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Can science explain mysticism?

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Abstract. Jerome Gellman has recently disputed my claim that a naturalistic explanation for mystical experiences is available, a better explanation than any current attempt to show that God is sometimes perceived in those experiences. Gellman argues (i) that some mystics do not 'fit' the sociological explanation of I. M. Lewis; (ii) that the sociological analysis of tribal mysticism cannot properly be extended to theistic experiences; and (iii) that mystical experiences merit prima facie credence, so the burden of proof falls on the naturalist. I reply (i) that the alleged counter-examples either do fit Lewis's explanation or are too poorly known to judge; (ii) that Lewis's theory, supplemented by recent neurophysiological findings, provides a strong explanation for all mystical experiences; and (iii) that the burden of proof, if there is one, now falls on the theist.

I

In two earlier articles which appeared in this journal, I took up a provocative claim, made by William Alston and others, that mystical experience has not been, and is very unlikely ever to be, scientifically explained.[1] That claim is associated with defences of the view that mystical experiences have a supernatural etiology – that they are, indeed, more or less veridical experiences of God. The claim is provocative, in part, because it has not been accompanied by any adequate review of scientific approaches to mysticism, and in part because it invokes an incorrect, though common, misconception of mystical episodes as so sporadic and unpredictable as to be unamenable to scientific study.

My response focused upon one central contribution to the emerging scientific understanding of mysticism, that of the cultural anthropologist I. M. Lewis. Lewis's extensive cross-cultural comparisons reveal that mysticism does not occur at random. There are two primary patterns.

The first of these patterns Lewis calls peripheral mysticism, because it occurs among groups of people who are socially marginalized. Lewis illustrates the ways in which peripheral mysticism serves, within the social sphere, as a technique or strategy by means of which the marginalized can

[1] See William P. Alston *Perceiving God: The Epistemology of Religious Experience* (Ithaca, NY: Cornell University Press, 1991), 228–234; also William Wainwright *Mysticism: A Study of Its Nature, Cognitive Value, and Moral Implications* (Madison, WI: The University of Wisconsin Press, 1981), ch. 2; Keith E. Yandell *The Epistemology of Religious Experience* (New York, NY: Cambridge University Press, 1993), ch. 7; and Steven Payne *John of the Cross and the Cognitive Value of Mysticism* (Boston, MA: Kluwer Synthese Historical Library, v. 27,1990), 188–209. For my response, see Evan Fales 'Scientific explanations of mystical experiences, Part I: The case of St Teresa', *Religious Studies*, **32** (1996), 143–163, and 'Scientific explanations of mystical experiences, Part II: The challenge to theism', *Religious Studies*, **32** (1996), 297–313.

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make their voices and concerns heard, in a way which exerts pressure upon central authority without requiring a radical break or open rebellion. Peripheral mystics (who are more often women than men) are typically possessed by supernatural beings which are (at least exoterically) characterized as demonic or mischievous, as challengers of the status quo (though esoterically they may be revered as divine helpers).

The second pattern is central mysticism. It occurs in societies in which access to positions of leadership is not heavily institutionalized but is fluid and in significant degree a matter of individual initiative and charisma. Aspirants to leadership are, in many such cultures, seized by the 'central' gods – the protectors of social customs, morals, and institutions – and 'recruited' to their service, often through a process of travail and resistance. In both cases, whatever the material rewards, concourse with the gods/demons is regularly portrayed as associated, at least initially, with periods of affliction (physical and/or mental); and the mystic styles him- or herself an unwilling victim, as much as a beneficiary, of the attentions of the supernatural world.

Lewis notes some variations upon these two dominant modes of mystical practice, which clearly represent adaptations to particular circumstances. One especially interesting adaptation, which Lewis touches upon but does not very fully discuss, can occur when a subculture or subsociety with a distinct identity lives within the ambit of a larger society, and is marginalized by that dominant culture. Here – especially when the subculture has central mystical traditions harking back to earlier times of independence – there can arise mystics who are, vis à vis their own subculture, 'central' mystics, while simultaneously functioning as peripheral mystics and champions of their oppressed group vis à vis the larger society.[2]

But in every case, mysticism in the public arena serves to forward the interests of individuals or of groups whose concerns the mystic serves to articulate in a manner designed to deflect the suspicion that mere human interests are being promoted. Indeed, peripheral mystics often run substantial risks in articulating the demands of the disadvantaged groups they serve; and for central mystics, the rhetoric of possession is functionally a representation of the notion that the possessed leader acts, not in his or her own interest, but in that of the community as a whole.

In my earlier papers, I argued that Lewis's theory goes a long way toward explaining scientifically (and naturalistically), not only the mysticism found in exotic cultures, but Christian mysticism as well. I did so by applying Lewis's analysis to one particularly prominent woman Christian mystic about whose life and circumstances a fair bit is known – St Teresa of Avila. I also argued, more generally, that mystical experience is, *pace* Alston et al.,

[2] See I. M. Lewis *Ecstatic Religion* 2nd edn. (London: Routledge, 1989), 34–35, 37–38, 80–83, 101–105, and 112. In my view, a good case can be made that St Paul was such a mystic.

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quite amenable to scientific investigation (even predictable and controllable under certain circumstances), that attempts to discount or demote certain experiences (such as controllable or exotic ones) in favour of others (those revered by the home religion) fail, and that attempts to 'graft' a theistic etiology on to Lewis's explanation is implausible. I did concede – and will return to this presently – that there seems to be a certain incidence of mystical experience among 'ordinary folk' whose mystical lives remain essentially private and arguably beyond the scope of Lewis's categories (though the data here are equivocal and sparse). I concluded by issuing a challenge to theists – that they find counter-examples to Lewis's theory, e.g, non-marginalized male mystics in a culture in which access to authority is highly ascriptive and non-charismatic (such as, say, medieval or Reformation Roman Catholicism).

II

Jerome Gellman has taken up this challenge in this journal.[3] Gellman's response can be divided into two parts. First, he presents, not one, but five male mystics (one Christian, four Jewish) who he claims cannot be accounted for by Lewis. He admits that five counter-examples do not by themselves break a theory, but certainly, such cases deserve to be examined seriously, to discover what sort of evidence against Lewis's views they provide. And in any case, Gellman goes on, in the second part of his response, to argue on various other, more general grounds, that Lewis's theory, and the conclusions I draw from it concerning the epistemic status of mystical experience as evidential grounds for theism, are unwarranted.

I shall undertake to consider Gellman's challenge by addressing each of the parts of his argument in turn. So first, what of the five male mystics? The mystics Gellman asks us to consider are Jakob Boehme, the Ba'al Shem Tov (Israel ben Eliezer), Abraham ben Moses and his great-great-grandson, David ben Yeshua ben Abraham, and finally, Rabbi Abraham Isaac Kook. Boehme was a sixteenth to seventeenth-century German mystic in the (or rather, a) Christian tradition. The Ba'al Shem Tov (or Besht) is famous as the reputed founder of Hasidism. Abraham and David are more obscure figures, hereditary leaders of the Egyptian Jewish community and direct descendants of Moses Miamonides. Rav Kook served as a rabbi in Poland and then in the emerging nation of Israel while it was under the British Mandate. He served as the first Chief Rabbi of Palestine.

I must preface my brief discussion of these five figures with two cautionary remarks. First, it is with some misgivings (these were expressed in the first of the two articles I published in this journal in 1996) that I embarked upon

[3] Jerome I. Gellman 'On a sociological challenge to the veridicality of theistic experience', *Religious Studies*, **34** (1998), 235–251.

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the task of showing that a scientific understanding of mystical experience is not only likely to be possible, but is in some significant measure already at hand. The misgivings are ones which ought to impress themselves upon any philosopher who ventures outside the confines of our discipline and takes up empirical issues for the resolution of which he does not have adequate aptitude or training.

The second remark concerns the paucity of the evidence we have regarding every one of the figures Gellman brings to our attention. I shall argue that the two best-documented of these – Boehme and the Besht – appear to fit quite nicely within Lewis's framework. But even about these figures we have very little biographical information of the sort relevant to assessing their conformity to Lewis's stereotypes. Thus Rosman, perhaps the most prominent of contemporary Besht scholars, writes in the introduction to his study of this legendary figure:[4] 'In the case of the Besht, the source material has been so scanty and so exceptionally equivocal that many descriptions of him have been overshadowed by the describers' ideological proclivities'. Andrew Weeks makes a similar admission with respect to what is known about Boehme. In view of these difficulties, any conclusions about how well or poorly Lewis's theory explains these mystics can at best be only tentative. What I shall say about the other three figures will perforce be even more speculative and brief.

Very little is known about the life of Jakob Boehme. We know that he was (happily, it seems) married. We know that he was a successful shoemaker, active in the leatherworkers' guild in his hometown of Görlitz in Lusatia. He was nominally a Lutheran, in an area that was officially and administratively Catholic. At the same time, Lusatia stood at the centre of almost three centuries of political/religious upheavals, which pitted against one another, not only the various German princes, but Catholics, Lutherans, Calvinists, and various Anabaptist sects. Boehme's death coincided with the onset of the Thirty Years' War. He himself was associated with local Schwenkfeldian families.[5] We know that he was an antagonist of the local Lutheran pastor Gregor Richter, not only on spiritual grounds, but apparently on economic grounds as well.[6] Perhaps more importantly, he had indirect links with at least one major Anabaptist thinker (Valentin Weigel), and his language is clearly permeated with the imagery and ideology of the German Anabaptist mystics. Weeks, in fact, locates Boehme directly within the spiritual lineage which led from Eckhardt through an anonymous mystical document, the *Theologia Deutsch*, to such figures as Thomas Muntzer, Hans Hut, Hans

[4] Moshe Rosman *Founder of Hasidism: A Quest for the Historical Ba'al Shem Tov* (Berkeley, CA: University of California Press, 1996), 3.

[5] See Andrew Weeks *Boehme: An Intellectual Biography of the Seventeenth-Century Philosopher and Mystic* (Albany, NY: State University of New York Press, 1991), ch. 1.

[6] It seems that Boehme may have influenced his guild to engage in sharp business practices which harmed economically some of Richter's close relatives.

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Denck, Sebastian Franck, Sebastian Castellio, and Weigel.[7] About the use by these figures of mystical claims and rhetoric in the defence of the marginalized there can be no question. Steven Ozment spells out this association in detail.[8]

At the risk of serious oversimplification, we may epitomize this history as follows. The young Martin Luther expressed great admiration for the *Theologia Deutsch* (of which he published an edition); apparently, he was especially sympathetic with the anti-ecclesiastical implications of its soteriology. But whatever bones Luther had to pick with the Church hierarchy, and whatever appeal he initially made to the spirituality of the common people, he (and Calvin) quickly turned their backs upon the peasants who began to see in the Reformation some hope for the amelioration of their oppression. While Luther and Calvin could see on which side their bread was buttered, and made alliances with the princes, others, like Muntzer, had the courage steadfastly to champion the cause of the peasants. Muntzer's language pulls no punches:[9]

> The learned theologians turn their little tongues and softly say: 'Search the Scriptures, for you believe, you must let yourself believe, that there you will receive salvation'. And so the poor needy people are more thoroughly deceived than any words can say. With all their works and words, the learned theologians have seen to it that the poor man may not learn to read because of his preoccupation with making a living. And they preach unashamedly that the poor man should submit to the skinning and fleecing which the tyrants have prepared for him.

After the bloody defeat of the Muntzerite peasants at the battle of Frankenhousen in 1525, the German mystics understandably muted their rhetoric, in classical mystical fashion. But a thread that runs through all their writings is the thesis that sanctity – and salvation – are fundamentally the result neither of human mediation nor of a belief in any Book, but of the direct workings of the Spirit within the soul of each human being. The radical social implications of this were surely lost neither on Boehme himself nor on his spiritual heirs – notably, the English mystics William Law and George Fox. Indeed, it is virtually inconceivable that Boehme should have situated himself within this tradition, and yet not fit the mould of peripheral mysticism.[10]

[7] Andrew Weeks *German Mysticism from Hildegard of Bingen to Ludwig Wittgenstein* (Albany, NY: State University of New York Press, 1993).

[8] Steven E Ozment *Mysticism and Dissent: Religious Ideology and Social Protest in the Sixteenth Century* (New Haven, CT: Yale University Press, 1973).

[9] *Ibid.*, 84 for this quotation.

[10] This in no way conflicts with the fact that there are other dimensions in Boehme. For example, he was much influenced by Paracelsus and by the alchemists, and it seems that his cosmology represents an effort, among other things, to construct a religious ontology which is congruent with certain of the emerging scientific theories of his day. But this, too, can be seen as integral to the project of undermining the institutionally sanctioned soteriology of Christian orthodoxy. It is perhaps not disanalogous to the attempts of various contemporary New Age 'theologians' to construct cosmologies that claim to be informed by modern science. Concerning the political implications of Boehme's cosmology, see Weeks *Boehme*, ch. 2 and 80–81; also 163–165.

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This is not the place to demonstrate the close relationship between Boehme's mystical imagery and that of his German predecessors. Instead, I shall confine myself to a few remarks in response to points made by Gellman. Gellman especially emphasizes Boehme's self-effacing character, by way of arguing that Boehme could not have been motivated by desires for power or fame. But this ignores the fact that a mystic need not be motivated by any wish for personal aggrandizement, but rather (often enough) by the desire to further the aims and articulate the legitimate grievances of some group with which he or she identifies. Germany at the turn of the seventeenth century was a radically unstable society, both politically and ideologically. Even if we cannot situate Boehme exactly within this complex social milieu, it is impossible to think that he was operating in a social vacuum, and it is clear that his views rattled the doors of orthodoxy, as he surely understood that they would. Besides, self-effacement is a familiar and standard strategy among mystics who recognize that they are likely to arouse the animus of the establishment.

In spite of that, it is quite unclear just how self-effacing Boehme in fact was. Gellman mentions that Boehme did not publish his first writings for ten years; but Weeks points out that Boehme displayed no reluctance, once his work was finished, to get it into print.[11] Moreover, Boehme was not above engaging in aggressive polemics. Indeed, Weeks's assessment of Boehme's 'self-effacement' is rather different from Gellman's:[12]

> In order to reconcile the apparent contradiction between his profitmaking and his self-sacrifice for his sublime cause, it is necessary to revise the image of Boehme's role and calling. The cobbler mystic was the greatest propagandist of his own myth. It was he who never wearied of repeating that his writings had been inspired by a God-given gift, his inspirations pouring down from heaven like thundershowers, and that, as far as his own humble person is concerned, he had never sought anything but refuge in the loving heart of Jesus. These are stock phrases.

It seems to me, therefore, that there are ample reasons to suspect that Boehme does fit the Lewis mould, and is not the 'quiet mystic' Gellman portrays him to be. Even if Weeks's assessment is not conclusive, any attempt to put Boehme forward as a counter-example to the Lewis view is left with little basis.

I turn next to the Besht, an engaging but shadowy figure who lived in the town of Miedzybóż in Podolia, in the south of what is now Poland, in the seventeenth century. The Besht is by reputation the founder of the Hasidic movement which began to flourish in Eastern Europe in the late decades of the seventeenth century. A standard view is that the Besht, himself a rather marginal figure, led a rebellion against the orthodox Jewish spirituality of the time, which was heavily focused on asceticism, the study of the Law, and

[11] *Ibid.*, 61, 168–169 and ch. 8. And see especially 93–98, where Weeks casts a jaundiced eye upon Boehme's own pious account of the matter, which Gellman apparently accepts at face value.

[12] *Ibid.*, 160, and, more generally, 159–165.

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the rigorous observance of the ritual calendar. This rebellion was anti-ascetic, emphasized religious ecstasy as the primary way to God rather than religious observance, and, with its de-emphasis on knowledge of the Law, appealed to the poorer and more marginalized Jews who were either illiterate or in any case not Talmudic scholars.

But recent reassessments of the Besht, by Rosman and others, have challenged this picture. For one thing, it has been shown that Hasids existed before the time of the Besht; that in fact, in the Besht's day a Hasid was a healer and caster of magical spells, who used his knowledge of herbs and his power to intercede with supernatural powers on behalf of his clients. This was a recognized role within Eastern European Jewish society, one which gave practitioners considerable status and leadership within their communities. It is this quite traditional role that the Besht filled for the Jews of Miedzybóż. As such, he was someone with considerable power and influence, but at the same time hardly a rebel or radical innovator or anti-traditionalist. He did not self-consciously found a new Hasidic 'movement', though some of his followers did, in effect, do so in the decades following his death (in the course of which they mythicized the Besht as a founder-figure).

From these (presumed) facts, Gellman draws the conclusion that, contrary to the traditional stereotype, the Besht was not a Lewisian peripheral mystic, nor was he a power-seeker, trying to establish his own fiefdom. But these conclusions are misdirected in two respects. To begin with, Gellman forgets that Lewis delineates two categories of mystics; if the revised picture of the Besht is correct, we have to examine whether he might not be a 'central' mystic. Second, as we have already seen, mystics need not be power-hungry or motivated by personal gain. They certainly need not found movements in order to qualify as Lewisian; Lewis himself nowhere mentions this as a criterion or even a common characteristic.

Rosman makes it clear that the Hasids of the Besht's milieu not only could command considerable respect within their communities, but that success as a Hasid came largely as a result of personal spiritual charisma. Although Hasidic leadership became highly institutionalized and hereditary after the Besht, it was not so in his day. So the earlier Hasids were spiritual leaders, healers, and magicians who acquired their reputations by dint of their own efforts and ability to convince fellow-Jews that they had access to the supernatural realm. But this is just the classic portrait of the *shaman*. And *shamans* are precisely the classic 'central' mystics of Lewis's theory. So far from being a counter-example, the Besht emerges as one more data-point on Lewis's curve.

Matters are perhaps however not quite that simple. Although the Besht may have been a leader within his Jewish community, that community as a whole led a marginalized existence within Christian Podolia. The Jews were, both by law and in fact, under the thumb of, and at the mercy of, the

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Christian landholders and government officials. Beyond that, there were the snubs of daily anti-Semitism and the threat of periodic pogroms.

Rosman points out that the Jews of seventeenth-century Miedzybóż lived in a period of relative prosperity and security. But the term 'relative' requires emphasis. Jews were not only stigmatized and kept separate from Christian society, but led heavily constrained lives under the control of – and at the whim of – the dominant Christian order. Thus I would suggest that the Besht occupied a position which not only required shamanic leadership within his own subculture, but also provided opportunities to articulate the injustices suffered by that group to the dominant Christians. But whether, and how, he may have exercised that latter function – the function of the peripheral mystic – is sufficiently obscure that I shall not enter here into any attempt to apply Lewis's framework to an analysis of it.[13]

There remain in Gellman's arsenal the two figures in the Egyptian Jewish community in the thirteenth and fourteenth centuries, and the more contemporary Rav Kook. Unfortunately, very little is known to me about these men – much too little to assess the prospects of a Lewisian explanation of their mysticism.

Consider first the introduction to the treatise *Instructor of Asceticism*, ascribed to David ben Joshua, a leader of a thirteenth-century Egyptian group of Jewish ascetics.[14] This introduction tells us almost nothing (presumably because very little is known) about the details of David's life, or that of his mystical grandfather Abraham. We do not know the circumstances of the origination of the Jewish group whose religious leaders they were; nor are we told about the relationship of this group to the wider Jewish community or its relationship, in turn, to the surrounding Islamic society of Egypt. Nor do we know more than the sketchiest details of the lives of Abraham and David. It is not even certain that the treatise in question was authored by David. In short, we have none of the information essential to an evaluation of the kinds of claims Lewis makes about mystics – claims that require a thorough understanding of the *Sitz im Leben* of the mystic and his community.[15] This is thin gruel upon which to feed a challenge to Lewis's views.

[13] Some evidence of the ways in which the Besht may have engaged the surrounding Christian society on behalf of his Jewish community is provided in Rosman *Founder of Hasidism*, chs. 10 and 11.

[14] David ben Joshua *Instructor of Asceticism and Guide to Simplicity* (Jerusalem: Mekitze Nirdamin Society, 1997), introduction by P. Fenton.

[15] That these Jewish mystics were much influenced by Sufism is tantalizing, but there is not enough information to know what to make of it. Sufism was itself influenced by early Jewish mystical traditions, and was, during its long history, often a 'peripheral' movement. Yet it sometimes was able to ally itself with central structures of authority. Moreover, by the thirteenth century, there was little available to Jews by way of models of mystical practice within their own tradition, and Islam offered such models. See Julian Baldick *Mystical Islam: An Introduction to Sufism* (New York, NY: New York University Press, 1989), 20. At a later time, Sufism also, apparently, provided the model for the *sar* mysticism in the horn of Africa, which forms the centrepiece of Lewis's own field work and comparative studies. See I. M. Lewis 'Introduction: Zar in context: the past, the present, and future of an African healing cult' in I. M. Lewis,

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One might hope for better with the figure of Rav Kook, however, since he lived, and achieved considerable fame, in this century. That hope, too, would be disappointed, since there is no good biography of Kook. Here it seems that we philosophers will simply have to wait until historical scholarship provides us with the information necessary to pass judgement upon these cases.

The most that can be said about Rav Kook is that he lived in interesting times – times that at least give some encouragement to the hypothesis that he exemplifies the type of central mysticism described above. Kook, who had spiritual roots in Hasidism, was appointed Chief Rabbi of Israel during the period of the British Mandate, a period in which the world was in political turmoil and during which Zionists could realistically anticipate a return to the homeland for the first time in nearly two millennia, and the birth of a new Israel. But among Jews there were widely divergent visions of what shape the new Israel would take. Many Zionists envisioned a modern, democratic, secular state. Others, like Kook, foresaw the fulfilment of the Biblical promise in the creation of a state modelled on the Israel of the Davidic era. Thus, Kook's halakhic (legal) pronouncements were often radically conservative and controversial within Israel; and they were disputed by other rabbis.[16] It is not overly speculative to suggest that, within the unsettled framework of this new Jewish society, Kook would have sought whatever sources of authority he could muster on behalf of his legal and political/religious views. It would be of great interest to know, therefore, how widely known among his contemporaries Kook's mysticism was, and the extent to which it might have lent an aura of authority to his legal opinions, at least in some quarters.

III

Let me now turn from questions about specific figures to some more general questions Gellman raises. Two related issues are these. (i) Is mysticism motivated by a desire for power? (ii) Do we find mystical experience only among people who are in situations in which issues concerning social power must be negotiated?

As we have seen, Lewis does not associate mystical experience with a quest

Ahmed Al Safi, and Sayyid Hurreiz (eds.) *Women's Medicine: the Zar–Bori Cult in Africa and Beyond* (Edinburgh: Edinburgh University Press, 1991), 12–16. And Sufism itself may well have early on been influenced by the shamanic religions of central Asia (Baldick *Mystical Islam*, 21). But none of this is sufficient for a reconstruction of the context and social implications of Abraham's and David's mysticism.

[16] Kook distanced himself from the largely secular Zionism of his day, but also saw in Zionism a vitality that would be the wellspring for the religious transformation of Israel and a spiritual return to the Talmud. See Michael Z Nehorai 'The rabbinic rulings of Rav Kook' for Kook's legal conservatism, and the articles by Ella Belfer, Jerome Gellman, Warren Zev Harvey, and Tamar Ross concerning Kook's political/religious views in Part III of Lawrence J. Kaplan and David Shatz (eds.) *Rabbi Abraham Isaac Kook and Jewish Spirituality* (New York, NY: New York University Press, 1995).

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for power or fame in any crude or personal sense. While a mystic may have such ambitions, he or she might equally feel called to the service of others, even at great risk or in conditions calling for great personal sacrifice.

But how does Lewis know that what motivates mystics is social advocacy rather than a burning desire to make known to others the glory of an experienced God? (Conversely, how does Gellman know that it is the latter rather than the former that motivates mystics?) I, for one, am not so sure that the two motives are exclusive, or even so readily distinguished. I have never denied that a mystic might have a sincere belief in God. But we can be quite sure of the former motive; Lewis has supplied abundant evidence for it, as have I in the case of St Teresa. Has Gellman a better explanation for the nearly universal suspicion or hostility with which peripheral mystics are regarded by those with social authority? This is familiar territory, which I will not revisit further.

But Gellman is quite right to wonder whether this can be the whole story. For there certainly are mystics who do not fit Lewis's theory – people who have mystical experiences but whose experiences are known to no one else save perhaps a few friends. Their very privacy excludes such experiences from the social arena. What, then, explains the experiences of these private mystics, of the silent mystical majority, as we may call them?[17]

In the second of my two 1996 articles in this journal, I explicitly noted this problem, but was unsure what to say about it, beyond guessing that, underlying the social uses to which mysticism is regularly put in certain contexts, is a natural capacity in a certain proportion of the population at large to have experiences of this sort. At that time, I was unaware of certain facts which shed considerable light on the matter. There is, in fact, a considerable body of research which has begun to uncover the neuro-physiological underpinnings of mystical experience. This work was initiated by Wilder Penfield, a neurosurgeon who discovered, in the course of surgically treating epilepsy, that some patients would report vivid mystical experiences when certain areas of their brains were electrically stimulated. Subsequent work indicates that mystical experiences are initiated by micro-seizures in the temporal lobes of the brain, seizures less severe than those that produce epileptic convulsions. This work has even produced plausible hypotheses concerning how some of the specific phenomenological qualities of mystical experience – e.g., the profound sense of realism – are generated.[18] A significant pro-

[17] It is unclear how common such experiences are. There have been a few surveys, cited in Fales 'Scientific explanations, Part II' which attempt to measure the incidence of mystical experiences in the U.S. and Great Britain. These studies are, as I pointed out, seriously flawed, and do not in any case distinguish private from public mysticism. Nor do they distinguish between religious feelings and experiences of various sorts, some of which would hardly qualify as mystical. At best, the data suggest that perhaps one per cent of the total population of these two countries has had at least one vivid and intense mystical experience. But this, of course, is still a large number of people.

[18] See, for example, W. Penfield 'The role of the temporal cortex in certain psychical phenomena', *The Journal of Mental Science*, **101** (1955), 451–465; M. A. Persinger 'Propensity to report paranormal

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portion of the general (and otherwise normal) population is subject to such proto-epileptic seizures; they can also be triggered, it seems, by certain sorts of trauma.[19]

It is probably significant that the locus of these seizures is the temporal lobes and the associated structures, the hippocampus and amygdala. It is known that this area of the brain integrates cognition and emotion, so it is not surprising that seizures there would be experienced in ways that could be conditioned by the subject's belief-system, and also have powerful affective components. It further appears that stimulus to this region imparts to the consequent experiences a powerful sense that what is experienced is real.

All this could, of course, provoke from the theist a retort that invokes the familiar God-of-the-gaps strategy: inducing proto-epileptic seizures is just God's way of directly communicating with us. But that strategy will suffer from all the infirmities I detailed in my article: for example, it will have difficulty explaining the proto-epileptic seizures of polytheists and non-theists, and it is just otiose.

If we flesh out Lewis's analysis of how mysticism 'works' in the social arena with the neuro-psychological picture, we get the following synthesis. Mystical states are produced with a certain frequency in the general population by a variety of stimuli, which may operate perhaps in each case by provoking micro-seizures in the temporal lobes and to which some may be much more susceptible than others.[20] For some, mystical states have profound personal

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experiences is correlated with temporal lobe signs', *Perceptual and Motor Skills*, **59** (1984), 583–586; *idem*, 'Paranormal and religious beliefs may be mediated differentially by subcortical and cortical phenomenological processes of the temporal (limbic) lobes', *Perceptual and Motor Skills*, **76** (1993), 247–251; and Catherine Munro and M. A. Persinger 'Relative right temporal-lobe theta activity correlates with Vingiano's hemispheric quotient and the "sensed presence"', *Perceptual and Motor Skills*, **75** (1992), 899–903. I also have a personal communication from an experienced Christian mystic who is trained in electro-encephalography, and who was able to record both her own brain signals and those of a colleague while in mystical trance. Her findings confirm those of the neurophysiologists. My sense is that while she found these results intriguing, she would not care to draw from them the conclusions I am prepared to draw.

[19] Susan Blackmore in *Dying to Live: Near-Death Experiences* (Buffalo, NY: Prometheus Books, 1993) has argued that they account for near-death experiences, which share certain features with some mystical experiences. Another massive, but popularized treatment of the neurological basis of mystical experience is James H. Austin *Zen and the Brain: Toward an Understanding of Meditation and Consciousness* (Cambridge, MA: MIT Press, 1998). See M. A. Persinger, and K. Makarec 'Temporal lobe epileptic signs and correlative behaviours displayed by normal populations', *Journal of General Psychology*, **114** (1987), 179–195 for the distribution of temporal lobe abnormalities in the general population.

[20] Seizures may be 'spontaneous', or they may be triggered by such well-known trance-inducing stimuli as meditation, the use of percussive sounds and dancing, or hallucinogens. Mystical states are also often associated with the onset of certain sorts of mental illness, and mystics are often people who have had 'close encounters' with mental disturbance but who have regained some mental balance. It is, however, not entirely easy to assess when experiences described by subjects in mystical terms are associated with abnormal neural states, and when they are simply occurrences of intense religious feeling. It seems likely that those who are strongly religious, and have certain beliefs, expectations, and cultural background, may, from time to time and perhaps especially at moments of personal crisis, experience moments of heightened feeling which they understand to be epiphanies. But this capacity for intense, often introverted affective states, however interpreted, is by no means unique to the religious.

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significance but remain essentially private. Others cultivate these states in contexts in which there is a social and ideological framework which permits the mystic who has such experiences, suitably interpreted and acted upon, to gain stature and authority. (Of course, we need not assume that everyone who is socially accepted as a mystic actually has such experiences.) It goes without saying that many of the details of this general picture – especially as concerns the neuro-physiology of mysticism – remain to be supplied. But there is no reason to think those details can't be, or won't be naturalistically filled in. On this score, the scientific study of mysticism is a long jump ahead of theistic explanations, which not only cannot handle the full body of data in any natural or plausible way, but which have little or nothing to tell us about the mechanisms by means of which God intrudes His presence into human perceptual experience.

Gellman is aware, of course, of the troubling fact that many mystical experiences are non-theistic or even anti-theistic. He offers several grounds for dismissing these experiences. In his recent book on the subject,[21] his main argument is that God is experienced in a great diversity of cultures and by large numbers of people, whereas possession by any given pagan spirit occurs only to smaller populations in at most a few cultures.

I cannot resist observing here that this circumstance is largely due to the effectiveness with recurved bows and swords of Damascus steel of the early Islamic armies, and to the fact that Christian Europeans were the first to devise lethal uses for gunpowder. But one wonders, too, just how many non-theistic mystical experiences a pagan tradition must be able to muster, in order for those experiences to be taken seriously as evidence. Gellman insists that, while a greater volume of evidence on one side of a question will override a smaller volume on the other side, unequal volumes of evidence do not entail different degrees of rationality in accepting the propositions evidenced (where these do not disagree). Surely many pagan traditions can cite enough mystical experiences to make belief in their gods as rational as theism, even if theism wins the numbers game.

But does theism win on greater numbers? Surely that is too simplistic. Numbers count for little unless the observations in question are relevantly independent and can be shown to be reliable. But here the wildly divergent contents of mystical experiences, even those induced by quite similar techniques, are alone enough to put us on our guard. Moreover, intra-tradition agreements are easily explainable without recourse to a supernatural ontology. There are also significant numbers of people who have 'seen' alien spaceships. Imagine, just for the sake of argument, that there are two schools of thought about these UFOs: the flying saucer school, and the oblong cigar-shape school. And just suppose, for the sake of the analogy, that there are

[21] Jerome I. Gellman *Experience of God and the Rationality of Theistic Belief* (Ithaca, NY: Cornell University Press, 1997), 85–86.

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independent reasons for thinking that, if our airspace is infested with alien craft, then they are unlikely to assume both configurations. If, now, there are significantly more saucer reports than cigar reports (but plenty of both), why do we not credit the saucer reports? Because, obviously, the correct course is to place a pox on both houses. That is more rational because, in view of the evident lack of objectivity on the part of the observers and their ignorance of other explanations for whatever visual phenomena may indeed have been present, and in view of the lack of independent means of checking most of the reports, it is not reasonable to judge the witnesses competent. That assessment is effectively clinched when it is discovered that reports are heavily influenced by UFO traditions, and when naturalistic explanations for many sightings become available. I suggest that we apply the same criteria to theistic mystical experiences.

Gellman mounts a defence against the diversity objection that (i) attempts to minimize the alleged incompatibilities between putative revelations and perceptual beliefs concerning God's nature, and (ii) argues that experiences with incompatible content might nevertheless all plainly be experiences of God.[22] The incompatibilities might just be due, for example, to perceptual relativity.

As to (i), Gellman thinks that the proportion of incompatible revelations is 'minuscule' (94). This bold assertion is based on the alleged fact that 'in the vast majority of cases … the subject experiences only God's very presence, or perceives God revealing His will as it pertains only to the subject herself'. Perhaps – who knows? But more importantly, does that address the challenge posed by incompatible experiences (especially when had by the most notable prophets/mystics of the respective religions)? Consider: suppose most UFO reports were really vague, or gave only details peculiar to the witness's own interaction with the aliens. Would that improve our estimates of the reliability of saucer vs. cigar UFO sightings? Or even, of UFO sightings at all?

As to (ii), Gellman hopes to palliate puzzlement about how God could appear so differently to humans (doesn't He have the power to shine forth clearly?) with the suggestion that God may have reasons – perhaps reasons inscrutable to us – occasionally to give false appearances (even as a Black Carib belzig bug?), or to utter commands contrary to His real wishes, or false propositions. Indeed, perhaps God does sometimes do this. Or, perhaps (for inscrutable reasons), He does it most of the time or all of the time. Maybe He is really more like the belzig bug than like YHWH. But at the end of this road lies the death of revealed religion. With such advocates as Gellman, what need has apologetics of sceptics like me?

The central difficulty is that Gellman's defence fails to recognize the character of the plasticity of ecstatic religion, which (as I have tried to show)

[22] *Ibid.*, ch.4.

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is far more sensitively attuned to social and personal circumstances, than to any general theological principles or explanations. The God of Israel may be the Lord of all creation; but He surely is not all things or just anything to any man or woman.

The matter of what it is to provide independent confirmation of the veridicality of a perceptual experience can be approached in several ways. It is most fundamentally, I have suggested, a matter of acquiring independent evidence that the experience was appropriately caused by its putative object. Gellman takes issue with this way of construing confirmation. He thinks it is not a necessary truth that:

(1) A perceptual experience *E* is a veridical experience of object *O* only if *O* plays the right sort of causal role in the production of *E*.

I claim that this is a (metaphysically) necessary truth. If an object *O* plays no causal role whatever in the production of a perceptual experience *E*, then having *E* cannot be a case of perceiving *O*. It matters not whether having *E* is just like perceiving *O*, or whether *O* is present in some other way. Moreover, thinking about cases should convince one that it is insufficient for *O* to be in the causal ancestry of *E* in just any old way; *O* must play the right sort of causal role. What sort of role the right one is, is, I think, at least in part an empirical question, but this goes no distance toward undermining the necessity of (1).[23] But for the issue between Gellman and me, it is sufficient to point out that the theist hasn't supplied any independent tests by means of which to determine whether God plays *any* causal role in the production of theistic mystical experiences.

The fact that the conditions under which people experience theophany vary widely is irrelevant for this purpose, unless it can be shown that the best explanation for the existence of theophanies under this range of conditions is that God was indeed perceptually present. But Gellman has done nothing to show this. I, on the other hand, have been at pains to argue that the best explanation available is precisely a naturalistic one. Gellman, rather, has recourse to a version of a principle of credulity: 'We find evidence that S really perceived O in that it *seems* that O is appearing to S. This "seeming" creates a *prima facie* case in favour of S really perceiving O'.[24] I have no sympathy for the invocation of such principles, but for the present purpose, it is harmless enough. Let it be granted that there is such a prima facie case for the mystic. The question before us is whether that case survives scrutiny in the light of the known patterns of mystical experience and the alternative, naturalistic explanations of those patterns.

[23] I think the criteria for determining, on the basis of the empirical facts, what counts as the right sort of causal role, is largely a conceptual matter. But a discussion of this would take us too far afield.

[24] Gellman 'Veridicality of theistic experience', 250.

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So far as I can tell, theists have scarcely begun to formulate serious, detailed, checkable (to say nothing of predictive) theories concerning the manner and circumstances in which God and other supernatural agencies impinge upon human perceptual experience. I certainly welcome the efforts of Gellman and other theists in carrying forward that enterprise. The ball is in their court; until they do so, the naturalistic explanation, which is already quite powerful and predictively successful, carries the day almost by default.[25]

[25] My thanks to Jerome Gellman for his helpful comments on a draft of this paper, and for ongoing conversations and exchanges of information. I wish also to thank Dani Sivan for summarizing for me the content of P. Fenton's Hebrew introduction to *Instructor of Asceticism and Guide to Simplicity*.

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