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COGNATIVE MODELS AND SPIRITUAL MAPS

Because mysticism is associated with religion it has long been regarded as inimical to science, an enemy of the search for objective truth, not to be credited as a discipline through which knowledge of reality;y can be gained. At least that seems to be the official attitude that pervades scientific publications and scientific meetings, even at the present time when quantum theory has made consciousness a legitimate subject for research.

In point in fact, informal inquiry reveals that many scientists have had experiences they would describe transcendent, as going beyond familiar sensory dimensions and providing a taste of the unified reality of which mystics speak. They don't talk about it in public but will do so in private. The greatest scientist of them all, Isaac Newton, was so haunted by the sense of the transcendent that devoted the later part of his life to alchemical studies, expressing his yearning in a particularly poignant lament:

I don't know what I may seem to the world, but as for myself, I seem to have been only like a boy playing on the sea-shore and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me (Newton, 1992, p.494).

Albert Einstein, another prodigious pioneer of science, echoes Newton in his belief in the reality of the mystical:

The most beautiful and profound emotion emotion we can experience is the sensation of the mystical. It is the source of all true science. He to whom this emotion is a stranger, who can no longer wonder and stand rapt in awe, is as good as dead. To know that what is impenetrable to us really exists, manifesting itself as the highest wisdom and the most radiant beauty, which our dull faculties can comprehend only in their primitive forms - this knowledge, this feeling, is at the center of true religion (Einstein, 1991,p.191).

Not only is mystical experience an occurrence in the lives of most people, including scientists, but the mystical literature, which spans thousands of years and widely disparate cultures, exhibits a remarkable consistency in its description of mystical experience and its instructions for obtaining access to mystical knowledge. William James commented:

There is about mystical utterances an eternal unanimity which ought to make a critic stop and think (James, p. 410).

In this paper, I will present way of understanding the mystical experience based on the role of intention in determining consciousness. This approach may enable us to understand a variety of mystical techniques and teachings without becoming entangled in obscure doctrines or religious-sounding terminology.

Meditation and Deautomatization

Before beginning medical school I had a mystical experience while camping on a lake in the Adirondacs. There were other people living in tent cabins living along the lake but, essentially, I was alone. I used the isolations to grapple with personal questions and doubts that had emerged from the college years, especially 'What did I really want? Why was I dissatisfied?' I reflected that music and poetry had powerful appeal for me because they seemed to contain something important and satisfying. I decided that there existed a source of what the arts conveyed to me and what I needed draw closer to that source.

Having reached that conclusion, I began a routine of sitting each day for a half hour on a boulder perched on the water's edge. With closed eyes, I would try to reach out to that unknown something that I so intensely wanted to find. I didn't know where to look - there was just the wish, the desire, and that push to contact the source.

After a week or so, my perception of my surroundings changed. I began to see the details of what was around me; the stones and leaves appeared more intricately patterned, the colors brighter. Then, I began to sense an invisible emanation coming from the sky, the trees, the surrounding natural world. It was as if I could see it, but really couldn't. I could feel it, but not with my usual senses. What was emanating to me was intrinsically positive, important, satisfying something I knew I wanted without question. It was also clear to me that other people did not perceive it. I made note to myself not to romanticize it; what I perceived was not a guarantee of bliss - I still experienced loneliness at my lakeside camp. Yet, at the same time, the perception was felt to be of paramount value.

The experience continued through the rest of the summer, but the summer came to an end. I returned to begin medical school and the perception became weaker and gradually faded away. Later, when the opportunity to do so arose, I had begun to read the mystical literature to try and understand what had taken place years earlier. Struck by the unanimity that had so impressed James and others, I concluded that the mystics were describing a true phenomenon, that their instructions must have validity, and it might be possible to understand mysticism by employing reason, experiment, and knowledge of development and cognitive psychology.

I chose to begin by investigating meditation; in particular, the concentrative meditation described in the Yoga of Pantanjali. To do this, I rounded up friends and acquaintances, sat them down opposite a blue vase, and instructed them as follows:

The purpose of the the session is to learn about concentration. Your aim is to concentrate on the blue vase [located on a table in front of the subjects]. By concentration I do not mean analyzing the different parts of the vase, or thinking a series if thoughts about the vase, or associating ideas to the vase; but rather, trying to see the vase as it exists in itself without any connection to other things. Exclude all other thoughts or feelings or sounds or body sensations. Do not let them distract you, but keep them out so you can concentrate all your attention, all your awareness on the vase itself. Let the perception of the vase fill your entire mind (Deikman, 1963).

Each subject did this for half an hour, after which questioned them about their experiences. Most participated in about forty sessions spread out over a few months, but striking changes in perception were reported very soon in the experiment. The vase was seen as becoming more vivid, more rich - 'luminous' was one description. It seemed to acquire a life of it's own, to become animated. There was a lessening of the sense of being separate from the vase: 'I really began to feel... almost as though the the blue and I were perhaps merging or that the vase and I were.' Synaesthetic phenomena were also reported: 'When the vase changes shape, I feel this in my body'; 'I began to feel this light going back and forth.'(1)

Although this was not a controlled scientific study, the reports of the subjects were consistent with those in the mystical literature. As I thought about the changes that had been reported, it occurred to me that they represented a reversal of the normal developmental process whereby infants and children learn to perceive, grasp, and categorize objects. This learning progresses and as it does it becomes automatic; they no longer have to pay such close attention to the nature of objects. Instead, more and more attention is free and put in the service of thought , of abstractions. The meditation activity that my subjects performed was reverse of the developmental process: the precept(the vase) was invested with attention while thought was inhibited. As a consequence, sensuousness, merging of boundaries and sensory modalities became prominent. A *deautomatization* had occurred, permitting a different experience of the vase than would ordinarily be the case.

Since perceptual automatization is a hierarchical developmental process it would be expected that deautomatization would result in a shift toward cognitive and perceptual experience that could be characterized as more 'primitive'. There is evidence supporting this . In a statement based on studies of eidetic imaginary in children, as well as on broader studies of perceptual development, Heinz Werner concluded:

The image... gradually changed in functional character. It becomes essentially subject to the exigencies of abstract thought. Once the image

changes in function and becomes an instrument of abstract thought . Once the image changes in function and becomes an instrument of reflective thought, its structure will also change. It is only through such structural change that the image can serve as an instrument in abstract mental activity. This is why, of necessity, the sensuousness, fullness of detail, the color and vivacity of the image must fade(Werner, 1957, p.152).

David Shapiro offered experimental evidence supporting this conclusion by studying the response of children of different ages to Rorschach images. He found that with increasing age the children paid less and less of the sensual aspects of the Rorschach cards, such as texture color, and progressively more attention to the meaning, and to formal qualities such as shape and size (Shapiro 1960).

Complementing Shapiro's findings were those of Daniel Brown who studied the Rorschach response of meditators of different levels of attainment and different meditative techniques. He found that in the case of advanced meditators, prominence was given to 'pure perceptual features of the ink blots'. As one subject put it, '...The meditation has wiped out all the interpretive stuff on top of the raw perception' (Brown and Engler, 1986). These findings are consistent with the reversal of the developmental shift from the sensory to the abstract - a deautomaticization(Deikman, 1996).

Although the concept of deautomaticization seems to explain some of the basic cognitive effects of meditation, it has been difficult to test the hypothesis neurophysiologically. Initially, it appeared to be supported by EEG studies of experienced Zen meditators. Kasamatsu and Hirai found an absence of habituation to a click stimulus (measured by alpha blocking) as compared to controls (Kasamatsu & Hirai, 1969). This ,too, suggested that a sensory deautomaticization had taken place. However, studies of Yogi adepts, as well as Zen practitioners, showed a great variability of EEG response due to the need of control for variety of variables, such as the type of meditation being practiced, whether the eyes were open or closed, the level of advancement of the meditation subjects, their state of arousal at the time, and the meaningfulness of the stimulus (Austin, 1998). However, the data do suggest that that a shift toward increased sensory sensitivity takes place when a concentrative meditation is practiced with an external focus, as in my initial 'blue vase' experiments.

Renunciation and Services

Renunciation and service are usually discussed in the context of morality, virtue, and saintliness. But we need not approach this as a moral issue, but as a straightforward matter of cognitive psychology. As I have described, our survival as biological organisms takes priority in development. This survival requires the development of a self that can acquire supplies, defend them against others, and take from others what might be needed or desired. This is the self-as-object, the survival self. It pervades our everyday experience. Our society keeps it activated with threats of danger, promises of pleasure,

prestige and ease, and encouraging competition for wealth and power. This situation is not just a matter of runaway capitalism. After all, Buddha preached to a society existing two thousand years before our own time. The Buddhist sutras and the scriptures of Vedanta were addressed to people living well before the advent of advertising and the stock market. The fact is that self-centered consciousness has always been with us as a matter of biological necessity. The problem facing spiritual teachers was that they had to start with people who, no matter how self-consciously 'spiritual', were devoted to the survival self. The teacher had to bring about a transition to a consciousness that was primarily other-centred, rather than self-centred. Only then could they taste of a consciousness that features a sense of the connectedness of everything, a unity, a reconciliation of the polar opposites that comprise our usual perspective. This cannot occur in the instrumental mode. Thomas Merton commented on this incompatibility in his book, *Zen and the Birds of Appetite*. He describes meat-eating birds (the survival self) looking for carrion:

Zen enriches no one. There is no body to be found. The birds may come and circle for a while in the place where it is thought to be. But they soon go elsewhere. When they are gone, the 'nothing,' the 'no-body' that was there, suddenly appears. That is Zen. It was there all the time but the scavengers missed it, because it was not their kind of prey (Merton, 1968, p. ix).

Profound connection is what the word 'spiritual' properly refers to. The spiritual is not a matter of visions of angels, or of being carried away by ecstatic emotion. The mystics are clear about that. At its most basic, *the spiritual is the experience of the connectedness that underlies reality*. The depth of that experience depends on the capacity of the individual to set aside considerations of self, thereby gaining access to connection. Although people differ in the extent and frequency with which they gain that access, the genuine experience abolishes competitive comparisons. 'I am more spiritual than he' is no longer meaningful because the 'I' and the 'he' are now experienced as part of a greater whole, not separate. Comparison requires separation.

Evidence for Connection

What evidence do we have that reality is in some way connected so as to be a unified whole rather than a collection of independently existing parts? It is common to cite quantum mechanics in support of this proposition. Quantum theory, whose predictions have been repeatedly confirmed, have led many physicists to the conclusion that reality is an interconnected whole, capable of instantaneous response at a distance. In one well-known experiment involving the emission of paired photons, a change in the polarization of one photon is accompanied by a simultaneous change in the polarization of the other - no matter how far apart they are. This change is not the result of a signal passing from the first to the second (that would exceed the speed of light). Rather, there is an instantaneous correlation of events that implies a unity of which both photons are a part. The results of this experiment are often cited to support mystics' assertions. These findings may indeed be based in the same

reality of which mystics speak, but they may not. Furthermore, physicists believe that the act of measurement 'collapses' the probability wave function to produce an event, others dispute the metaphor of 'collapse' and the putative role of human consciousness in that process. The fact is, the theory of physics is in continuous development and evolution. Jeremy Bernstein has warned:

The science of the present will look as antiquated to our successors as much of the nineteenth-century science looks to us now. To hitch a religious philosophy to a contemporary science is a sure route to obsolescence (Bernstein, 1978/197).

Although the conclusions of particle physicists and the poetic utterances of mystics do invite risky comparisons, we need not rely on drawing parallels between them. Instead, we can focus on two other sources that testify to the interconnectedness and unified nature of reality: (1) the consensus of the mystical literature and (2) the reports of persons for whom service (helping others) is a major focus of their lives.

The compelling consensus of mystics is that the perception of oneself as an object fundamentally isolated within our own consciousness is an illusion, a misconception that is the source of human destructiveness and suffering. It might be argued that this consensus is due to social contagion, ideas spreading through direct contact from: one mystic to another, across cultural and geographic boundaries. Against such a proposition is the fact that Buddhism, Taoism, the Upanishads and the 'wisdom' books of the Old Testament all arose in different cultures at about the same time, around 500BC. Something seemed to be happening during that time that resulted in a direct experience of a reality not easily comprehended and hard to imitate. Conceptual transmission by itself could not do this, especially as the mystical experience is ineffable. Techniques such as meditation could be passed along via trade routes but there must be a common reality that is thereby revealed. Something had to be there to be discovered.

Further evidence against merely social contagion is the fact that mystics from theistic religions assert a reality that is in conflict with the dogma of their church. Sometimes the conflict is open, as in the case of Hallaj, the Sufi mystic who proclaimed 'I am God' and was dismembered for his blasphemy. Christian mystics tend to be more indirect in their metaphors. They may not assert the position of Hallaj that each person is fundamentally identical with the Godhead instead of being separate, however they describe something similar that is not really compatible with Christian dogma. Here is a representative statement by St. John of the Cross:

That inward vision is so simple, so general and so spiritual that it has not entered into the understanding enwrapped or clad in any form or image subject to sense; it follows that sense and imagination (as it has not entered through them nor has taken their form or color) cannot account for it or imagine, so as to say anything concerning it, although the soul

be clearly aware that is is experiencing and partaking of that rare and delectable wisdom (St. John, 1953, p. 457).

The usual theological concepts have no place in such an experience. Theistic teaching is of God the Father, of Heaven and Hell, but Christian mystics like St. John of the Cross are quite explicit in stating that the experience of the reality of God, the Ultimate, cannot be expressed in terms of the things of this world. The problem for theologians is that the concept of reward and punishment, handed out by an omnipotent, omniscient God, is a derivative of the family experience, of child and parent definitely a conception of this world. The difference between mystics' experience and theological dogma is the reason why mystics have been a perpetual problem for traditional religion. This conflict attests to the fundamental nature of the mystics' experience. It feels ultimate, beyond the domain of the sensory and the rational, more real.

As I noted earlier, there is the additional fact that non-mystics also report experiences consistent with mystics' reports, although these moments when connection is vivid and boundaries dissolve are usually brief and of less depth. As Austin has pointed out, there is a difference between the connectedness and no-self that a lover may feel in the transports of sexual union, and the radical shift in world perspective that takes place in the much more rare event of kensho or enlightenment (Austin, 1998). Nevertheless, both experiences are along the same dimension of connection, as opposed to separation.

If connection is real, and if to experience that dimension of reality requires an appropriate mode of consciousness, then we are now in position to understand why mystical schools in addition to prescribing meditation, stress the critical role of renunciation and service.

Since survival self aims dictate the nature of our experience, we can understand the meditation offers some relief from that tyranny by (1) shifting intention from acting to allowing, (2) from identification with emotions to identification with the observer, and (3) shifting from instrumental thinking to receptive experience. Furthermore, renunciation is not to equated with self-denial, self-mortification, or asceticism. As one Zen master put it, 'Renunciation is not giving up the things of this world; it is accepting that they go away' (Suzuki, 1968). 'Accepting that they go away' is an orientation that opens the grasping hand and facilitates the shift away from the acquisitive aims that activate survival self consciousness. Without that letting go, renunciation could be utilized as just another way to fulism' (Trungpa, 1973). Mystics are acutely aware of the problem. Rabia, a Sufi mystic, prayed dramatically for relief from self-centred aims:

Oh Lord:

*If I worship you from fear of hell, cast me into hell,
If I worship you from desire for paradise, deny me Paradise
(Shah, 1968, pp. 219-20).*

The Service Experience

Service is probably the most effective activity for providing access to the connectedness of reality. However, like renunciation, 'service' is loaded with moral and religion associations. It is thought to mean sacrifice, the handing over of time and money and the reward of being a 'good' person entitled to a heavenly homesite. The functional dynamics of service are not appreciated. Consider the problem of motivation. If one does a good deed in the expectation that it will be noted in the Book of Heavenly Record, what is taking place is a commercial transaction. The survival self is still running the show. To illustrate this point, imagine a business man who becomes dissatisfied with material possessions. He then reads about the bliss of enlightenment and wants that. So he joins a spiritual group and faxes a notice of his new intention to the computer control centre in his brain. An underling reads the fax and rushes to the boss. 'This guy says he's no longer interested in money; he wants enlightenment. What program should we install?' The boss glances quickly at the fax. 'It's the same program: Acquisition.'

It is very hard to find a way of being active that is not self-centred, that is not ultimately selfish. The cynic argues: 'Doing good gives you pleasure, makes you feel good, so it is just another pleasure-seeking activity and, therefore, basically selfish.' The argument can be hard to counter, but there is a way out of the quandary: *servicing-the-task*. A carpenter may finish the underside of a chair even though he will receive no more money for doing so and his customers don't care. He does it because it feels *called for*. His motivation is not in the service of the survival self, but a response to a sense of wholeness or of need. True service, the kind that opens the doors of perception, is of this type.

Servicing-the-task requires a balance of instrumental and receptive modes for optimum effectiveness. Instrumental consciousness is needed to act, but receptive consciousness allows access to subtle information derived from the unified, connected aspects of the world. This helps sense the way a particular action would fit the situation in its less obvious aspects. The experience of 'being in the zone' reported by athletes, or the 'good hour' experienced by psychotherapists, is probably based on an optimum balance of the two modes.(2)

Persons performing service in a major way are very aware of the difference between self-consciously 'doing good' versus servicing-the-task, doing what is called for. The former can lead to burn-out, or self-inflation, whereas the latter energizes and connects. The difference between the two types was summarized for me by a physician who established a medical clinic in Tibet:

There's three kinds of people - I don't know if I can say it right - there's the one who's walking on the beach and he sees a beer can on the beach and he looks around and makes sure everybody's watching and picks up the beer can and throws it away... The second kind of person is walking on the beach, sees the beer can thrown on the beach, but there's nobody

around but he still picks it up and throws it in the garbage can because he knows God is watching. Then there's the third kind of person who's walking along the beach, sees the beer can, throws it in the garbage and doesn't care who is watching just because that's what needs to be done. I guess it's that third kind of motivation that's not ego-directed that one seeks. It's hard to get there...

Recently, I interviewed twenty-four service providers almost of whom gave evidence that people who serve-the-task experience a sense of connection to something larger than themselves. Their reports are very consistent. Here is a representative statement from a man who founded an organization providing care for AIDS sufferers. He spoke of the development of capacity to serve-the-task, and the change in the experience of the self that accompanies it:

... a self-conscious highly moralized 'doing-good' is very far from the place that I recognize as valuable... When I'm more self-consciously helping it's usually because I'm in a survival mode... What's going through my mind is fundamentally different... [In true service] I'm not serving myself, there is not that aspect to it, or wanting to get brownie points for Heaven... 'Doing what needs to be done' is the way I used to say it to the Shanti volunteers... There's an extension of self that occurs ... an extension of my self to include the other person. What's in his best interest is in my best interests... an evolution goes on from doing things to the patient or the person you serve, to doing things with the person you serve, to doing things as the person you serve. There's an extension of myself to include the other person... You're serving something greater and deeper than the person in front of you, knowing that person will benefit as a consequence if you can get to this place.

He concluded:

[When serving-the-task] we've allowed our personalities, our egos, to move from the driver's seat to the backseat. And what's sitting in front is your highest self and my highest self. And that's what's connected... we allowed our higher selves to emerge... who I was serving was a lot more than just the human being in front of me.

Another service provider, a management consultant to non-profit organization, also commented on the experience of the connection:

I feel that connection is real. I think it's not just the two people connecting. I think it's the two people connecting to whatever this is... there's a feeling of a larger connectedness than just between two people.

Almost the same words are used by a physician who founded an organization that provides support for cancer patients. She said she knows when something is really service:

It's a sense of connection that you have to something beyond the moment when you do that... It's like seeing both of you as part of a much larger process that has no beginning and no end.

The experience of connection can be very helpful to the service provider. A man who heads a hospice describes his experience:

I see in the midst of this that I am caring for myself in taking care of this other person, that I don't have such a feeling of separation in this world. When I'm standing at arm's length from this person, trying to keep their separate existence, I feel continually isolated and fragmented in a way. Whereas when I let it in, include it in my life, I don't have that feeling of fragmentation or separation so much anymore.

The testimony for connection among people who serve-the-task is striking and compelling. If we grant the possibility that the experience of connection reflects what is real, the importance of service in the mystical tradition makes perfect sense. When a server can lessen the dominance of the survival self - her 'ego needs' - she can then experience a different organization of consciousness, one that is responsive to connectedness. Through that connectedness she experiences a different, larger sense of self. What stands in the way of our accepting such testimony is the invisible nature of that connection; It is not perceptible by vision or touch. The closest some servers can come to describing the quality of the experience is to speak of 'energy':

Some kind of current goes through the space you're in... you can really feel this flow happening. Whether it's energy or current or what it is, but I definitely know when it's happening...

The connection is at an energetic level... it's like food for the emotional or nervous system that really is a tangible energy exchange.

I felt very connected to the men I was sitting next to, and in fact there was almost a literal electric charge that was passing back and forth between us...

The nature of the connection cannot be specified, at least so far. But the testimony of the mystical literature, referred to earlier, says that the connection is real - not an illusion.

Mystical knowledge

I do not know if energy is an accurate metaphor for the connectedness to which these people gain access, but their consensus suggests that they are experiencing something real as a consequence of the change in their motivation, in their guiding intention, a change that lessens the power of the survival self to determine consciousness. The functional understanding of mysticism that I have proposed makes this effect of serving-the-task

understandable and initiates these service experiences with the classical mystical literature.

This balanced interplay between modes may be what Yeats was referring to when he described Michelangelo's creative activity:

*Like a spider moving upon the water
His mind moves upon silence (Yeats, 1951, pp. 327-8).*

We are now in a position to appreciate the straightforward nature of mystical knowledge. This knowledge does not require living in a monastery, wearing foreign clothing, sitting cross-legged in meditation, burning incense or chanting sutras. Exotic practices are not essential, they may even be barriers if they lead practitioners to imagine they are 'advanced', or being 'spiritual', thus reinforcing survival self consciousness. What is required is a shift from a consciousness focused on the disconnected aspect of reality to a mode of consciousness responsive to its connected aspects. Although we may be intellectually persuaded that a unified world exists, the difficulty is to experience that world, not just to believe it. That experience is the goal of mysticism.

Far from being esoteric, mystics propose the most modern, and at the same time the most ancient instruction for effective functioning and a fulfilled life: 'know thyself'. But the Self of which mystics speak is often capitalized to indicate it is different from, and superordinate to, the self of which we are usually conscious. Mystics teach a way of attaining that knowledge of Self. The procedures of meditation, renunciation and service that mystics employ are not really mysterious, just radically different from our usual object-oriented, instrumental approach.

Thousands of books of philosophy line the shelves of our libraries without one book providing a satisfactory answer to the fundamental question 'What is the meaning of life?' No verbal answer has ever sufficed - thus the thousands of books. The problem is that the mode of consciousness that asks the question is not the mode of consciousness that can hear the answer. When Job questions the meaning of his life his comforters offer logic and words - to no avail. Job finally is satisfied only by seeing (experiencing) Jehovah, not just hearing about Him.

Judging by the reports those who serve-the-task, service can provide a non-verbal answer also. I say this because for people who serve in that way, the question of the meaning of life no longer arises. That non-verbal experience is what mysticism is about. With this in mind, we can now understand why the basic instruction of the mystical traditions is to 'forget the self'. To forget the self is not a matter of morality, goodness, or sainthood, but a matter of access to the connected aspects of the world and to a different, more extended experience of the self. 'Forgetting the self' is not easy, but mystics have developed ways of facilitating that process. The various techniques and activities of the mystical traditions may appear exotic, but they

can be understood as a way of going beyond the limitations of instrumental, self-centred, consciousness.

Such a development is more important now than ever before. When we consider the problems that confront us - sociological, environmental, and technological - we can see that ameliorating and solving these problems will require a shift in which connected, other-centred consciousness becomes more dominant. Because of this, the further progress and survival of the human race may depend on that very shift in consciousness to which the mystical traditions are devoted. For this reason alone, as well as for achieving a more profound understanding of reality, the mystical traditions deserve our study and close attention.

[1] For a detailed description of the experiment and an analysis of the data, see Tart (1990), pp. 241-65.

[2] See also Csikszentmihaly (1957).

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