Rikard Dahl

ALCHEMY FROM HYPERSPACE

PSYCHEDELICS IN CONTEMPORARY SCIENCE AND SPIRITUALITY

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Handledare: Mikael Stenmark

Uppsala Universitet

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1.Introduction: The Psychedelic Rennaisance

Recent years have seen a resurgence of scientific and scholarly interest in psychedelic drugs, leading some to proclaim the advent of a "psychedelic renaissance".[1] Since the controversial introduction of psychedelic use in the West during the countercultural days of the sixties' hippie generation, psychedelic substances have been associated both with spiritual enlightenment and emotional healing, as well as being seen as psychologically destructive and destabilizing. Within the context of the emerging American "war on drugs", psychedelic practices were construed as morally and socially detrimental, and heavy politicization, along with media sensationalism, shaped public and even scientific discourse in the ensuing decades. In the present moment the substances remain illegal for recreational and non-experimental use in most countries, but clinical research on their potential therapeutic benefits has gradually been depoliticized, and it is now medically legitimate to conduct such research for the first time in 40 years. In clinical contexts, the psychodynamic effects of psychedelics have been shown to alleviate terminal anxiety[2], attenuate treatment resistant depression,[3456] reduce addictions,[7891011] and other compulsive behaviors,[1213] improve creativity,[14] treat cluster headaches,[15] foster long-lasting psychological improvements,[16] pro-social behavior changes,[1718] and even occasion mystical experiences.[19]

In addition to the role these compounds play in officially sanctioned research, the existence of a psychedelic underground movement continues to assert itself as a cultural phenomenon, particularly within the domain of spirituality. Scholarship has shown how psychedelic experiences (PE) played a pivotal role in shaping and motivating the religious innovation of the incipient "new religious movements" within their formative American context.[20] In the following account, we will refer to this movement and it's stories, ideas, aesthetics, and other cultural expressions as *Psychedelia*.

Even as in some sense assuming the stance of an anti-culture, Psychedelia has kept a tight pace with cultural and intellectual shifts and fashions, and over the years, different thought-leaders have commanded the attention and aspirations of practitioners. The foremost of all such psy-

chedelic figureheads was Terence McKenna. Taking over the mantle from Timothy Leary as the high priest of hallucinogens, McKenna provided a comprehensive and, for many, compelling psychedelic worldview complete with a mathematical model eschatology based on his own experiences in altered states of consciousness (ASC). Instead of placing psychedelics in the context of either psychotherapy or eastern mysticism, as the earlier generation, McKenna looked to shamanism as the interpretive framework. This re-discovery[21] of shamanism was inspired in McKenna by his encounter with strange discarnate intelligences he called "self-transforming machine elves," during an experience with the powerful and short-acting psychedelic dimethyltryptamine (DMT). DMT a.k.a. "the Spirit Molecule," a substance whose sociology have been dramatically affected by McKenna's ideas. Despite its intensity, this drug has has become a public phenomenon in later years, both through the dissemination of McKennan ideas, and increasing public recognition due to the legalization of religious use of the Amazonian shamanic brew Ayahuasca in the U.S.[22]

In the present moment, the cultural winds must be said to have changed for psychedelics: medical research has been depoliticized, and has subsequently been able to show the remarkable efficacy of psychedelic therapy for a variety of mental health issues, thus alleviating some the anxieties that many had with regards to their psychological dangers. In religious or spiritual contexts, the winds are blowing even stronger: non-denominational spiritual forms within the spectrum of the New Age movement, streams such as Occulture or neopaganism have integrated and synergized with psychedelic practices and ideologies.[23] Varieties of neoshamanisms engaging in ritualized psychedelic use have also emerged prominently, since anthropologist Harner published *The way of the shaman,*[24] which brought visionary shamanism to the masses..

Reflecting on the history of psychedelic culture, we can observe a definite and particular set of associations that continue to influence both expert and non-expert interpretations of these phenomena: the images of the American counter-culture, with its appetite for novel ideas, radical reform, and the deconstruction of established norms are all intimately linked with the boundary dissolution that occur on psychedelic chemicals; there are also a rich gallery of images of craziness and surrealism, of artistic descent into the liminal, often colourfully communicated in movies. But what are the more essential characteristics of psychedelics? In this study I intend to

explore the ambiguity that results from asking a question of essentials to a such an opaque subject. I will highlight certain themes, that, although expressed in many different forms and domains, carry enough family resemblance to be seen as distinct patterns. These patterns play out in many different dimensions, historically expressed in attitudes, ideas, and behaviors. They are also seen in the realm of psychodynamics, in subjective experiences which are highly non-linear, but nonetheless formally coherent in a deep way. It can even be observed neuroscientifically through the shifts in brain function that occur in the psychedelic state. These patterns could be called first *transgression*, or boundary dissolution, and secondly, derivatively, of *connectivity,* or integration. I will argue that the whole range of psychedelic effects distributed across all these domains are concrete instances of an abstract pattern of *entropy*, a concept which I develop and explore as symbolic of themes of both chaos and creativity, disorder and integration.

1. Purpose and Research Questions

My purpose is both to gain a broad critical understanding of psychedelic worldviews, especially along those vectors signified by the term *spirituality*; but also to inquire into the relevance of psychedelic experiences to more general humanistic worldviews.

My main research questions are: what are the distinct characteristics of psychedelic worldviews, ,and how can these be understood philosophically? And, how can the field of psychedelic science be critically related to this philosophical understanding? Secondary to the first question I ask, are there commonalities between the variegated expressions of psychedelic worldviews? And in connection to the second question I ask, is there any core mechanism of psychedelic action which might explain the whole range of psychological effects observed?

2. Structure of the Thesis

I first give a general introduction to psychedelics, using history and critical reflection to generate a web of meaning to illustrate the main characteristics I wish to highlight; a pattern of transgression, or boundary dissolution, which deconstructs and oversteps conventions, norms, and laws, in the social and intellectual spheres, leading to a hyperconnectivity of ideas, meanings, and concepts, as well as the tendencies towards holism, which I take to characterize Psychedelia.

After this, I examine the case of Terence McKenna in the light of the patterns identified in part one. McKenna's psychedelic construal of alchemy is resonant with these characteristics, and it also provides a powerful technological metaphor that resonate with important themes in the present moment that is so powerfully shaped by the neurological image of the human. The next chapter on the psychedelic brain presents the findings of neuroscience as explanations and corroborations of the perspectives developed thus far. The last chapter summarizes and explores the meaning of psychedelic entropy that has been presented.

2. Method

At the core of the topic of psychedelics are the phenomenological accounts of those individuals who have had such experiences; but apart from some layers of the chapter on McKenna, this study does not focus specifically on experiential accounts, but takes a more indirect approach by examining the historical stances, ideas, and attitudes of psychedelic culture, as well as the science. Because the aim is to achieve a philosophical, and not merely a psychological, or neuroscientific understanding, I classify the data points across the different dimensions by constructing two philosophical categories, that I proceed to explore. The general approach, as well as the particular focus of relating symbolic meanings to empirical science, is broadly one of philosophical anthropology: a field in which central importance is given to concepts such as "nature, life, and the human";[25] concepts also central to the topic of psychedelics. Moreover, it is a field which has sought to "achieve a satisfactory articulation of and orientation to these concepts." [26].This is reflected in its methodological tradition based in, "two intellectual streams that have rarely come together: (1) the broadly naturalist, bio-philosophical, and evolutionary-biological and ecological traditions[…]; and (2) the German idealist, hermeneutic, and phenomenological traditions[.]"

In a similar way this study requires is a hermeneutic aspect to make sense of the cultural universe of psychedelics, and a naturalist aspect to make sense of the scientific data. Finally the relationships must be related to the relevant anthropological concerns.

When it comes to the metaphysics of the ontological "levels", that the dimensions of the respective disciplinary objects inhabit, I make the assumption that all of these fields, neurology,

psychology, and spirituality, and their natural objects exist, on a continuum. But importantly I do not assume any particular meta-ontology, although I offer an entropic reflection on metaphysics in my conclusion.

3. Literature Review

A broad philosophical inquiry into psychedelics has to take account of an extremely diverse collection of cultural products, including a vast scholarly literature from a variety of fields including but not limited to, pharmacology, neuroscience, psychology, anthropology, and religious scholarship. These first four perspectives have probably been hegemonic in terms of defining scholarship on psychedelics. Incidentally, they have all themselves been shaped by their interaction with psychedelics, which is just another example of the intricacies involved.[27] Pharmacology, as the modern scientific endeavor to create therapeutic medical substances, created psychedelics drugs qua drugs, by isolating and synthesizing their active compounds. In the contemporary context, the most relevant literature is found in the domain of neuropsychopharmacology which examines pharmacological agents with the methods and technologies of neuroscience. This is the most important field of inquiry for contemporary mechanistic studies of psychedelic action. Moreover, interpretations of neuroscientific findings naturally branch out to psychology and potentially to cognitive science, although this approach has not been frequently utilized. Psychology is the main area of knowledge that has defined the place of psychedelics within science since the discovery of LSD in the forties, and the history of this field will be examined in some detail below.

When it comes to religious scholarship some of the most relevant work has been the studies of the relationships between counter-cultural streams of thought, for example the human potential movement, and its continuation in transpersonal psychology, and the development of what has come to be called the new-age movement. In this regard Hanegraaff's monumental study[28] of new-age ideas is important because it shows the enormous complexity of the new age amalgamation of religious traditions. Even though this thesis aims to cover a large amount of variegated material, the intricacy of the sources of psychedelic thought in the history of ideas is merely indi-

cated and not explored in depth for the sake of brevity. In terms of psychedelic philosophy there are certain classical texts such as Watts' *Joyous cosmology*[29], and Huxley's *Doors of perception*[30], which have continued relevance as formative works; McKenna' *ouvre* also contain a broad range of speculative philosophy, but none of these works reach the standards of academic philosophy as commonly understood. Nevertheless they constitute data for reflection. In terms of contemporary philosophy proper, the work of Langlitz, in *Neuropsychedelia*[31] is important for its reflections on issues in the philosophy of science that are actualized by psychedelic research. Letheby's Ph. D-thesis on *The philosophy of psychedelic transformation*[32] is even more important because it attempts to directly answer some of the more difficult ontological and epistemological questions. There are also a number of philosophers who have written papers on the topic, with Sjöstedt-H being the most productive in this regard.[33] Kent's *Psychedelic information theory: shamanism in the age of reason*,[34] is an interesting work by a non-professional philosopher, attempting a synoptic view of psychedelics through the lenses of various systems theories.

4. The Challenge of Transgression: Psychedelics in History and Culture

We necessarily know very little of the extent of earlier human involvement with psychedelic substances; phenomena whose beginnings probably precede history. Psychoactives have been discovered in the tomb of a middle Paleolithic burial cave at Shanidar, northern Iraq, ca. 60,000 BC, leading the archeologists to hypothesize that the Neanderthal grave belonged to a shaman.[35] From the neolithic period onwards the findings increase significantly. Recent research has suggested that psychoactive drugs were also socially controlled in prehistoric Europe, and as ethobotanists have shown, most humans are embedded in a somewhat psychoactive ecology. But there is great regional variety, a fact from which Terence McKenna drew his own conclusions: he believed that the relative lack of psychedelic throughout the European continent became the bane of an earlier and more shamanic world, additionally citing the rise of alcohol production when societies became agricultural as a reason for this development. This sentiment is based on the work of scholars, such as the anthropologist Erika Bourguignon, who writes that "the modern

West is unusual among human societies in lacking socially approved ritual techniques for the deliberate induction of altered states of consciousness."[36] Arthur Saniotis has argued that, in addition to anthropological approaches to understanding the reasons behind the prevalence of such techniques, we should turn to the perspective of evolutionary biology, and in a paper combining the two methodologies Saniotis lists a variety of reasons for human psychoactive use ranging from: religious and recreational purposes, cognitive enhancement, strengthening group identity, reproductive success, and the use of psychoactives as food.[37]

As an indication of modern Western prevalence, we might look to epidemiological research estimating a population of 32 million lifetime psychedelics users in the U. S.[38] This might surprise the reader that perceives the use of psychedelics as marginal. In reality, these practices are marginal only in the sense of cultural visibility and not in terms of actual epidemiology. Some of the reasons behind this discrepancy is discussed in the following sections as I present and interpret some of the history of the modern Western encounter with psychedelics.

4.1. History of Psychedelics in Culture and Academia

In modern times, psychedelics entered into some prominence early in the 20th century. The fascination with imaginal realms and a desire to modulate these can be seen in the work of the first psychoanalysts such as Freud, and Jung, theorists such as William James and Henri Bergson, artists such as Dada and the surrealists, occultists like Aleister Crowley, and importantly in the development of techniques such as hypnosis, automatic writing, mediumism, and Mesmerism.

One of the early experimenters with Mescaline was the British intellectual and author Aldous Huxley, who was an influential early theorist on psychedelic matters. After his own experiment with the substance, described in the aforementioned *Doors of Perception,* Huxley came to several important conclusions. Firstly, while he acknowledged that their effects were neurologically mediated, he came to the prescient view that the way they achieve this is by inhibiting ordinary consciousness; a hypothesis that has received surprising neuroscientific support in recent years.[39] Secondly, Huxley believed that the psychedelic substances were potential technological tools and not miracle cures. This meant that technological proficiency and theoretical understand-

ing was necessary to use them correctly. Thirdly, he saw PE as potentially democratizing religious mysticism, thus having radical socio-cultural implications. This third point is interestingly expressed in Huxley's authorship. It was he that coined the contemporary term *neurotheology*[40] in his later novel *The Island,* which postdates his own experiments with Mescaline. In this novel Huxley introduces the concept as a futuristic scientific sophistication of the utopian island society described in the book, which is a counterpart to Huxley's most famous work, the dystopia *Brave New World,* preceding his encounter with psychedelics. *The Island* is a story of a remote and inaccessible island nation, whose inhabitants that lead a harmonious life built on the union between western rationalism and eastern religion[41]. These happy and spiritually astute people are thus contrasted with the repressed citizens of the dystopian "World State", which are conditioned into a radically collectivist lifestyle of Fordist mass production, enabled by the values of cultural conformity that continually need to be enforced on them by the elites. Significantly, the contrasted communities of the two novels imbibe drugs with diametrically opposite qualities: in the World State, citizens ingest Soma, a substance which soothes and pacifies them, suppressing their natural resistance to the totalitarian order, while residents of the island partake of Moksha, causing them to experience mystical revelations and the unity of all things. [42] *The Island* is a work of psychedelic neurotheology, built on an idea began sprouting in the imaginations of Huxley and other intellectuals around his time; the possibility of democratizing religious mysticism through the cultural acceptance and mass adoption of what was to become known as the psychedelic experience (PE).[43] Following Bergson, Huxley conceived of the brain as akin to a reducing valve,[44] not so much generating consciousness but organizing and contracting it. Huxley's hope was that psychedelic drugs would temporarily remove this inhibition of perceived reality, thus allowing for a clear perception of the mystical unity which is the experiential basis of all the world religions according to Huxley´s version of perennial philosophy. These ideas were developed more fully (as well as put into practice) by the counter-cultural generation he became a forerunner for.

The foremost neurotheologian of the sixties was Harvard psychologist Timothy Leary, who later left his academic career to became the pop-cultural icon and self-professed" high priest" of psychedelics.[45] When Leary joined Harvard in 1959, he was already a recognized research psychologist, his work on personality traits having resulted in the construction of what his

colleagues came to call the "Leary circle," a taxonomical representation of human personality that earned him much acclaim. Having been exposed to psilocybin mushrooms at a summer vacation in Mexico the year later, Leary became enormously impressed with their potential, famously remarking, "I learned more about the mind, the brain and its structures than I did in the preceding fifteen as a diligent psychologist".[46] Upon returning to Harvard, Leary and fellow psychologist Richard Alpert (who was later to take the Hindu name Ram Dass, and refashion himself as a spiritual guru), founded the Harvard Psilocybin Project in 1960. Clinical applications of PE were sought and the project initially focused on work with prison inmates, combining counselling with psychedelic interventions.[47] During this period in his work, Leary also supervised the "Good Friday experiment" of his doctoral student Walter Pahnke, which will be discussed in more detail in Section 4.3. The heady days of these early psychedelic studies would not last long as the adoption of psychedelics by the counter-cultural youth of the 1960's led to a massive politicization of the issue, and towards the end of the decade, even the successful research and clinical work was terminated. This turn of events is the background of the shift that the resurgence of psychedelic science represents. It is also the explanation for why we have extensive mechanistic work on psychedelics in biochemistry and neuropsychopharmacology, but are still lacking human studies on clinical applications.

4.1.1. The Future of Research on Psychedelics

The Western medicalization of psychedelics has framed the scientific discourse such that there is an asymmetry between comprehensive and valuational humanistic perspectives and the dominant mechanistic accounts of psycho-physical science. The latter have provided invaluable data, but are ultimately insufficient insofar as their methodological reductionism lock their objects in highly specific frameworks, not allowing for comprehensiveness nor valuation. I therefore end this section with a plea for a deeper humanistic reflection on this topic. The difficulty of this endeavor must immediately be acknowledged: complexity increases with the scope of the relevant context of the question, and if questions of drug use, religious experience, psychological integration, and the causal relations between mentality and physicality are all exceedingly complex on their own which only serves to highlight the need for deep inter-disciplinary reflection on the topic. With regards to understanding psychonautics as an expression of *spirituality,* the disci-

plinary framework must include at the least, theology and religious studies, psychology and cognitive science, in addition to neuroscience; but harmonizing these variegated and theoretically independent accounts of the human is notoriously difficult (even when no drugs are involved) and so epistemological integration of the data on psychedelics might depend on the development of more generally integrative philosophical frameworks.[48]

4.2. Psychedelics in Public Culture

The frameworks that guide our discourses are often transparent, and so this section is an attempt to reflect more critically on the framing of psychedelics as drugs, as harmful, and generally controversial.

The concept of "drugs" is a socio-linguistic construct that frame our discourse in several ways: by this term we regularly signify only a small class of scheduled substances that are valorized either negatively as drugs of abuse or addiction, or positively as drugs of enjoyment depending on where we stand, but crucially, both users and nonusers of these "bad" drugs, exclude a whole host of other compounds which would fit the proper definition of the term, namely the classes of either "soft" drugs like coffee, tobacco, and alcohol, as well as the drugs otherwise known as "medicines", designating any substance prescribed by a doctor. Acknowledging the ideological influences of these terms, Zinberg has argued for a radical reform of the languaging of drug use: "dropping the term 'drug abuse' is a necessary preliminary to understanding why and when people use drugs, how they use them, and above all, whether they can use them successfully-that is, in a controlled way."[49] This sentiment of value-neutrality with regard to drug use has influenced the languaging of this thesis.

4.2.1. Personal and Social Harms of Psychedelic Drug Use

The badness of drugs is frequently thought to be associated with the harm they cause to individual and society, and so in evaluating the phenomena of psychedelic practices we must ask, what are their real harms? In answering this question, we must separate between what can be said on the basis of empirical evidence, and what might reasonably be extrapolated from data of less than evidential quality. Firstly, it is well established that psychedelics, in contradistinction from many other scheduled substances, do not cause physical harm nor addiction.[50] However, the pri-

mary concern with regards to the safety of psychedelics is that they might cause psychological harm. Identifying and evaluating the true extent of actual and potential psychological harm resulting from such practices is one of the main challenges involved in developing a better understanding of the topic. In this regard, the empirical evidence divides into two categories: clinical trials, and long-term epidemiological studies. In contemporary clinical trials psychedelics are administered to individuals that are screened for psychopathologies, and especially for hereditary schizophrenia. Further, patients are counselled by trained therapists, are accompanied by partners, friends, and relatives, and are prepared beforehand. In these settings, adverse events or outcomes are very rare.[51] But what about recreational use? Prima facie such use present a much higher safety risk for a number of reasons: nonmedical users may fail to self-screen for contraindicated psychopathologies, may receive an impure or mistaken drug, may use the substances in multi-drug settings which are include substances with documented harmful effects.[52] The harms from such recreational use was investigated by Krebs and Johansen in a long-term epidemiological study of the mental health effects of psychedelics. The study investigated a large-scale population of 130, 000 U.S. adults in the, and found,

> "no significant associations between lifetime use of psychedelics and increased likelihood of past year serious psychological distress, mental health treatment, suicidal thoughts, suicidal plans and suicide attempt, depression and anxiety. We failed to find evidence that psychedelic use is an independent risk factor for mental health problems."

In a more political gesture, the researchers added that, "Overall, it is difficult to see how prohibition of psychedelics can be justified as a public health measure." Given the severe penalties that remain in force regarding psychedelics use, such opinions and findings might seem counterintuitive, but the same views was echoed by the reports publicized by the British Independent Scientific Committee on Drugs, although this led to the sacking of lead researcher David Nutt, evidencing the continuing controversy in questioning established drug policy.[53] Despite their illegal distribution and association with criminality, psychedelics have actually been found to negatively correlate with antisocial criminal behavior.[54]

The point which should be emphasized in the present context is that of the psychologically *transgressive* element. Transgressive in such an intense way that there have been and is a real association between psychedelic drug use and psychotic episodes. Paradoxically it seems that it is the loosening of rigid boundaries that account for the therapeutic effects as well, which will be discussed at length in Chapter 6. Moreover, from the perspective of the individual's worldview, the act of altering reality itself is a profound boundary transgression. From the perspective of the psychonaut, this ontological rebellion may be construed positively, in terms of waking up from "The Matrix", or understanding the limits of our "reality tunnels,"[55] but for mainstream culture, these aspects are what has produced the well-known associations between the use of psychedelics and insanity.

To summarize: psychedelics have, in various ways, constituted a profound social challenge, having been both demonized and glorified in the context of larger cultural conflicts, and the political effects that have been thought to arise from psychedelic deconditioning has been both welcomed and denounced because of its potential for reforming personal and social constructs.

4.2.2. Psychology and Religion as Cultural Frameworks for Understanding Psychedelics

The frameworks of psychology and religion continue to provide competing paradigms for contemporary culture; shaping public discourse and policy. Psychology positions psychedelics in a conceptual, organizational, and legal structure, and represents their primary official context. It is not that this context is determinative of any one course of development; in fact it permits large degrees of differential development: psychedelics were legal, and the subject of politically legitimate research until the late sixties, and were then regulated and taken off the official research agenda, all while remaining in this basic context. Medicalization as a conceptual framework has served both sides of the ideological divide over drug policy, employed in arguments for criminalization and decriminalization respectively. But the medical framework is focused on specific remedies for defined maladies; it is instrumental and centered on pathologies, leaving potential existential values outside of its scope.

Secondly, there is the context of religion, which offer an alternative framework across many of the same dimensions. For example: to legally ingest a psychedelic in the U. S. requires either participation in a medical trial, or one of the religious communities that have permission to engage in ritual use. This configuration offers theoretical articulation within a religious discourse with tools for perceiving existential values, and allows important developments such projects of inter-religious comparative analysis. But challenges prop up also in the religious context: vis a vis institutional Christianity[56], psychedelics are *transgressive*, they challenge ancient anxieties about paganism and magic, and are something of an ontological rebellion against ideas of spiritual hierarchies, and notions of denominational exclusivity.

In the context of the academic study of religion, the religious aspects of psychedelic practice are rarely discussed i.e. by scholars that are not card-carrying psychedelicists. Wolter Hanegraaff has argued that the general resistance of such scholars to incorporating this topic in their work derives from what he sees as a "crypto-Protestant assumption that "religion" implies an attitude in which human beings are dependent on the divine initiative to receive grace or salvation"[57], delegitimizing psychedelic practices in which "human beings themselves dare to take the initiative and claim to have the key of access to divinity."[58] Hanegraaff sees the roots of this ideology in the distinction between "magic" and religion proper. Such a distinction "makes intuitive sense to us because modern intellectual culture since the Enlightenment has internalized specific Protestant assumptions to an extent where they appear wholly natural and obvious."[59] This is true even if the distinction itself is "artificial and ethnocentric to the core: it depends on normative modernist ideologies and implicit hegemonic claims of Western superiority that are rooted in heresiological, missionary and colonialist mentalities but cannot claim universal or even scholarly validity."[60] Finally, even when approving of entheogenic use of psychedelics, the religious framework frequently carries an implicit moralism with regard to non-religious use of psychedelics, that fails to understand the more epicurean stance that many psychonauts take in regard to their practice.

5. Tools of Ecstacy: Psychedelics and Spirituality

Two questions are immediately actualized when reflecting on this theme: obviously we must know what should be meant by *spirituality* in the intended context; but if we are reflecting on spirituality, then we will also want to know whether the concept of *religion* also plays a role there. In regards to the former category, it is here understood both in the etic sense that delineate the academic field of study of spiritualities, and the emic sense in which it is used in mainstream culture. Of course, the emic sense is not strict, the word spirituality is used to designate a multitude of phenomena and is therefore highly porous: it easily leaks into the areas of human concern which it is constructively related to. Doing so it generally absorbs them, rather than is absorbed by them, i.e. it shows them to be functionally related to its own purposes rather than the other way around. Thus phenomena and practices as diverse as psychotherapy, martial arts, literature, horticulture, political activism, and the ritual or not-so-ritual ingestion of drugs, could all be framed as constituting or in in some way contributing to an individual's spiritual practice.

When it comes to religion, the question is more difficult, as discussed in section 4.2.2; instead of attempting to define psychedelic religion, like Hanegraaff,[61] I will discuss some of the religious forms which have hybridized with psychedelics in the next section.

5.1. Heresy and Henosis: Varieties of Psychedelic Spirituality

Historically and cross-culturally, the use of psychedelic plants have been shaped mainly by religious forms. There are the archaic contexts like the myriad forms of Shamanism across the globe, and arguably the institutionalized forms like ancient Hellenistic or Vedic (or later Indic) ones ones. However, contemporary variations are more *heresiological* in nature, whether it is psychedelic Buddhism–seen in relation to traditional BuddhismNeo-Shamanism, or Occulture–seen against an anti-pagan, protestant background. For this reason, such forms are naturally decentralized, and concomitantly more globally, rather than locally, interconnected. It seems that psychedelic spirituality has both caused, and been affected by larger trends of detraditionalization, but either way the logic is one of transgression into larger regions of connectivity.

An initial way to classify the forms of psychedelic spirituality could be to divide them up by two into the categories mystic, and shamanic. By designating the former category as mystic I

deliberately mean to invoke the discourse around mystical experience, which has often been important in discussions of psychedelics. Going back to the early Harvard studies, we have the "Good Friday experiment", in which Christian seminarians were given a high dose of psilocybin. In the disstertation accompanying the study, Stacy's definition of mystical experience in *The Psychology of Mysticism,*[62] forms the basis for a qualitative index for rating participants' degree of rapture. It will be helpful to list these, not because they are the final word as definitions, but because their assocation with psychedelics became very strong. They are: "undifferentiated unity", "dissolution of the self", "feeling of revelation or veracity of the event", "feeling of blessedness and peace", and "feeling of serenity". In this, more *henotic* vein, psychedelic mysticism often take the form of spiritualities of non-dual consciousness, emphasizing liberating spiritual knowledge, often Orientalistic, inspired by the historic Indic religious systems. In these traditions, especially as they have been approached by Westerners, the soteriological dynamic bound up with the individual's relationship to their subjective experience. It is ultimately within the domain of the individual, rather than the social, or cultic, that the locus of spiritual fulfilment is found. Often there are ideals of *holism*, for example seen in theological categories such as Perennialists tendency towards *pantheism*[63], or with the Buddhist language of *interdependence*[64]. This framing of mystical experience passive, in contradistinction to shamanic forms which are active. These frequently emphasize the instrumental interaction with a stratified spiritual dimension, populated by entities and discarnate intelligences. Shamanic experience is thus neither static nor individualistic, but rather consists of an instrumental interaction between the shaman and inhabitants of spiritual realms which are accessed in a visionary manner. In contemporary Neo-Shamanic contexts the shaman is most often presented as a healer, but in indigenous traditions, the office could variously include that of the warrior doing battle with malevolent spirits; the diplomat, making alliances and gathering support from powerful spirits; as well as something akin to a spiritual detective, able to find lost items or people. The most distinctive aspect of psychedelic shamanism is, I would argue, the dimension of *psychedelic alterity*. By this I mean the encounters with entities, and other communications with a psychedelic "Other". I could not find this dimension represented in my research on the Orientalized counter-cultural generation, and it seems to represent a

novel hybridization between western and indigenous worldviews. This is another example of the more general logic of religious boundary transgression.

6. Terrence McKenna and The Experiment at La Chorrera

The first section of this chapter will firstly provide a brief, free-form, intellectual biography of sorts: I present some of Terence's lifestory as I interpret it, but only up to the event that I want to emphasize, viz. The "Experiment at La Chorrera;" which exemplifies the characteristic patterns we have identified in a complex psychedelic worldview.

Hailed as "the Copernicus of consciousness", Terence McKenna introduced psychedelic mushrooms to the west; developed original theories in several fields; and became the main spokesperson for psychedelic culture in the world. Most of his adult life was characterized by an intellectual and spiritual quest that resulted from his grappling with a series of mysterious psychedelic communications received from an elusive "Other" of which Terence claimed to know or understand very little. The core of these communications was received while Terence was recovering from a the most intense shamanic experience of his life. The previously mentioned "Experiment" was Terence's first brush with the "Other"; it was a crazy psychedelic overdose; a performance of alchemical transformation, modeled on Jungian and Hermetic blueprints. Sketching out some of the eclectic collection of themes and ideas that led up to the enactment of this event is one of the main objectives in the following section.

6.1. McKenna's Early Intellectual Life

Terence Kemp McKenna began his life the 16th of November, 1946, in the tiny Colorado town Paonia. Early on he developed an interest in botany, geology, and cosmology. Bookish from the beginning, he and his younger brother Dennis also collected rocks and butterflies, and read science-fiction. During his early teens the reading would gravitate toward esoteric subjects. Commenting on his early esoteric interest, Terence said that he "had the interest profile of an eccentric Florentine prince,[65] rather than a kid growing up in the heartland of the United States in the late fifties." Traditions of Western Esotericism become important for Terence at an early stage and stay with him throughout his career. Foremost of these is alchemy: a rather ambiguous sub-

ject which Terence interpreted largely psychologically. Terence had an early and very influential encounter with Jung through *Psychology and Alchemy*[66]. Jung is a thinker whose presence in American counterculture is well known,[67] and he was arguably something of a psychonaut himself. As mentioned previously, Jung's thought is an expression of a broader concern with the unknown spaces of the psyche at his time. The approach to alchemy that McKenna got from Jung sees the alchemist as engaged with wholly psychic phenomena; Jung thought that the alchemists were unconscious of their own projections into their practice. The operations in the laboratory are seen as symbolic interventions in the alchemist's psychic life, and the summit of the path, the creation of the elusive Philosopher's stone, Jung sees as the goal of psychological individuation. Jung thus saw the alchemical treaties as psychologically dynamic, both illustrating the operation of unconscious archetypal forces and comprising a map for manipulating them. Despite the powerful influence of Jung on Terence's later thought, he did not hold on to this interpretation dogmatically. We will see some of the ways in which he plays with it in the next section.

Terence's college studies at Berkeley were formative for his later trajectory. Had he been confronted with a normal curriculum, class, and formal requirements, the outcome of his years there may have been less dynamic, but luckily Berkeley was doing an experiment in education at that time. The educator and philosopher Joseph Tussman, himself a key figure in the FSM, had been given freedom to found the unorthodox Experimental College Program. Tussman's college was to operate as a kind of university within the university, with the intent of personalizing the learning experience of the individual. Of the 27, 000 students at Berkeley that year, 150 freshmen would be admitted into the program. There they would be given tools to construct and re-construct their worldviews through study of the big questions, and the periods of crisis and upheaval that changed cultures. There was no ordinary grading, Tussman opting instead for socratic dialogue and discussions. By all accounts this was perfect for the anti-authoritarian and intense Terence. Under the tutelage of Tussman, Terence was encouraged to explore every one of his eclectic interests, and at this time he also started collecting rare books and built his first library. Further, Berkeley had already been a hotbed of political activism for some time, and Terence immediately got involved. While a greater focus in his early work, for example his first book, Crypto-rap, Terence remained a political radical for the rest of his life. The high degree of eclecticism that gives

all of his work its singular character was developing rapidly, as he was encouraged by his experimental supervisors to forsake the canon and go exploring on his own. While developing his idiosyncratic intuitions Terence sought out the more obscure byways of speculative thought: Hermeticism, Neoplatonism, Shamanism, Black Magic, and Tantric Buddhism, as well as french phenomenology and the futuristic media theory of Marshall MacLuhan. All the while maintaining some sort of comprehensive perspective, however imaginative and hyperconnected.

Although an obsessive reader, Terence preferred to develop his ideas by means of extemporaneous speech, as it allowed him to make such connections on the fly. In Terence's apartment at this time, we find on the one hand Terence's occult library of over a 1000 volumes, and on the other a crowd of slackjawed student with dilated pupils, struggling to keep up with the the intricacies of their resident bard's hyperconnective imagination. Here we might take a snapshot and get a glimpse of an early iteration of Terence's public persona. But Terence did not plan to stay in California; After graduating the experimental program, he set out to travel the world, "burning with revolutionary fervor and wild ideas". He had an "opium and Kabbalah phase" in Jerusalem; Set up a hash smuggling route from Kathmandu; went to the Seychelles to write his first book; and moved to Nepal to write another, which never came to fruition.[68] the story of which is a fascinating example of how Terence was exploring, and in this case, creating completely novel connections between objects that no one had thought to relate.

6.2. Alchemy from Hyperspace: The Experiment at La Chorrera

Psychedelia is primarily an experientially oriented. Nevertheless, psychonauts conceptualize, classify, and analyze their experiences, often extrapolating from them facts about the world. The resultant ontologies are often at odds with the dominant naturalistic framework of modern science. This tension may become problematic for the individual that may end up in cognitive dissonance because of the perceived incompatibility of their deeply felt experiences, and a worldview, which they may be committed to on rational grounds. Terence McKenna is an example of a thinker who definitely challenges the naturalistic paradigm, while at the same time using its vocabulary and ideas. The result is what Davis has termed a "weird naturalism", [69] a hybrid worldview that grew out of McKenna's lifelong interest with Western science on the one hand,

and a Jungian interpretation of alchemy on the other. This represented a real shift in the development of psychedelic culture. In contrast to the previously dominant, psychologizing explorations of psychedelic interiority, McKenna's framework drew both from shamanic sources and an eclectic set of ideas from Western Esotericism. Importantly, McKenna is distinguished from the Orientalist, and more inwardly oriented spirituality of the sixties' generation, by his concern with the visionary "Other", a standard feature of shamanic worldviews which often envisions highly populated spiritual realms.

Terence's adventures in hyperspace had convinced him that communication with this Other was technologically accesible: he believed that if he could find a way to prolong the experience, from the 15 minutes resulting from the method of smoking, this other dimension could be explored in more detail. And so the expedition to the Amazon was planned with the purpose of finding an orally active form of DMT After reviewing the literature, the McKenna's interest settled on a shamanic brew of the Witoto tribe, that was associated with the following bit of folklore: that it could be used to "see and speak with the 'little people'," This resonated with Terence's own experience of being thrust into a world filled with elven creatures. At this point it should perhaps be mentioned that Terence was self-consciously Irish.

The expedition, modeled on a standard anthropological field trip was successfully launched, finally involving a group of 5. Terence was 24 when they arrived at the La Chorrera mission village in february of 1971[70]. As a mission village, La Chorrera had cow pastures, and upon arrival the party recognized the psychedelic mushroom *psilocybe cubensis*, which they proceeded to ingest indiscriminately. They saw this as more of a recreational activity while they were working on their main objective: to find and understand a psychedelic brew made by the nearby Witoto tribe, seeming to fit the bill of containing orally active DMT. However, the lack of food meant that in addition to recreational ingestion of the mushrooms, they even added them to their base diet, which, as Dennis recounts, pushed events "in some fairly peculiar directions."

Particularly in the context of conversations between Terence and Dennis, an idiosyncratic mix of alchemical themes would come up. An interest in ontologically porous phenomena, which in various ways would destabilize the physical, just enough to subvert it with its counterpart: *spiritus* in Western Alchemy would stand for the other dimension whatever it was, to the McKen-

nas. From studying indigenous shamanism, they had noticed accounts of a peculiar kind of liquid, or phlegm, that the shamans would use variously to heal or induce affliction; this magical material resonated with a psychedelic experience of Terence's on which a psychedelic lovemaking session on a rooftop in Kathmandu had seemingly produced a similar substance. The McKenna's dubbed this "trans-linguistic matter", seeing in it the same archetypal essence as in other esoteric objects such as crystal balls, or flying saucers. The common theme here is that of an object of transgressive materiality, one that seems to defy material limitations.

In addition to supercharging their imaginations, the McKenna's found that their mushroom-fueled conversations came to include an additional presence, an "Other" they dubbed the "mushroom teacher". The McKennas felt that it was the Teacher that provided these blueprints, while at the same time recognizing that its substrate were their own eclectic interests in "alchemy, Jungian psychology, ceremonial magic, shamanism, yoga, and science fiction." Significantly, the increasing influence of this visionary "Other" did not deconstruct into projection or exteriorization, which perhaps a more strictly Jungian interpretation would have warranted. Instead, it urged them towards some goal: "We were following a script, but no longer a script we'd written." And while neither Dennis nor Terence knew what outcome to expect, the Teacher insisted that "if you do this procedure, it will happen."

The operation to be performed was interpreted according to a symbolic interpretation of alchemy where, "the metaphors of chemistry are applied to transformative operations on the psyche and spirit of the alchemist."[71] From Jung, Terence and Dennis knew about the mythologized alchemists' goal of transforming self and body, a process seen by Jung as symbolic of his end goal of psychological development: individuation. But the McKennas were imagining, "something more literal and much stranger."[72] In their wildly entropic imaginings, Dennis' body would now become the symbol of a potentially cosmic recapitulation for the two brothers. In a manner resembling the phenomenon of channeling, Dennis received the complicated technical instructions for completing the work: Powerful and finely tuned sound waves expressed by his voice would be able to unite the spin of his own DNA with that of the mushroom– obviously I'm not doing the complex pseudo-scientific jargon justice here; the result would be the techno-spiritual construction of an "an actual object", within "the alchemical crucible", of his body.[73] Much later,

Terence would lecture on alchemy as “the redemption of spirit and matter”, through the ”exteriorization of the human soul and the interiorization of the human body so that it is an image freely commanded in the imagination.”[74] The bi-directed flow of boundary dissolution, healing the dualism, and the organizing power of the imagination the entropic realm of possibilities is an especially salient example of the overarching pattern identified throughout this study.

The Experiment at La Chorrera was going to be an ontological transformation; an instance whose alchemical frame picks up a general theme in Western Spirituality, of union, *reditus*, integration, and the overcoming of dualities; a theme which resonates in an important way with our overall thematic of entropic transgression. The logic of boundary dissolution and integration is found both formally in the philosophical presuppositions of the event i.e. what we might call “Western non-duality” and neuro-dynamically–functionally–in the fabric of the mind-state of the McKennas. The boundary dissolving logic can be found both in the content and frame of the event-. This is the theme I would most want to highlight in this account. The Experiment at La Chorrera allows the ontological stakes of PS to become clear in an almost cartoonish, almost stylized philosophical drama; its narrative is an exaggeration of the logic of ontological transgression, which provides a thick almost, allegorical rendering of it.

As it turned out, the procedure the brothers McKenna undertook, did become psychologically, if not ontologically, disruptive. Briefly it consisted of the building of a ritual space with the inclusion of a butterfly chrysalis as a symbolic repetition of the metamorphic goal; the induction of an ASC, through a combination of Psilocybin, and the potentiating monoamine-oxidase inhibitors in the shamanic plant Banisteriopsis Caapi; and the performance of a series of buzzing outbursts from Dennis. The procedure was definitely disruptive, psychologically if not ontologically. After its completion both Terence and Dennis became profoundly destabilized, dramatically demonstrating the perils of psychological deconstruction.

The most important aspects of this account are the themes and associations it invokes. It is common to portray PE as a phenomenon that questions materiality itself; DMT is seen as ” the Spirit Molecule”[75], for example. The tension is an expression of the perceived discontinuity between matter and spirit or the physical and the mental, in contemporary philosophical parlance.

7. No Boundaries: Psychedelic Neuroscience, Entropy, and Ego-Death

This chapter presents a more detailed neuroscientific account of the mechanisms of psychedelic psychodynamic action. In the first section, I present the entropic brain hypothesis which represent an illustration, as well as a partial and tentative explanation, of the creative disordering observed in PE and the cultural products that has flowed from them. In the second section, I discuss the phenomena of "ego-dissolution" which occur in PE. There I suggest that the functional logic of this phenomenon could represent a core feature of the PS.

7.1. The Entropic Brain Hypothesis

One of the main challenges when it comes to the neuroscience of consciousness is theoretically connecting measurable brain events that indicate changes in brain function to qualitative conscious states. This is a theoretical challenge for research on psychedelic neurodynamics as well. A relatively recent proposal for making this translation between mechanistic and qualitative states, in the context of psychedelic science, has been the entropic brain hypothesis.(EBH)[76], which brings together pioneering psychedelic neuroimaging studies with neuroscientifically revised psychoanalytic, systems, and information theory, as well as developmental neurobiology. The theory models the entropic increases in the repertoire of motifs expressed by brain networks.

Before we launch into the neuroscience, it might be helpful to unpack the concept of entropy. In simplified terms, entropy is a function of the state of a system such as a thermodynamic system in statistical mechanics and roughly relates to the number of states that the system can be in. Thus it is a measure of disorder, or randomness in the system. According to the second law of thermodynamics, the total entropy of a system can not decrease if some other system which it relates to increases its entropy. The usual modern understanding of entropy frames the quantity in information theoretic terms, with the disorder of the system defined by the amount of information needed to specify the state of the system. With these understandings we may generalize the concept to many kinds of systems. With entropy seen as a specification of the number of possible states, the term can express the openness, novelty, fluidity, and general wildness of the system. Applied to human consciousness, cognitive neuroscience relates entropy to traits such as creativi-

ty and cognitive flexibility, as well as global integration. This latter aspect is hugely important in the present context because it is a clear expression of the assumption made in this study, that boundary dissolution has both transgressive, and connective, or unitive, dimensions. For global integration in a system to occur, the rigidity, limitations, and boundaries of a local system may need to dissolve, causing a larger scale desegregation. This pattern is essential to understanding the PE.

The human brain uses, "uses stable configurations of neuronal connection to model and process information and to initiate adaptive behaviours in response to information received". These configurations are what are called brain states. With regards to the brain, entropy can be seen as a quantity that measures increased variability within brain networks. Increased entropy means that the brain has access to more states. Such a brain is in a state of critical uncertainty characterized by an elevation of the number of possible configurations. For this reason research even shows a correlation between increased intelligence and entropy.[77] Brain entropy is measured indirectly through the variability of blood flow to various neural networks. If blood flow intensity, "varies unpredictably over time [it is] given a high entropy value, whereas [if a] signal varies little, or in a highly regular pattern, […] a low entropy value".[78]

Evolutionarily, the human brain is thought to have self-organized into states of relative "metastability". One of the foremost neuropsychological features that drives this increase in global stability is taken to be the narrative self, which can be loosely thought of as the "Freudian ego", associated in cognitive neuroscience with self-referential and narrative thought, as well as the capacity for metacognition. These processes are strongly associated with certain brain networks of which the most well known is the Default Mode Network (DMN). Research on the DMN reveals its role in sustaining introspection and the capacity for metacognition. Notably, DMN activation is decreased after administration of psychedelic substances, and this deactivation can be correlated with a reduction in the phenomenal sense of Self, a theme which will be explored further in the next section. The EBH also works with the notions of "primary" and "secondary consciousness", with the former signifying a state that evolutionarily preceded the development of the ego and the increased capacity for metacognition that went along with it, and the latter signifying the waking adult human state. Based on a large number of data points, many tak-

en from the group's own pioneering neuroimaging studies of the PS, the theorists suggest that normal waking consciousness is neurodynamically poised at slightly sub-critical level with regards to patterns of chaos and order in the brain. Primary states of consciousness, of which PE are a prime example, are seen in this model as characterized by an increase in disorder and decoherence in brain networks.[79] The adaptive function of the ego-system is thought to be related to its capacity to create order and "metastability" on a global level. In other words, as humans have been faced with the need to control or manipulate their surroundings, many of which are critical, this higher-level neurodynamic evolved so as to be more "ordered" than the environment around it. The problem may be that the brain can become too ordered and thus inflexible. Conversely, the trait of openness is associated with optimism.In the entropic brain, hyper-order is correlated with various cognitive inflexibility, and mental illnesses such as depression, and various compulsions, but "keeping an open mind" is correlated with mental wellbeing. What is needed is an intervention. which destabilizes the pathological rigidity in the systems: "a depressed or obsessive system is one trapped for whatever reason in a narrow region of state space."[80] In one of the recent philosophical reflections on psychedelic science, Letheby has argued that increased cognitive flexibility is one of several important causes of therapeutic efficacy.[81]

Psychedelic drugs induce a level of entropy into brain networks associated with executive ego functions, effecting a disinhibition of information from lower-level networks. This generates an increased global connectivity, opening pathways between previously fragmented points. Although the process is nonlinear, and very sensitive to initial conditions – this accounts for the seeming multiplicity of experiences – this core mechanism explains how psychedelics can be therapeutic, as well as being both dangerous, conducive of mystical experiences. The latter two aspects will now be discussed.

7.2. Psychedelics and Ego-Dissolution

It has long been known that psychedelics persistently induce progressively intense attenuations of the sense of self along a dose-dependent continuum. The technical term for this is *egolysis*. In psychoanalytical terms, egolysis is seen as a "blurring of the distinction between self-representation and object-representation, and precludes the synthesis of self-representations into a

coherent whole".[82] The ubiquity of this feature of PE has also been substantiated in recent years as the first neuroimaging studies revealed that "the increase in global connectivity observed under LSD correlated with subjective reports of "ego dissolution."[83] Egolysis one of the most peculiar, but least examined features of PE. However, interest in the neurobiological correlates of selfhood have increased in recent years, and here PE may provide a unique platform for exploring how the brain constructs the sense of a phenomenal self.[84]

Egolysis is an expression of the self-similar pattern of entropy observed throughout this study. As the functional logic of boundary dissolution attacks the rigidity of executive systems in the brain, the phenomenal "self-model" breaks down. This latter term is adopted from the work of the Thomas Metzinger, who has developed a theory which attempts to explain selfhood on the basis of neuroscientific research.[85] Briefly the theory posits that the experience of having a self is an emergent property of multiple brain processes. This allows him to proclaim that "no individual has or ever had a self", by which he means a reified self; self as thing.

Importantly, the attenuation of ego-boundaries can plausibly serve as a mechanism for inducing both therapeutic breakthroughs, and triggering of psychotic states, as well as occasioning mystical experience. These three points will now be discussed.

Firstly, because our self-representation contains both personality and history, as well as values, opinions, beliefs, and so forth, the disruption of egolysis can be understood to facilitate the therapeutic dynamics of cognitive flexibility discussed in the previous section. Expressions of unbounded emotion, visions of personally significant imagery, etc., are likely derivative of the attenuation of boundaries between different parts of the psyche. Significantly, it is reasonable to attribute the well-known experience of seeing through the "game" of conventional reality to the same dynamic: as the coherence of the personality disintegrates, conventions, norms, and other social patterns lose their automatized traction on the individual.

Secondly, through attenuating the sense of self, some individuals are able to depotentiate trauma, and deconstruct neurotic patterns, but others may react to the manifestation of subconscious emotions or the lack ego-integrity by further dissociating themselves from disturbing psychic contents, thus exacerbating and perhaps actualizing underlying psychological conflicts. It is a common assumption among psychologists and cognitive neuroscientists that the lack of a stable

ego architecture is a feature of psychotic or schizophrenic states. This means that the same dynamics that can lead an individual to a healthy suppleness and receptivity, could induce unhealthy fragmentation, overwhelming encounters with repressed material, or uncontrolled regression in others. Clearly, whether increased entropy is helpful or harmful depends on the extant state of the system.

Thirdly, egolysis has been seen as a fundamental feature of mystical experience, ever since Stace defined the phenomenon[86] Loss-of-self was identified by William James as being the prime feature of genuine mystical experience[87], and we can easily recognize how well-known themes of mystical language imply modulations of ego-boundaries. To exemplify by means of some unavoidably simplistic categorical examples: the soul's union with the transcendent (Western mysticism broadly); identification of one's true Self as the absolute (Hinduism); denial of the existence of a separate Self (Buddhism). We have already mentioned Metzinger's neurophilosophical account of the self-model. Based on neuroscientific research, including studies on psychedelics, Metzinger argues that our experience of a phenomenal self is an illusion, based on a neurologically constructed model that is transparent to consciousness except when deconstructed as can happen in the exceptional cases we are concerned with. The existence of a plausible, rigorously empirical theory which relativizes the subject or self must be seen as strongly relevant to comparative theological anthropology, as this topic is one of the greatest and most interesting differences between Abrahamic, and Indic traditions. It is also a topic which has been explored at length by psychedelic authors, who are generally quite sympathetic to the view that the ordinary self is at best grossly limiting conception. In summary, the phenomena of egolysis is one of the most significant effects of psychedelic drugs. It is plausible to view it as a core functional logic of the PE, which then derivatively causes a host of consequent psychodynamic effects. In terms of the patterns developed in this study, it represents boundary dissolution *par excellence*.

7.3. Summary of the Patterns of Psychedelic Entropy

Up until know we have examined a large amount of data on psychedelic meaning making, which in various ways show how humanity is inflected by the psychedelic prism. Attempting to get a grip on this question is the core task of the thesis, and in this final chapter I elaborate on the

patterns that have emerged. The purpose is to draw together the family resemblances of the characteristics of psychedelic experience that have been highlighted under an integrative metaphor. Goodman writes about the function of the metaphor in constructive thinking in terms of a "transfer of schema"[88], that transports the elements and structures of the metaphoric schema to new realms that are organized by it. Entropy taken in this way represent chaos, disorder, the wild, creative, and transgressive; conversely it also represents connective, and ultimately integrative aspects. As mentioned in the previous chapter, the concept of entropy has played various roles historically.[89] The usage of term that is relevant here is entropy as a mediator of complexity, novelty, and connectivity. Throughout this thesis, the examination of PE have yielded examples of the basic logic of entropy. This logic has two sides: from the localized perspective it is *transgressive*, involving the breakdown of boundaries; on the global side it is *connective*: as the old boundaries give way, more connections can be made.

Apart from the theories on the entropic brain, no one has to my knowledge suggested that the core features of psychedelic psychodynamics be interpreted under the banner of entropy. Generally there has been a reticence to specify such features, as written in one study, "there are no specific psychological reactions to these drugs; there are, rather, various reactions[.]"[90] Nevertheless I argue that the translation from micro-level entropy to macro-level effects is seen in the preceding analysis, e.g. in the countercultural movement defined both by the transgressive element, in the overturning of old social, intellectual, and psycho-spiritual norms, and the emphasis on the experience of increased connectedness: to nature, to fellow human beings, to the dissociated parts of one's own being.

8. Entropy as Creativity: Psychedelics and Human Potentials

The foregoing study has shown how Psychedelia expresses a self-similar pattern of entropy on many levels, and hopefully this way of organizing thought is helpful in terms of the content it highlights. One of the corrollaries of this way of seeing psychedelic consciousness in this way is that it ultimately is seen as just one species, just of a more entropic kind, of the genus of human consciousness. There are many techniques for elevating the level of entropy in ordinary

consciousness, and further our minds, like everything else, have its own tendencies in this direction, and it is only the forceful holding on of the "left-brain" executive function that curbs it. Upon approaching sleep we see hypnagogic visions that morph and flow with scant order and blurry boundaries. The "mercurial edge" between waking and dreaming was likened by Terence McKenna to the line between the two flowing figures of the Daoist Ying-Yang symbol. By this comparison I take it that he meant to underscore the significance of balanced criticality; equilibrium between order and chaos. The dynamic interplay between imaginal, somatic, and otherwise non-conceptual modes of consciousness that are relatively formless, and the linear mode of discursive thinking is a dialectic is basic to the human experience, and it exemplifies this logic. This interplay is the substrate for creativity, adaptivity, and intuition. When the entropic features of formlessness are given freer reins they intensify, which is what is seen in PE. Possibilities multiply; control diminishes. Depending on the previous state of the system, constituted by individual's personal and environmental context, highly variable outcomes result. The non-linearity of the systems involved means that the dynamics are highly sensitive to initial conditions. For some individuals, new resources can be gleamed from estranged regions of the psyche, but the essence of this creative dynamic is found in the brain, and not in the drug.

Reflection on the relationship between entropy and creativity naturally invites the topic of psychedelics. Creativity could be defined as, a "mental journey between ideas or concepts that involves either a novel route or a novel destination.",[91] and these potentialites are dependent on a certain level of entropic openness to possibility. Moreover, neuroscientific creativity research have successfully modeled this capacity as an entropic function,[92] and this approach parallels the hypotheses and results presented in the previous chapter on the EBH. For these reasons, even though much remains to be done with regard to psychedelic creativity research, we should expect the latter to be a promising line of inquiry. The final section discusses two of the non-clinical potentials of such psychedelic creativity, and the images of anthropological potential they evoke.

8.1. Two Human Potentials Highlighted by Psychedelia

What goods can ultimately come out of people's encounter with their own consciousness? In this section I adopt a valuative stand by arguing that Psychedelia, with this term now meaning

the practices, understandings, and experiences, of its practitioners – highlight two important potentials of human subjectivity; potentials which may be developed in a way conducive to human flourishing. In this discussion such potentials are thought of both as specific to the psychedelic ASC; and generalizable to other states. The term human potential is used to mean that these dynamics are grounded in ordinary human biology and psychology. In their psychedelic form these potentials manifest as intensified capacities that may be relatively unrecognized or unthematized, or too vague to be perceived clearly, in ordinary life. The two potentials are presented with emic titles as idealized categories; they are *visionary consciousness*, and *mind-hacking*. They represent some of the main reasons why individual engage in psychedelic practices; but in addition to the specifically psychedelic flavor - the taste of a certain kind of entropy - these potentials are all expressed in various ways in ordinary consciousness, or other altered states.

8.1.1. Visionary Consciousness

If cast in systems terms, such as in Kent's, *Psychedelic information theory,*[93] the mechanics of visionary consciousness can be thought of as the intrusion of information from sub-conscious systems into the process of arranging visual input into recognizable patterns. In ordinary visual processing, photons that are picked up by the retina are processed in sequential stages: from the thalamus, to the visual cortex, and then to higher order representations. The functional dynamic of these neural networks is to make successive predictions about the patterns in the material. At the same time less likely predictions are eliminated, a fact that hearkens back to Bergson's and Huxley's view of the brain as a reducing valve. In the psychedelic state, there are two modes of expanded visionary consciousness present. The simple mode presents either as geometric, colourful patterns overlaid on surfaces, or the general disruption of the visual perception of the edges of objects, and colours in general. The profound mode presents as what we usually call hallucinations, which usually manifests with eyes closed, but which may occur at high doses with eyes open. It is primarily the latter kind of visionary consciousness which is interesting in this context, as it is in this domain that autobiographical, or otherwise meaning-bound material surfaces. As a facilitator of visionary states, the PE demonstrates the imaginal potential of the mind. Neurologically, it shows how the brain constantly process deep layers of material, censored by our executive mind, but capable of generating subjectively important meanings if allowed to

surface These mechanisms are arguably the basis for the whole range of entropic technologies such as sleep deprivation, fasting, floating, etc. At the same time, wholly without technological manipulation, humans see, project, and learn from images, showing a ubiquitous capacity for visionary consciousness.

8.1.2. Mind-Hacking

By the term mind-hacking is meant both the whole process of manipulating subjective experience involved in psychedelics use, and that this takes on some aspects which are very recognizable in what we might call a “hacker” ethos. The hacker experiences themself as part of a system. Perhaps overpowered by its dominance, or simply challenged by its complexity, they strive to manipulate the system in novel ways. They value the ingenuity that is allows them to navigate this overdetermined causal network in a less restricted way. In a similar fashion psychonaut spirituality is frequently concerned with what early theorists like Leary, and then Wilson thought of in terms of “meta-programming”. With a sensibility that is most notably shared by certain factions in contemporary occultism, notably “chaos magick”, psychonauts see themselves as consciously hacking the sensorium of experience. This autonomous or individualistic “DIY” spirituality, can seem far removed from the institutionally religious experience that is constituted by canons of scripture, thought, and practice. But as philosopher Peter Sloterdijk, have argued, all religions present in a basic way, as systems of self-engingeering, or *autoplastics*[94]. I would argue that what separates psychedelic autoplastics, is not the antropotechnic practice per se, but their intensity, and their open-endedness compared to traditional forms. In the intensity of the PS, boundaries are not incrementally loosened, but suddenly broken. Thus it is important to remember that while psychedelics seem to reliably induce beneficial insights for the individual, there is the risk of "overshoot", of too much psychological fluidity. Inferential leaps, logical indiscipline, and uncritical romanticism are very real dangers in this territory, and have arguably affected Psychedelia as a whole. Psychonauts must also embark on their voyages with an open-ended attitude. They allow dissolution to happen because they trust that the boundaries will re-stabilize after the expected duration of the trip. The dissolution process demands that the individual let go of the ordinary, thus challenging the practitioner on the level of attachments. But at the same time, the person is, or should be, aware that the novel mindstates that arise must also be held lightly. The

voyager must simply relax their grip on their own mind. Cognitive flexibility is both a feature[95], and a prerequisite for successfully navigating PE. This illustrates the connection between PE, and a certain understanding of the concept of meta-rationality. This term can mean different things, but in the present context it signifies the capacity to move fluently between different conceptual frameworks. Psychonauts are familiarized with seeing ordinary consciousness as constructed because they have experienced it deconstructing, thus pushing them in a metarational direction. At this point I will simply note, that the contemporary form of the psychedelic or occultist "mind-hacker", does have precedents in contemplative traditions in general, and in Buddhism in particular, but these connections will have to be developed in a different context.

Separate from the more cognitivistic emphasis that mind-hacking may take, there is the domain of healing, which arguably depends on the same potential for cognitive, psychological, and neurological, flexibility. The choice of this word is supported by Hanegraaffs argument that what separates *healing* of *illness,* from the medical *curing* of *disease*, is the relevance accorded to the entire context of the individual.[96] Like the other forms of alternative healing that are discussed in Hanegraaff's study, the efficacy of psychedelic therapy is mediated by the meanings that are manipulated in the process. The capacity to re-narrate our lives is a universal potential; but psychedelic therapy can give important insights into its optimal conditions.

9. Conclusion: Keeping an Open Mind

In this thesis I have argued that the, often confusing and seemingly heterogeneous field of meanings evidenced by this data, there are clear patterns to be discerned: entropic boundary dissolution, which, depending on the circumstance inflect either in predominantly transgressive, or unitive forms (naturally both may manifest at the same time as well). Despite the many dimensions we have examined, these self-similar patterns turn up like fractals, collapsing the distinction between form and contentlike the slogan of McKenna's early hero, MacLuhan: "the medium is the message"; or the non-duality of a high-dose acid trip. The ingression of chaos into the metastability of being, whether trivial or transcendental, isand this is the summary of my main argument–what is uniquely symbolized by these peculiar experiences.

Thus, to this author, this study ultimately inspired metaphysical questions. The tight connections between the different levels of nature, between biology and symbolic experience, are exceptionally clear when reflecting on such topics as spiritual technologies[97], and mind-altering chemicals. Theoretically understanding either of these levels, or their interrelationships happens in dialectic with one's background understanding of the whole, or at least a larger region of the whole. In other words, such reflection proceeds from an an implicit ontology of nature, or a gallery of such ontological models; it also constrains which models seem plausible. Substance ontologies have been critcized as obscurantist and contrary to evidence since Hume. It seems to me that the most important issue underlying the move towards relational ontologies had to do with the question ontological identity. A clear expression of this is found in Korzybski's relational ontology in *Science and Sanity*,[98] which is predicated on the assignment of identities not on positive grounds, by saying *what,* something *is;* but on negative grounds, by specifying *how* something is *related*, and thus circumscribed. Whitehead, who inspired Korzybski, developed his process metaphysics to avoid a theoretical "bifurcation of nature"[99], which in his view resulted from taking abstract concepts as the concrete reality, thus acknowledging the impossibility of positing concrete identities. Even more generally, what is similar in such ontologies is the intuition that the differences that allows us to pattern and schematize our world are not essential to things, but expressions of modified relations. These sorts of views are easily expressed in informational systems terms, according to Bateson's definition of information as, "the difference that makes a difference". Such intuitions go back even to Pythagoras, who thought that the good was found in the harmonic character of nature, critically perched between boundary, or limit (peras), and chaos (apeiron).[100] Over half a millennium later Buddhist *Heart Sutra* would talk of the interplay of form and emptiness, representing yet another non-substantialist, non-essentialist ontology[101]. In the same vein, it seems to me, the ubiquity of entropy becomes a reminder to remember not only being–as Heidegger taught–but also non-being; nicely expressed by Hegel in the concept "good infinity."[102] If both being and non-being is fundamental, being becomes a dynamic concept, expressing its facticity in creative interplay with the undetermined openness of non-being. The fact that creativity becomes central in process ontologies like Bergson's or Whitehead's is proof of a common intuition, I would argue. Reflection of the meaning of psychedelic entropy

reminds us of the unpredictable nature of nature. The mind-altering symbiosis between the human species and psychoactive nature have shaped the course of human evolution in highly complex and non-linear ways. An evocative anthropological image that exemplifies this interaction was yielded by the EBH: of how of our adult waking state is ego-dominated and sub-critical; thus in need of being shaken up in order to vibrate with a natural environment which is always critical. There is much to reflect on for students of the human condition in this and the other images that are generated by this subject. Perhaps the greatest payoff of examining psychedelic meanings then, is an increased appreciation for the potentialities that remain in the exploration, both lived and theoretical, of human consciousness *as a part of nature*.

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[22] https://en.wikipedia.org/wiki/Legal_status_of_ayahuasca_by_country (retrieved 8/5 -18)

[23] See, Hanegraaff, Wouter J. "Entheogenic esotericism.", chapter in Asprem, Egil & Granholm, Kennet (red.) (2013). *Contemporary esotericism.* Equinox Pub, Sheffield.

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[26] *Ibid,* 3.

[27] For example, the remarkable effects of LSD was what led modern neuropharmacology to take an interest in the serotonin system, which led to a whole host of developments.

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[39] See Chapter 6 for my treatment of the neuroscience of psychedelics.

[40] Neurotheology is a discipline, or a discipline proposed by, Andrew Newberg, seeking to p

[41] There was a strong hope, maybe even an expectation midcentury, that a more stable modernity could be attained by complementing Western culture with values, attitudes, and ideas from the East.

[42] For anyone familiar with Huxley, the cultural criticism embedded in the portrayals of drugs in these novels is quite obvious: Soma represents the use of alcohol as a depressant which permits an escape from the crushing reality of heteronomy and repression, though at the expense of existential sensitivity; Moksha on the other hand, is an image of the class of psychedelic drugs, which Huxley saw as having the potential to "open the doors of perception" quoting the English visionary poet William Blake, thus expanding, rather than restricting the humanity of its users.

[43] To be precise, while the non-hierarchical sensibility in the sixties' led thinkers to envision full democratization, Huxley was too much a product of post-Victorian British society to go this far; even though psychedelics would vastly increase access to mystical experience, he thought that their use should be restricted to intellectual and artistic elites.

[44] For a succinct presentation of this aspect of Bergson's theory of mind, see Bergson, Henri (1958) *The world of dreams*. Philosophical Library, New York.

[45] This epithet is taken from Leary's book with the same title, see Leary, Timothy (1968) *High Priest*. World Pub. Co, New York.

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[47] This was known as the Concord Prison Experiment. See, Metzner, Ralph. "Reflections on the Concord Prison Project and the follow-up study." Journal of psychoactive drugs 30.4 (1998): 427-428.

[48] Currently, the most advanced philosophical work is not done by philosophers but by neuroscientists, which is exemplified in the emergentist paradigm of entropic brain theory discussed in Chapter 6.

[49] Zinberg, Norman E. (1984) *Drug, set, and setting*, 33.

[50] In this vein, researchers Krebs and Johansen express scientific concensus when they write that, “psychedelics are not known to harm the brain or other body organs or to cause addiction or compulsive use; serious adverse events involving psychedelics are extremely rare.” "Psychedelics not linked to mental health problems or suicidal behavior: A population study." Journal of Psychopharmacology 29.3 (2015): 270-279

[51] For a review of studies done the last 25 years, see, dos Santos, Rafael G., et al. "Antidepressive, anxiolytic, and antiaddictive effects of ayahuasca, psilocybin and lysergic acid diethylamide (LSD): a systematic review of clinical trials published in the last 25 years." Therapeutic advances in psychopharmacology 6.3 (2016): 193-213.

[52] Of course, in assessing the risk of potential harm related to psychedelic this latter condition must be controlled for, and the lack of such controls in some studies may have contribted to an exaggerated view of the potential of harm from psychedelics.

[53] Nutt, David J., Leslie A. King, and Lawrence D. Phillips. "Drug harms in the UK: a multicriteria decision analysis." The Lancet*,* 376.9752 (2010): 1558-1565.

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[55] A term coined by Leary which was actually based on his pre-psychedelic research but which fit nicely with his psychedelic theorization as well. For a good account, see Leary, Timothy, (1977) *Neuropolitics :the sociobiology of human metamorphosis*. Starseed/Peace Press, Los Angeles

[56] While the challenge I articulate here is equally vaid with regards to other religious forms, the historically salient point is to account for the opposition between western, prominently American Psychedelia, and the traditional Christian cultures that it has met.

[57] Hanegraaff, Wouter J. "Entheogenic esotericism.", chapter in Asprem, Egil & Granholm, Kennet (red.) (2013). *Contemporary esotericism.* Equinox Pub, Sheffield, 393.

[58] *Ibid,* 394.

[59] *Ibid.*

[60] *Ibid.*

[61] Hanegraaff's defines "entheogenic religion" in, Hanegraaff, Wouter J. "Entheogenic esotericism.", chapter in Asprem, Egil & Granholm, Kennet (red.) (2013). *Contemporary esotericism.* Equinox Pub, Sheffield.

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[65] The reference here is to the italian nobleman Cosimo de' Medici, who famously sponsored the translation of the *Corpus Hermeticum* by Marsilio Ficino during the flowering of the Florentine rennaisance of religious philosophy in the 15th century.

[66] Jung, C. G. (1977). *The collected works of C.G. Jung. Vol. 12, Psychology and alchemy*. Pantheon, New York.

[67] For evidence simply study the cover of 'Sgt. Pepper's Lonely Hearts Club Band' by The Beatles.

[68] This story is a fascinating example of how Terence recognized (possibly constructing) completely novel connections between objects that no one had thought to relate: Terence had become impressed with the psychedelic fury found in the iconography used in tantric Buddhist deity Yoga. After looking into the matter he discovered that the Tibetan Buddhists had appropriated these deities from a much older Tibetan shamanism. Characteristically, Terence dismissed the Buddhists as decadent and concluded that this pre-buddhist tradition of of Bön, had to be in possession of some uknown shamanic substance. He moved there to find it and write a monograph on it, which never happened. See, McKenna, Terence, *True Hallucinations*, ch. 6.

[69] See, Davis, Erik. 'The Weird Naturalism of the Brothers McKenna: Esoteric Media and the Experiment at La Chorrera.' International Journal for the Study of New Religions 7.2 (2016).

[70] The details of the account is taken from, McKenna, Terence (1993). *True Hallucinations*. HarperSanFrancisco, San Francisco, and, Mckenna, Dennis (2012). *Brotherhood of the Screaming Abyss*. Polaris Publications, St Cloud.

[71] Mckenna, Dennis (2012). *Brotherhood of the Screaming Abyss*. Polaris Publications, St Cloud, 194.

[72] *Ibid.*

[73] *Ibid*, 203.

[74] McKenna, Terence (1998) 'Lectures on Alchemy'. (Retrieved from https://terencemckenna.wikispaces.com/Lectures+on+Alchemy 8/5 -18)

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[76] The neuroscience in this chapter is taken from this paper if not otherwise indicated: Carhart-Harris, Robin Lester, et al. 'The entropic brain: a theory of conscious states informed by neuroimaging research with psychedelic drugs.' Frontiers in human neuroscience 8 (2014): 20.

[77] Saxe, Glenn N., Daniel Calderone, and Leah J. Morales. "Brain entropy and human intelligence: A resting-state fMRI study." PloS one 13.2 (2018).

[78] *Ibid,* 3..

[79] The mean variance of the networks in question could be taken as a measure of disorder, or decoherence, seen as a form of entropy. The important point in the present context can be seen when the neuroimaging of PE are seen in this light: "Results revealed significantly increased network variance in high-level association networks after psilocybin but not in sen- sory specific and motor networks, and there were no changes after placebo. These results imply that activity in high-level networks becomes relatively disorganized under psilocybin, consistent with the entropic brain hypothesis."

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[88] Goodman, Nelson (1976). *Languages of art: an approach to a theory of symbols*. 2nd ed. [1985]. Hackett, Indianapolis.

[89] See, https://plato.stanford.edu/entries/information, for an overview.

[90] Harman, Willis W., et al. 'Psychedelic agents in creative problem-solving: A pilot study.' Psychological reports 19.1 (1966): 211-227.

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