
DISPUTES BETWEEN SCIENCE AND RELIGION

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ABSTRACT. This essay is an attempt to get at the core of the problematic relation between science and religion. Historical overviews describe the variety of ways science and religion handled their disputes in the past. Here it is argued that those disputes arose—and still arise—as a result of the differences between the basic premises and beliefs of both parties *prior* to the disputes.

It is felt that the origin of (any) religious belief is mysticism. Mystics however generally have no tendencies to quarrel. They tend to see similarities rather than points of difference. It is ‘institutional’ religion that is arguably the causal malefactor by losing its connection with its authentic origin and stressing other points for attention.

KEY WORDS. Science, history, religion, mysticism, meditation, brain.

INTRODUCTION

Much has been written about the many and diverse clashes of opinion between the Church or religion(s) on the one hand and science or scientists on the other^{3,5,6,7,13,15,17}. The common denominator of most, if not all, of those conflicting views (taken together as ‘disputes’) seems to be the different *basic beliefs* of science and religion.

It will be argued that many if not all religions are initiated with the specific mystical experience(s) of an individual. Literature on mysticism (authentic religion in our opinion) shows that mysticism: (1) in spite of its frequent use of religious language, is *not* synonymous with religion, (2) is sometimes, and reluctantly, annexed by institutional religion, (3) is compatible with science, (4) may be found in some scientists and (5) mystics don’t seem to have problems with science.

Since some churches and religions have had conflicting views with science, a disconnection between mysticism and institutional religion is assumed. It will be concluded that institutional religion has lost this

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connection with the original mystical, authentic religion. This loss and very likely the institutional ends of some churches and religions are at the root of the disputes. Unfortunately the word 'religion' is a homonym.

A SKETCH OF THE RELATIONS BETWEEN SCIENCE AND RELIGION

Brooke distinguishes three patterns in the science/religion relationship ^{a,5}:

1. *The conflict model*, i.e., an underlying conflict between scientific and religious mentalities, the one dealing in testable facts, the other deserting reason for faith; the one relishing change as scientific understanding advances, the other finding solace in eternal verities (acceptance without proof versus rejection without proof: Russell).

2. *The complementary or dialogue model* states that science and religion are essentially complementary, each answering a different set of human needs. Scientific and theological language have to be related to different spheres of practice. Discourse about God is inappropriate in the context of laboratory practice, but appropriate in the context of worship or self-examination. Conflicts in the past were mainly due to misunderstanding. Some twentieth-century theologians have stated that the doctrine of creation has nothing to do with the physical world. Its correct application is to the creation within men and women of an authentic stance toward their earthly predicament. By this the spheres of science and religion are isolated from one another.

3. *The open position* accepts some intimate relationship between scientific and religious concerns. It is not a conflict, as certain religious beliefs may be conducive to scientific activity. The two are not separated, for the interaction is supposed to work to the advantage of both. Barbour calls this *integration model* and adds another group ^{b,3}.

4. Science and religion are only social constructions reflecting local cultural values, not objective descriptions of reality. Therefore they not are intimately related in any general or abstract way. This new group he called the *social construct position*.

5. The *positivist position* states that the two domains speak different languages *prior* to any contact and will not understand each other unless considerable translation has occurred on both sides.

6. Finally it could be argued that both don't communicate due to neglect, disregard or ignorance.

This grouping is as arbitrary as it is unscientific, the categories not being mutually exclusive, and resembling to some extent the famous classification of animals in Jorge Luis Borges' short story ^c. Anyhow, we concur with Olson's statement that,

one of the central issues addressed by many religions is the relationship between members of the human community and the natural world¹⁵. This is a central question addressed in Genesis, for example. Any attempt to relate human and natural existence depends heavily on the understanding of nature that exists in a culture. So where nature is studied through scientific methods, science is unavoidably incorporated into religious thought (...) Thus, religious practices and natural knowledge interacted (in the past) to establish the character and timing of farming activities (...) Even in very complex industrial societies with high levels of specialization and division of labor, the various cultural specializations are never completely isolated from one another and they share many common values and assumptions.

In the past, disputes have been handled like in any other domain; running from courteous discussion to outright warfare. This is the field of 'conflicts' or 'polemics'.

Barbour describes the different ways this relation has taken form in some areas of conflict, by answering for each conflict the following: (1) which questions do both parties answer, (2) to which domains do they refer, (3) which methods do they employ, and finally (4) what integration do they seem to offer³.

Brooke concluded that history's lessons are far from simple, that they are extraordinarily rich and complex, and that general theses are difficult to sustain: 'the real lesson turns out to be the complexity^d'. Granted that a lot of arguments and evidence has been furnished in these historical overviews, they remain descriptive. After studying these historical books, we have arrived at the conclusion that it is the pre-existent faith, the convictions and basic assumptions of both parties *prior* to the disputes that are probably at the root of the disputes.

Another approach was taken by Hiebert⁸. He presented three scientists, each representative of one solution for the problem on how to reconcile religion with science: the monist Sir William Henry Bragg (1862-1942); the dualist Pierre Duhem (1861-1916), and the pluralist Charles A Coulson^e (1910-74). The following summarizes in part Hiebert's essay and adds a few other quotations⁸.

MONISM, DUALISM, PLURALISM

Sir William Bragg wrote a delightful little book, *The World of Sound*, presenting the happier introduction to the theory of sound than we ever came across⁴. At the end of the final chapter he writes his 'credo'^f, stressing the importance of experiments over theories in science, the former deciding if the latter should be retained, modified, or abandoned. Knowledge is to be acquired by experience (...) The Scriptures were to be taken not literally but as one possible source of information about religious experiences (...)

Bragg however selected only those components of religion that he considered to be compatible, in principle, with sciences. Thus he made a choice for a monism of method (scientific) and of goals (fascination of the search). His monism is disputable as only one part of the Bible is retained, i.e., 'try to help one's neighbor.' Moreover, he doesn't consider any religions other than Christianity or atheism.

The dualist Pierre Duhem held that physical theories have no objective reality but merely summarize and classify laws established by experiment. They can neither agree nor disagree with the propositions of Catholic faith. Because physical theories can be neither true nor false, they have no part to play in metaphysical or theological discussions. And because science and theology have nothing in common at this level, there can be no conflict. However, he also stated that the metaphysician should know physical theory in order not to make an illegitimate use of it in his speculations. He should be able to distinguish between the *theories* of physics, which have no objective reality, and the *facts and laws* of physics, which are rich in objective truth. Only a few subtle minds, therefore, could hope to make those necessary distinctions.

As a nineteen year old, Carles A. Coulson was converted to Christianity and remained active ever since in both the domains of religion and science (mathematics, physics and chemistry). He took religion as complementary to science. In his book on *Science, Technology and the Christian*, he makes the impression of a man strongly believing in the importance and value of science and equally holding to his Christian values⁶. He laments the loss of traditional values, draws attention to scientists not overseeing the consequences of the fruits of their research, pleads for the Christian faith providing concern for the Kingdom of God, etc. Indeed, he expresses many opinions but offers nowhere a coherent theory of the mutual relationship between science and religion. Others have argued that Coulson saw religion and science like the waves and particles in Bohr's quantum theory, but he does not clarify the connection between science and religion.

Reflection on monism, dualism and pluralism did not lead to the source of the disputes between religion and science. Monists seem to make use—albeit on another level—of pluralism. Dualism seems like a mental straitjacket variation of pluralism while pluralism allows for larger elbow-room. The original papers of the three examples consulted incorporate too many inconsistencies and do not clearly define religion, while essentially considering Christianity.

SOME COMMENTS ON RELIGION (AND SCIENCE)

The historical overviews do not formulate the fundamental reason(s) for the knotty relations between religion and science, the description of

Brooke's conflict model coming perhaps closest. The problematic relationship seem to be grounded in the different foundation(s) of theology and science *prior* to their clashes. Science will be taken here in a broadly naturalistic way. Religion, Honderich tells us in his "Companion of Philosophy," centers on rationality of belief in God, the demonstrability of God's existence, the logical character of religious language, and apparent contradictions between divine attributes and features of the world (omnipotence and evil, miracles and natural law, omniscience and free will, incarnation of God, inspiration of Scripture, rituals, sin, mystical experience and personal immortality⁹). Honderich's definition characterize the construct of the Christian Church.

Divine attributes of religion—where these are written—are found in the so-called canonical books. They describe the center of religion which we take to be the sum of all the laws, rules, rites, rituals, tokens of worship, buildings, people adhering to some core teaching, officials selected to teach and a variety of other (sub)systems, all based on and grouped around some 'narrative' or the 'core myth'. Such a 'big story' usually refers to some superhuman power(s) usually called God(s) (or a synonym) who is (are) supposed to have created the world, nature, man and some specific (chosen) tribe that not surprisingly happens to be the one of the first proselyte who started that specific brand of religion. Most of the world's religions have some individuals instrumental to this God or these gods, called his prophet(s) who are the first to bring His Word to man, recorded in the said (Holy) or canonical Book. The prophets are often called (some equivalent of) saints and posthumously fulfill a role as mediator to the God(s) or act as a very special example to model one's life upon. Believers generally hold the idea that their special God is a real entity, the Holy Book either (a) absolutely literally true or (b) metaphorically or allegorically perceived¹⁶.

Two points need some clarification. (1) There are two kinds of adherents. One will always judge everything he/she encounters from the certainty of his/her literally views. To keep a real discussion going is—in our experience—very difficult, even with learned men of this dogmatic variety. At some point in the discussion continuation is prevented by a statement that 'we (must) believe that according the Scriptures' this or that is thus. Asking again or restating the same topic in some other way gives the same reaction, somewhat reminiscent a scratched gramophone record. Pursuing the matter is of no use.

The other group of believers acts differently. History teaches us that the religious leaders of those tribes sooner or—rather—later are prepared to negotiate with people who believe differently, the scientists for example. The negotiation may take any of the forms summarized in the historical overview. (2) There is a huge variety in profundity of religious belief

among people within any congregation. People are born and raised within a family and society with certain specific religious beliefs. We usually accept without much reflection the views that are taught to us on our mother's knee. Some go for deeper understanding, but most consider it easier and occasionally safer to adhere to the view of the majority. Of course, it is possible that a person who belongs to some congregation is also an authentic believer. He or she should be discerned from a derived believer. The beliefs of the former are based on an individual mystic experience (*vide infra*), while those of the latter belong to the herd, due to custom and tradition.

The dogmatic and the herd are hardly interesting in this context, so we shall confine further discussion to those that are atheists or take their canonical book(s)—at least in part—metaphorically, and those that have had at least one genuine religious (mystical) experience. Then, our definition of this *authentic religious person* is someone who has had—at least once—a mystic experience. This experience is usually interpreted within the language of his or her frame of reference, to be taken as the clerical language of his or her religious tradition. Hence, mystical experience is usually ‘automatically’ interpreted as a sign of the Godhead, its assistants or some deceased person. Nevertheless mystics are to be found in every religion and also among atheists, each one of them telling the same story within the context and language of his tradition.

MYSTICISM AND MYSTICS⁸

Huxley stated that *Perennial Philosophy* (mysticism) might be approached in basically three ways that start: (1) at the bottom, with practice and morality (Buddha¹⁰), (2) at the top, with a consideration of metaphysical truths (philosophers and theologians), (3) in the middle, at the focal point where mind and matter, action and thought have their meeting place in human psychology (mystics of all traditions¹¹). The following presents a mix of his (2) and (3).

In a very scholarly study. Kripal sets out in detail the lives and works of five mystics who published extensively about mysticism¹²:

— Evelyn Underhill (1875-1941), English poet, novelist and writer, originally atheist, then philosophical theist, finally Christian with a tendency to Roman Catholicism.

— Louis Massignon (1883-1962), French Arabist and Islamist, minister of foreign affairs, professor of *sociologie et sociographie musulmanes* at the Collège de France, diplomat, pious Roman Catholic.

— R. C. Zaehner (1913-74), British specialist in ancient Iranian languages and the study of Zoroastrianism, a spy for M16 counterintelligence in Persia during World War II, Roman Catholic.

— Agehananda Bharati (1923-1991), born and raised in Vienna as Leopold Fischer, originally Roman Catholic, initiated in India into Hinduism receiving his name roughly meaning [*bharati*] blissful being homeless [*ageha-ananda*], professor of anthropology in Syracuse University USA, mystic and apostate.

— Elliott Wolfson (1956), American professor of religion at New York University, Jewish.

Ms. Underhill's writings, although quite readable, are not academically outstanding, the other four manifestly are. Agehananda Bharati is definitely a scientist (he published about six hundred papers and books), an apostate of religion and a mystic rolled in one¹². His mysticism is tantric according to himself, actually a complex of mystical traditions indigenous to a number of South Asian, East Asian, and Himalayan cultures that emphasize, among other things: (1) a variety of decidedly esoteric hermeneutical strategies to achieve, ritualize, protect and textually record various mystical-ecstatic states of consciousness, (2) antinomian ritual techniques that work against much orthodox philosophy and praxis, including in the classical Indian tradition, the ingestion of drugs, the eating of meat, and the ritual use of sexual intercourse, all highly offensive to an orthodox Hinduⁱ.

Bharati defines a mystic as: "*Any person who says 'I am a mystic,' or words to that effect, consistently, when questioned about his most important pursuit. The specific experience is the person's intuition of numerical oneness with the cosmic absolute, with the universal matrix, or with any essence stipulated by the various theological and speculative systems of the world* i, called the "zero-experience^k.

He adds that "a mystic is a seeker of intuitive union with the cosmic ground, who chooses experiments which would lead to such intuition^l.

In books on mysticism it is this consummation or union with whatever is spoken of theologically, doctrinally, as the matrix, the ground, and it is quite unimportant whether this ground is conceived of as having ontological or epistemological status^m. It is an error to assume that the mystic should be ethical (...) each is irrelevant for the otherⁿ. All mystics know euphoria, and all mystics know oneness, "knowing" in the more intimate experiential sense. It is irrelevant how one comes to his or her experience, i.e., through fasting, prayer, drugs, self-mortification, fornication, standing on his head, grace^o; many events can and do initiate or "trigger" the mystical, 'the experience itself cannot be reduced to sexuality or a chemical compound or the notes on the page.' It is also quite irrelevant to mysticism—though of course not to ideological afterthoughts of a theological or anti-theological kind—whether the experiment allocates the zero-splash to "nature", to himself as now integrated, or to deity however conceived and theologized^p. (...) The mystical experience is far more central

than either theological or non- and anti-theological interpretations of it, either by mystics themselves or by their apologist spokesmen.

Bharati observes that “orthodox Jews, Christians, and Muslims really cannot seek this union and be pious at the same time, because losing one’s identity and becoming the cosmic ground is a deadly heresy in these teachings ⁹.⁹” Mystics are an embarrassment to the established religious order. If they cannot be suppressed, they will be ‘neutralized’. They may be permitted to withdraw to cloistered retreats, there to remain hidden from the eyes of the world, put into jail or even tortured. The more reputed of their number may be sainted—saints to be revered but not imitated ¹⁰.

Bharati claims that we first created our gods and or God, then we forgot that we created them; then, by the zero-experience and by calling to mind that we (our ancestors, that is) created them, we realize that these divine creations are ourselves ¹¹. He considers the belief in any traditional religious object, God, or principle naïve, for it must again confuse emic language with etic explanation ¹².

“Anyone—Huxley tells us—who underwent a mystical experience (...) will never be quite the same as the man who went out. He will be wiser but less cocksure, happier but less self-satisfied, humbler in acknowledging his ignorance yet better equipped to understand the relationship of words to things, of systematic reasoning to the unfathomable Mystery which it tries forever vainly, to comprehend ¹³.¹³”

The mystic regards himself as a new man, as reborn, as dead to the old world, as no longer quite human but as somehow divine, or *truly* human; in short, as something very different to what he was before the zero-experience happened. We might even say that the perennial mode of the mystic’s self-report is that of change. The sheer force of such expression leads the apologists to think that “change” would also have to mean social change, moral change, change in skills, all-embracing change (...) It makes a person feel that he contains something he has never realized, something else than he has been taught to think ¹⁴.

In the zero-experience, “reality” is so powerful and certain, that extra-experiential items simply lose “reality” by comparison. The confusing diction suggests that reality *was* an objective implication of the zero-experience, which it is not. It would be preferable to say that the zero-experience itself is felt to *be* reality.

MYSTICISM, MEDITATION AND BIOMEDICINE

What we usually find when looking for mysticism is some form of psychological, physical, sexual, or moral excess. Human beings, after all, do not normally unite themselves with the universe, nor do they routinely leave

their bodies to become one with the divine. Consciousness is structured in such a way as to protect itself and to maintain a certain equilibrium ^w.

The relatively stable physiological equilibrium of consciousness may be destabilized by "overloading" with too many stimuli ¹, with sensorimotor deprivation, unusual stimuli (triggers), increasing alertness or mental involvement (as during highly focused concentrative meditative techniques), decreasing alertness, disruptions of the usual sleep-waking cycles and pharmacological agents ^x.

At birth we are essentially *unconditioned*. Life's events condition us. Meditation unlearns some conditionings, the feasibility of this already having been proved by Pavlov. This in turn frees the mind from old ambivalent and counterproductive associations and *deconditions* of the old mental baggage of nit-picking thoughts ^y.

There exists a family of meditation techniques based on conscious attempt to focus attention in a non-analytical way and not to dwell on discursive, ruminating thought. This takes much patience, practice and skill ^z. With calm relaxation as its prelude, sustaining bare attention then becomes the keynote of meditation. There are two generic categories:

1. *Concentrate meditation* is sustained attention which focuses persistently on a single item until one tends to become more or less absorbed in it.
2. *Receptive meditation* is sustained attention, *unfocused*, It opens up to whatever experience is available, neither overreacting to it, nor associating to it, nor interpreting it. This kind of openly receptive meditation encompasses the several meditative approaches which are translated as 'mindfulness', 'insight meditation', and 'just sitting' ^{aa}.

Modern biomedicine has tools that provide fairly detailed pictures of specific functions of structures of the brain using PET, SPECT, and fMRI ^{bb}. With these tools specific neurological activity has been shown in—again specific—brain areas within Tibetan meditators, Franciscan nuns and others^{1,14}.

The nature of the evolutionary process suggests that the mind's ability to enter unitary states did not evolve specifically for the purpose of spiritual transcendence. Evolution is pragmatically short-sighted, favors adaptations that provide effective survival advantages in the practical here and now, though many examples exist of adaptations that have no clear evolutionary advantage. Those adaptations that increase an organism's chances of survival are genetically passed along, those that don't are ruthlessly winnowed out ^{cc}.

It is believed that the neurological machinery of transcendence may have arisen from the neural circuitry that evolved for mating and sexual experience, the language of mysticism also hinting at this connection (bliss, rapture, ecstasy, exaltation, losing oneself in a sublime sense of union, melting into elation, total satisfaction of desire, etc.). The likelihood

is not surprising given the fact that the very neurological structures and pathways involved in transcendent experience—including the arousal, quiescent, and limbic systems—evolved primarily to link sexual climax to the powerful sensations of orgasm. The mechanism of orgasm is activated by repetitive, rhythmic stimulation. Significantly, orgasm requires the simultaneous stimulation of both the arousal and quiescent systems. The concurrent activation of those two systems is intimately involved in the process that sets in motion the mind's machinery of transcendence; mystical union and sexual bliss, therefore, use similar neural pathways. They are not the same experience, nor, neurologically the same. Sexual bliss is primarily generated by the hypothalamus, while higher thought processes might be involved in enhancing the pleasures of intercourse, the ecstasies of sex are primarily the result of physical, tactile sensations. In a sense then, mystical experience may be an accidental by-product (...) The accounts of the mystics are based not on delusional ideas but on experiences that correlate with brain events ^{dd}.

The experiences of mystics (eloquently summarized by Bharati and others) and the correlated phenomena in the brain as shown among others by both Austin and Newberg are highly suggestive. Moreover, the said mystic experiences have been worded in ways similar to orgiastic feelings, which, according to neuroscientists is to be expected on the basis of the localization of the brain's activity.

CONCLUSION

1. Mysticism may be considered as the basic experience of any religion. From what different authorities say on mystics it is highly unlikely that he/she will be prepared to haggle with anyone, including scientists. A mystic is either not interested in other opinions or takes them as just another phenomenon/illusion of the manifold world of things and ideas.

2. Many institutional religions rely heavily on officials (dogmatic) rules, laws, books and organization, which, in general, prevent, and even occasionally, forbid flexibility in acceptance of new ways to look at nature, as sustained by the selection of historical papers consulted.

3. Monotheism eyes mysticism with suspicion. Indeed, each monotheistic religion has persecuted, tortured and killed mystics. Institutional religion has disentangled itself from mysticism although some of its adherents have not.

4. As mysticism has no problems with science (1), but the Church often has (2), it seems evident that mysticism and the Church have parted ways as underlined by the persecution of mystics in the past by all monotheistic religions (3).

5. Orgasm and mysticism are normal phenomena of normal humans with specific and demonstrable correlates within the brain. Religious language is only one of the ways in which orgasm and mysticism may be formulated. However that is not to say that religion is necessary to explain those phenomena.

6. Authentic religion and institutionalized religion are homonyms but they should be differentiated as they lose their systematic connection. This, and the overpowering influence of many organized religious institutions and their ends are really the core problem, and essential reason for the conflict.

NOTES

a Brooke p. 3-5⁵.

b Barbour p. 3

c Jorge Luis Borges "Analytical Language of John Wilkins".

d Brooke p. 5.

e *Monists* stress the unity, oneness, and harmony of reality and knowledge.

Although conflict between science and religion may appear at times, it is only apparent; in the end harmony will be revealed, even if it comes at the expense of religion or science. *Dualists* insist on a radical separation of the physical and the mental, of body and soul, of science and religion. Because there is no interaction between science and religion, there can be no conflict. *Pluralists* allow for a multiplicity interpretations—complementary methods of observation, classifying, and arranging the available information about nature (Hiebert).

f It is a fact that in our lives, in all that we work at and strive for, it is of first importance to know as much as we can about what we are doing, to learn from the experience of others, and, not stopping at that, to find out more for ourselves, so that our work may be the best of which we are capable. That is what science stands for. There is also the great driving force which we know under the name of religion. From religion comes a man's purpose; from science his power to achieve it. Sometimes people ask if religion and science are not opposed to one another. They are; in the sense that the thumb and fingers of my hand are opposed to one another. It is an opposition by means of which anything can be grasped. It is right, therefore, with all our heart to learn what will help us in the work we want to do, so that when the call comes we can say, "I am here and ready; I want to play my part, and I have tried to fit myself to play it well" (Bragg, p. 96).

g *Mysticism* : the Greek mystery religions used the adjective *mustikon* (from the verb *muo*, to close the eyes or lips) to signal the hidden or hushed quality of the ritual secrets (Kripal, p. 33).

h *Philosophia Perennis* (Leibniz) is the metaphysic that recognizes a divine Reality substantial to the world of things, lives and minds; the psychology that finds in the soul something similar to, or even identical with, divine Reality; the ethic that places man's final end in the knowledge of the and transcendent. Ground of all being—the thing is immemorial and universal¹³.

i Kripal p. 209.

j Bharati p. 25.

k The following characteristics define *kensho* (the Zen-word for zero-experience, taken from Austin, p. 542-4).

1 Beyond rationality. The subject cannot explain the episode logically.

2 Intuitive insight. It conveys universal knowledge and clarifies issues of personal existence.

3 Authoritativeness. Depths of truth are revealed with absolute certainty. No logical argument refutes them.

4 Affirmation. The basic mood and tone is strongly positive toward all existence.

5 Sense of the beyond. The experience may convey a subtle sense that it is rooted elsewhere.

6 Impersonal tone. Among Buddhists it makes no reference to the image of Buddha.

7 Feeling of exaltation. The experiant feels an infinite expansion of new attributes and capabilities.

8 Momentariness. The episode is abrupt in onset and brief.

9 External unity. The whole world is experienced as one. The central theme of this is that there are no subject/object distinctions, or any other distinctions.

10 Changes in the boundaries of time and space. A sense of infinity is conveyed.

11 Ineffability. The experience seems impossible to communicate as it eludes words.

12 Objectivity and reality. The experience is "realer than real." The true nature of things is seen into, things as *they* really are.

13 Subsequent persisting positive changes in attitude and behavior. The experience changes the way the subjects think about themselves and about the rest of the world.

14 Perfection. The world revealed is awesome in its perfection. This gives rise to the sense that is sacred and to be revered.

15 Beyond doing. There is a distinct disinclination to intervene. Nothing remains to be done in the face of such a perfection.

16 Sense of release. Fear vanishes. And, as all other psychic ambivalences of the I-Me-Mine drop off, the experiant feels a sense of total mental and physical relieve.

17 Memorable quality. The experience strikes deep, has great impact, and is highly valued. Some fragments of the whole remain indelible.

18 Unimaginable. The experience is inconceivable in advance.

^l Bharati p. 27-28.

^m Bharati p. 45.

ⁿ Bharati p. 53.

^o Bharati p. 219.

^p Bharati p. 51-2.

^q Bharati p. 28.

^r Bharati, p. 20.

^s Bharati p. 152.

^t Ethnosemanticists speak of *-etic* and *-emic* statements; the terms are derived from structural linguistics. An *etic* statement is one made in a universal context under the assumption that all adult sane people in the world would understand the meaning of the statement; an *emic* utterance, on the other hand, is one which is understood (or thought to be understood) only in a specific social or cultural segment. (Bharati, p.23-4)

^u Huxley, p. 167 (14).

^v Bharati p. 99.

^w Kripal p. 306.

^x Austin, p. 308.

^y Austin, p. 333.

^z Austin, p. 334.

^{aa} Austin p. 72.

^{bb} Newberg p. 53.

^{cc} Newberg , p. 123-4.

^{dd} Newberg p. 126.

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