more established, researchers have begun to speculate about the psychological implications of one aspect of the vegetate's psyche that finds no direct analogy in earlier stages of lignification. The physical coalescence of vegetates into soulgardens raises the question of the limits of organic individuality touched upon in the first section. Vegetate psychology poses a similar problem on a different level, concerning the delimitation not of an organic, but of a *psychological* unit (Jameson, 2050).

In the current situation, there is, of course, no direct way to confirm that soulgardens constitute cohesive psychological individualities. However, many indices – among which the Mt. Manaraga incident of 2047 is doubtlessly the most prominent – suggest that they are able to act as coherent, highly coordinated units. The way in which they organize and defend their territory and its inhabitants and more generally the character of their interactions with outsiders strongly indicates that the soulgarden itself is an intelligent being able to interpret its surrounding conditions and capable of complex behavior indicative of reflexive reasoning. This also agrees with the scarce available accounts from members of soulgarden communities, which seem consistent in treating soulgardens as unitary conscious beings.[11]

Based on this, some have argued that the soulgarden must have, on the subjective side, a unity similar to that which we call the self. Austrian philosopher Kurt Schlosser has proposed to name this psychological unit a ‚spirit' with reference to G. W. F. Hegel's *Phenomenology of the Spirit* (Schlosser 2051). Drawing on the current knowledge about soulgarden physioecology, Schlosser assumes that, just as human organic structures are preserved within the more complex unit of the soulgarden and its functions integrated into those of the superior holobiont, the self-aware psychic unity of the conscious self also remains, albeit integrated into a larger whole. According to Schlosser, a single vegetate should preserve its psychic identity, but at the same time also acquire an awareness of its partiality, as well as a direct intuitive link to other subjectivities (human and otherwise) that integrate the soulgarden. Thus, it appears that, within the soulgarden, which incorporates an indefinite number of organisms of various species, each previous psychological individual preserves its individuality while

[11] For a number of examples see Rouget (2050).

simultaneously becoming coordinated with other such individuals, like relatively independent nodes within a broader cognitive network.

Naturally, this raises the question if the web of subjectivities that makes out the soulgarden's supposed psychological structure can itself be taken to possess some manner of psychological unity analogous to consciousness or even to self-awareness. As mentioned, the superorganism's behavior strongly suggests that there is an overarching superintelligence that encompasses and integrates the vegetates' single nervous systems into a greater coordinated whole. However, it is not certain if this intelligence is also self-aware (Miranda, 2046). This is a question that, so far, at least, hasn't been answered in a definite manner – and some have raised doubts that it ever will (Irving, 2046). However, the scarce second and third-hand accounts of vegetates suggest that their psychology – their ‚mind', so to speak – includes states and processes of which their human consciousness in the stricter sense isn't directly aware, but which nevertheless inform their experience and influence their thought processes and actions in unconscious and immediate ways. In this manner, it is possible for them to perceive that they are but a part of a larger whole, even though they cannot perceive this whole as such (Roberts, 2050).

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3. On the Origin of *Psychodendron peregrinum*

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It is now widely accepted that, although the first documented cases of human infection date from early 2041, *Psychodendron* seeds were first released into the Earth's biome at some point in 2038-39. Patterns of infection across the globe suggest that seeds originated in Antarctica and then spread throughout the planet, finally taking hold in the milder climates of temperate and especially of tropical and equatorial regions (Fabiani et al. 2044).

While some have suggested that *Psychodendron* might have reached Earth recently on an asteroid (e. g. Ovailoglu, 2042), the most accepted theory to date is that the seeds had been lying dormant under the permafrost and surfaced again as the ice melted away in recent decades. More recent evidence from samples extracted from glaciers corroborates this theory (Navarro et al., 2051).

The geological record suggests that these seeds must have been placed there around 15,000 years ago, in the late Pleistocene and before the Younger Dryas (ibid.). There are no fossil records on Earth of anything resembling

Psychodendron, neither before, nor after this point in time. However, as mentioned previously, phylogenetic data suggest that the common ancestry of *Psychodendron* with local life dates back at least 1.5 billion years (Bornhlolmer et al., 2049). Several theories have been put forth to try to combine these disparaging pieces of evidence, none of which have been proven as of yet.

Among the current hypotheses on the origin of *Psychodendron,* the most popular is surely the one put forward recently by philosopher and evolutionary theorist Barbara Goldberg. According to her, based on what we know about evolution on Earth and the soultree's peculiar behavior and life cycle, which includes an obligatory symbiotic relationship with a native species (i. e. *Homo sapiens*) and the potential to spontaneously form mutualistic bonds of varying degrees with almost any other living being in its surroundings, there are only two possible ways to explain it: Either *Psychodendron* evolved within a system quite similar to the Earth's biosphere and more specifically in interaction with an intelligent species equally similar to the human being; or it was intentionally engineered to interact with local fauna and flora the way it does. Both of these hypotheses link *Psychodendron* to an alien intelligence, probably one similar to ours but possibly also far superior to it. According to Goldberg, since it is unlikely that *Psychodendron* would have arrived here by chance, and since its existence implies a being similar to us, it would be reasonable to assume that the species has been placed on our planet intentionally.

Based on this, Goldberg suggests that if these beings have been living in symbiosis with *Psychodendron,* they would have similar characteristics and psychological traits as our vegetates. Considering what was said above about the altered spatial and temporal dimensions of the soulgarden's experience of the world, Goldberg hypothesizes that they could be seeding planets in the same manner that we sow a garden: by picking the right time and place to bury the seeds and awaiting the development of the planet's biosphere. Like a gardener can predict with a good amount of precision that a seed will thrive in a certain spot at a specific time of the year, an extraterrestrial race with a sufficiently contracted sense of time and a correspondingly vast experience might be able to pick the right time and spot for the sowing of soultrees on different planets.

This, in turn, would mean that there are potentially many different races of vegetates across the galaxy – maybe even beyond. Maybe the race that sent *Psychodendron* here was itself once seeded from somewhere else. Based on that, Goldberg concludes that, given enough time, it is natural that, in turn,

Earth vegetates, too, wold eventually seek out foreign planets to sow their seeds on (Goldberg, 2052).

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Conclusion

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The review of the current scientific literature on *Psychodendron peregrinum* confirms what was stated at the beginning of this paper: while it is clear that research into so-called ‚psychodendrology' is still in its embryonic stage and fraught with difficulties of all kinds, it already reveals potentially revolutionary intersections with numerous other scientific disciplines. As such, the study of *Psychodendron peregrinum* and its interactions with the Earth's biosphere – and specifically with *Homo sapiens* – must be the object of an interdisciplinary effort that is only in its very beginnings.

It is comforting to see that, despite the adverse conditions and the very real and urgent concerns raised by the proliferation of soulgardens around the globe, the scientific community has been able to produce solid and reliable research in many areas concerning *Psychodendron peregrinum*. It is the position of the author that, whichever the fate of our species, it is certain that acquiring well-grounded scientific knowledge on the topic will be fundamental in shaping it.

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