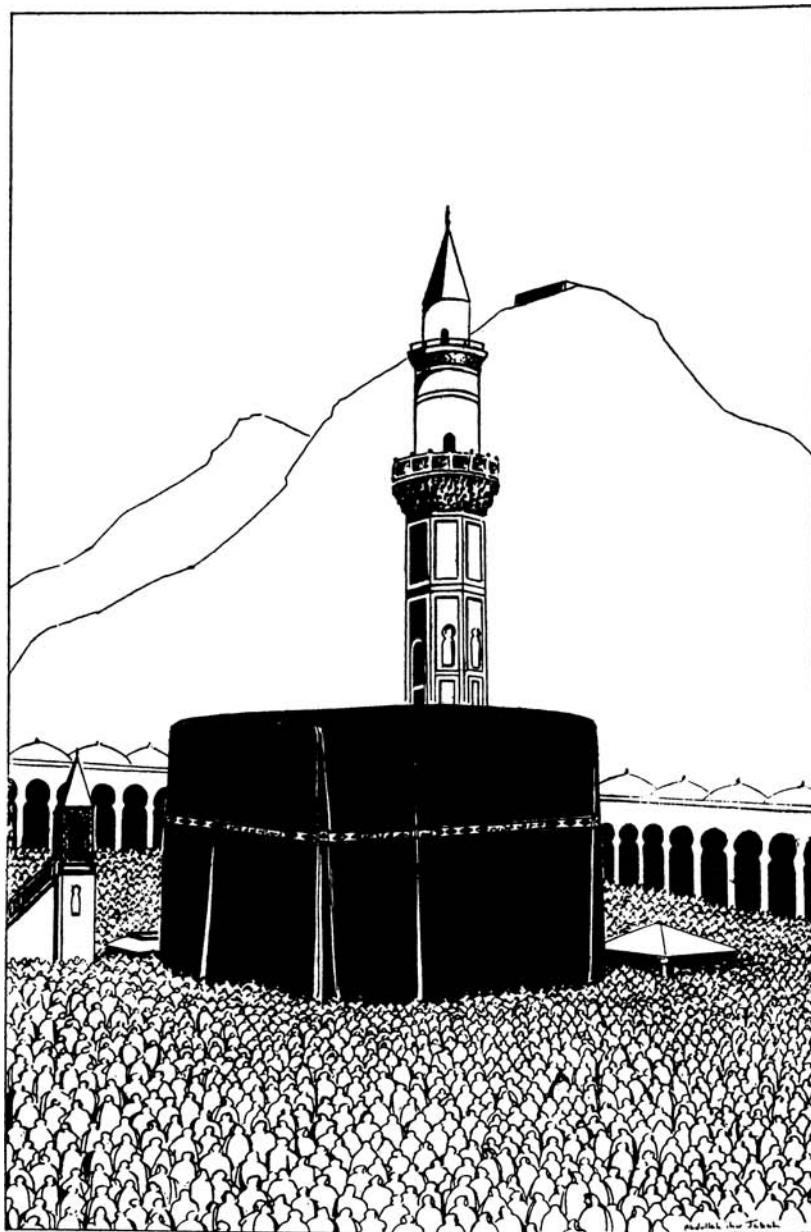


Meditations through the Quran*Tonal Images in an Oral Culture**Ernest G. McClain*

Meditations through the Quran is an important work for all students of number, music and religion. Ernest G. McClain studies an ancient tonal influence on the images and metaphors in the *Quran* while giving the Westerner a glimpse of the philosophical implications of its beauty and poetry. A possible musical symbolism in the Ka'ba and its relation to arithmetical elements in Hindu, Buddhist and Judaeo-Christian texts is explored. His appendix on the *Holy Mountain* explicates a harmonical matrix which has been fundamental to all the world religions.

Meditations through the Quran



*The Ka'ba (Cube).
The Sacred Mosque at Mecca.*

Meditations through the Quran

Tonal Images in an Oral Culture

Ernest G. McClain



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to
Rollin, John and Pamela
as they learn *submission* in their chosen ways

*To God belong the East and the West; When He decreeth
a matter, He saith to it: Be, and it is.*

The *Quran*

Whoso knoweth himself knoweth his Lord.

Muhammad

Man's faith is one space beyond any god.

Antonio T. de Nicolás

ALSO BY ERNEST G. MCCLAIN:

The Pythagorean Plato: Prelude to the Song Itself

*The Myth of Invariance: the Origin of the Gods, Mathematics and
Music from the Rg Veda to Plato*

ACKNOWLEDGMENTS

My themes—

that *sound* is our greatest key to interiority, that truth is *known* via the ear,

that I need the *Other* to know myself,

that faith is the love of life's own body, and

that a sacred book should be studied for clues to its "self-interpretation"—

are borrowed from the courageous works of Antonio T. de Nicolás. In *Avatāra: The Humanization of Philosophy Through the Bhagavad Gītā*, and in *Meditations Through the Rg Veda: Four-Dimensional Man*, de Nicolás dared to confront two of the great texts of Hinduism with a heart open to their *Otherness*. What he learned could change the course of western philosophy. I am trying to extend his method of doing philosophy to another text which the West has found no less problematical.

Translations and philological notes are from *The Holy Quran*, text, translation and commentary by Abdulla Yusuf Ali (Lahore: 1934 and 1938), by gracious permission of Shaikh Khalil Rawaf. We are grateful to The Islamic Center of New York for permission to use illustrations from *A Guide to Islam*, and to Harper and Row for quotations from *Edmund Husserl: Phenomenology and the Crisis of Philosophy*. There are extensive

debts to friends and other scholars, particularly to John Rouse for many years of dialogue concerning poetry and myth and their meaning in one's life, to Robert Lawlor for his description of Cairo and his help with geometry, and to Siegmund Levarie for reading the manuscript and suggesting many improvements. The appendix on *The Holy Mountain* owes extensive debts to all those who helped me with *The Myth of Invariance*, and to Robert Stieglitz for his assistance with the *Old Testament*.

My book is the result of a continuing collaboration between a philosopher and a musician, and its title is intended to make that clear.

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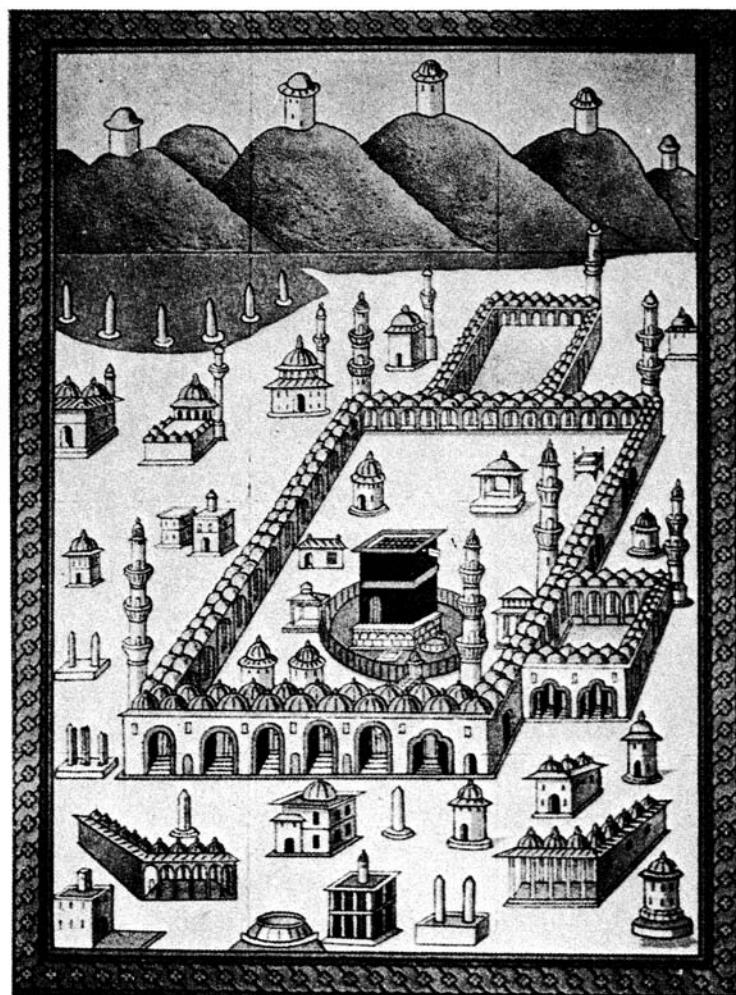
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CREDO

*We believe in God, and the revelation given to us,
and to Abraham, Ishmael, Isaac, Jacob, and the Tribes, and that given to
Moses and Jesus,
and that given to all Prophets from their Lord:
We make no difference between one and another of them: And we bow to
God in Islam.*

(Quran, ii.136)



The Ka'ba at Mecca (from a sixteenth-century set of tiles). From Sufism: The Mystical Doctrine and Methods of Islam by William Stoddart, published by Samuel Weiser, Inc., York Beach, Maine, 1976.

Chapter 1

The Quran as a Problem for the West

The Book

The *Quran* is an inspiring flame in the heart of Islam. The pagan Arab who first heard its words from the lips of an angel was aroused to a new identity as "unlearned Prophet," carrying an ageless message to his people. Few books in history have shaped the self-identities of as many people, assured that "Ye are the best of peoples" (iii.110). Today one-sixth of humanity is Muslim. Its attention is on the timeless. Its pride is in believing a truth which is unseen. It cannot conceive the separation of church and state, or the freedom of

individual belief. The *Quran* teaches Islam to regard itself as possessing man's oldest religion, recovered by the revelations to its Prophet. Dialogue can be shared only with those who share two convictions: 1) "There is no god but God," the basic premise of monotheism, and 2) Muhammad is "the seal of the Prophets" (xxxiii.40), meaning the end of revelation. To dissent is to reveal oneself as damned.

Modern western civilization—the embodiment of change, of restless dynamism, with its faith isolated from politics and invested in progress, and with its exaggerated cult of the individual—is precisely the antagonist Islam needs to sustain its self-respect, its conviction in the rightness of its own Way. Our technology is urgently needed by Islam. Our way of life would destroy Islam. Our technology and the culture which has produced it require both the markets and raw materials Islamic countries provide, but traditional Islamic rigidity is death to the freedom we prize. Two rival cultures could hardly need each other more or respect each other less. The *Quran* is the key to our mutual understanding; it shapes Muslim thought as the *Bible* once shaped ours. Muhammad's book must become readable in the West or it will blight the future as it has the past for believer and non-believer alike.

The *Quran* has a beauty and majesty peculiar to itself, not easily disclosed to critics. I have come to believe that the *Quran* contains a remarkable message even for those of us forever barred from the holy cities of Mecca and Medina. Islamic claims about its book, its Prophet, and its religion gain a surprising kind of validation when examined with the tools of modern historical and textual criticism freed from the constraints of partisanship. The Prophet discovered himself via continuous crises of confrontation with Others. Today his Otherness—whether we kneel with him in submission to God or maintain some other posture—can help us discover new depths within ourselves, and hence to develop a clearer self-image. But his book must read *on its own terms* and not with our ordinary habits of mind.

I asked many friends if they ever have read the *Quran*. I ought not to have been surprised to learn that the ignorance—yes, and the animus—which I have been ashamed to

acknowledge are widely shared. Our culture turns us away from both the book and its believers without our knowing either. Two hundred years ago Edward Gibbon noted that the Arabian tribes from Mecca to the Euphrates have been confounded under the general appellation of Saracens, "a name which every Christian mouth has been taught to pronounce with terror and abhorrence."¹ There is still some truth in his observation. In my youth pangs of conscience and aspirations to learning led me to try to read the *Quran*, but within a few pages my whole body rebelled. I laid the book aside for riper years, but each new effort confirmed my first impression: the *Quran* is unreadable, apparently, except by the faithful. Gibbon describes, presumably, his own problem, knowing that it is widely shared:

The European infidel . . . will peruse with impatience the endless incoherent rhapsody of fable, and precept, and declamation, which seldom excites a sentiment or an idea, which sometimes crawls in the dust, and is sometimes lost in the clouds.²

Six hundred million people love this book. Blind animus alone does not explain why literate men should have a reading disability, least of all in the case of Gibbon. Our western minds recoil from the *Quran*, I believe, because it defeats so many of our expectations as to what a book should be.

Forty years have passed. I have had to grow old, it seems, and learn a new way of listening before the *Quran* could speak to me. These meditations are for others like myself. To a Muslim some of them must appear very strange; his own thought, even where it arrives at similar conclusions, takes another way. I take the only way I have found.

¹ Edward Gibbon, *The Decline and Fall of the Roman Empire* (New York: Random House, Inc., 1977), vol. 3, p. 65.

² *Ibid.*, p. 86. Gibbon is in prestigious company. Schopenhauer considered the *Quran* "clumsy fables and fairy-tales," and concluded: "I have not been able to discover in it one single idea of value." Arthur Schopenhauer, *The World as Will and Representation*, translated by E. F. J. Payne (New York: Dover Publications, 1966), Vol. 2, p. 162.

A Point of View

The *Quran* is the last great religious revelation within mankind's long aural-oral tradition. Literacy and the written word have transformed our very way of being in the world. Islam itself was profoundly altered by the very act of writing, copying, and publishing the *Quran*. As I read the *Quran* now, I am listening for certain resonances from the aural past when words appealed perhaps more to feeling and less to pure logic than we now would like them to. My reading has thus become partly an adventure in aesthetic feeling. But I am also searching for something quite specific. I am trying to find within the *Quran* the evidence for the same four "languages," or "intentionalities," or "dimensions of consciousness" which illuminated for Antonio T. de Nicolás the deeply problematic *Rg Veda*, our oldest purely aural religious revelation, a testament in sound preserved by chanting priests from India's remote past. It seems reasonable to ask that both the *Rg Veda* and the *Quran* —the first and last great religious revelations from purely oral cultures—be read by purely *aural* criteria. Religious conviction was fathered at least in part by mathematical certainty—the old Sumerian and Babylonian gods were deified numbers—and that certainty arose from the wondrous harmony between number and tone. The criteria for certain musical tunings can be documented as constant for 4000 years. The science of the method and grounds of knowledge which we call epistemology thus possesses one harmonical tool as old as the earliest civilization we know. The four "languages" which de Nicolás found in the *Rg Veda* and proposes as the most general categories for oral cultures are the following:

- 1) the language of *Existence*,
- 2) the language of *Nonexistence*,
- 3) the language of *Sacrifice*, and
- 4) the language of *Embodied Vision*.

This analytical scheme, not made explicit by the *Quran* itself, is an heuristic device for uncovering the book's clues to

its self-interpretation, the goal of meditation. Our effort deliberately challenges those who, in the name of the so-called "intentional fallacy," would insist that we can never hope to recover perfectly the original meaning of any ancient text across the barriers of time and cross-cultural translation. Failure to *fully* recover original meanings, ontological incompleteness, does not invalidate a partial success. In using the ancient criteria we obviously cover the old bones with our new flesh and read something of ourselves into the texts. But unless we have the courage to pursue the old invariances of method so that original insights can be reborn within the magic of our search, we risk losing the very best criteria for original meanings. We then surrender the field of interpretation to institutions and individuals who have vested interests in discouraging any kind of cultural understanding which threatens their power by questioning the criteria they now impose on the world. The very strangeness of the four categories used here alters normal habits of attention and alerts us to the wider contextual setting for any particular Quranic teaching. I shall try to let meanings emerge within the very special context of the *Quran* itself and in the Arabic colors of Muhammad's world, but some preliminary comments may be useful.

- 1) The "language of Existence" calls attention to the book's delight in detailing the wonders of the universe, both here and in the life to come, and in defining what really matters to man. This attitude might be described as "naive naturalism."
- 2) The "language of Non-existence" concerns alienation from God and the holocaust of judgment day as well as the all-too-familiar phenomena of disappearance and loss.
- 3) The "language of Sacrifice" concerns the sacrifice of human pride in *submission* to God (*Islam*), the agency for controlling the pure dynamo of spirit, and also the sacrifice of both viewpoints and possessions for the sake of a higher cause.
- 4) The "language of Embodied Vision" concerns a Way of living in the world, exemplified by the Prophet, self-disciplined, with respect for the past,

awareness of the present, and courage for the future, and with remarkably little conceptual baggage in the way of fixed laws or creeds.

By attending to these four aspects of Quranic concern we may save ourselves from jumping to wrong conclusions about particular verses, and remain alert to depths of meaning we might otherwise overlook. The book must be taken whole; it is the whole which determines meaning in the parts.

We notice at once in the Muslim credo how "unphilosophical" is attention to existence on which, by contrast, Vedic poets ponder deeply. "We believe in. . . the revelation given to all Prophets . . . we make no difference between one and another." These words announce that the whole of inherited tradition is to be accepted without questioning. The *Quran* is profoundly unphilosophical in refusing to question what is or has come to be. It assumes that all true prophets must have brought quite similar messages to their peoples, and that discrepancies are not worth arguing about. As we shall see later, the realm of sensual appearances is taken as gracious evidence for the sacred. There is no Socratic doubt here, no Platonic exaltation of intelligence, and no Aristotelian formula for determining truth. Faith is everything; certainty is salvation. The credo which opens the *Quran* sets the tone of the whole book: "We believe. . . and we bow." Faith inspirits. The book is thus addressed to a universal human need to believe. But to bow in submission to something greater than ourselves is equally a human need. The book holds in balance the power to arouse and the power to restrain, and the tension of that balance may well be its greatest achievement.

The Quran and the Bible

During the centuries when Christian crusaders were bent on retrieving the Holy Land from Islam, probably few of them

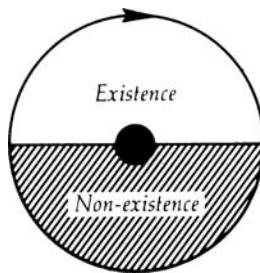
understood that we worship the same God, or that Muhammad loved both Christ and the Virgin Mary. All of the philosophy and science of the Greeks, lost to Christendom almost at the very moment of its original political victory, had not merely found a new home in Islam but, by the 10th century A.D., had been carried to new levels of achievement. Music flourished, mathematics had revived, astronomy had advanced, chemistry was aborning, literature was evolving new forms, and philosophy was exploring new insights. The naive faith of the Crusaders was unprepared for such sophistication. Today Christendom still projects some of its old prejudices into a world which can no longer afford them. That monotheism, revealed first to Abraham, knows but one God is evident from Muhammad's "verse of the Throne" (*Āyat ul Kursi*), which synagogue and church could recite in unison with the mosque and with the same fervor evoked by the Psalms—if we dared to trust each other.

"Verse of the Throne" (*Āyat-ul-Kursi*)

God! There is no god but He,—the Living,
The Self-subsisting, Eternal.
No slumber can seize Him, nor sleep.
His are all things in the heavens and on earth.
Who is there can intercede in His presence except As
He permitteth? He knoweth what
 appeareth to His creatures as
 Before or After or Behind them.
Nor shall they compass aught of His knowledge
 Except as He willeth.
His Throne doth extend over the heavens
 and the earth,
And He feeleth no fatigue in guarding
 and preserving them
For He is the Most High, the Supreme in glory.

(ii.255)

A world-view is established in these few verses. A realm of *Existence*—“all things in Heaven and earth,” whatever “appeareth” in space and time as “before or after or behind,” in short, all *knowledge* accessible to consciousness—is set apart from the *Non-existence* of “slumber,” “sleep,” “fatigue,” and the *unknown* in the undifferentiated continuum of experience. On the throne, beyond the “compass” of our knowledge, free from the instabilities of consciousness, is a transcendent God, “self-subsisting, eternal,” whose essential activity is “in guarding and preserving” what he has created. Earth is thus man’s island within the great circle of the Universe within whose limits *Existence* and *Non-existence* are two “languages” of appearances as our perceptions emerge and vanish in the turning wheel of time.



No philosophic subtlety intrudes here; “nature” is taken for granted. The magical reappearance of things as they were—the invariance of the world while light fades and we slumber—testifies to an eternally watchful Creator. How ironic it is that western science, awakened from its long slumber by contact with Islam, should owe so much to Islamic faith in invariance, in causality, and in a Prime Mover. Christendom fastened on these same ideas but waited for Islam to show it how to resume the old “Pythagorean” study of mathematics, music and astronomy which had helped to shape Semitic monotheism from the dawn of recorded history.

For Jew, Christian, and Muslim alike, God is the supreme artist portrayed on the first page of *Genesis*. Muhammad only alludes to the creation story, as if the details were too well-

known to need retelling. To him it matters little *how* things came to be. It is enough to know that whatever is—the whole of Existence—is governed by laws under the command of the Cherisher and Sustainer of the Worlds.

Your Guardian-Lord is God, Who created
 The heavens and the earth in six Days, and is firmly
 Established on the Throne of authority: He draweth
 The night as a veil o'er the day, each seeking
 The other in rapid succession: He created the sun,
 The moon, the stars, all governed by laws
 Under His Command. Is it not His to create
 And to govern? Blessed be God,
 The Cherisher and Sustainer of the Worlds!

(vii.54)

Plato, in his paganism, described the world itself as "a perceptible god, supreme in greatness and excellence, in beauty and perfection" (*Timaeus* 92c). Muhammad could never confound the things created with the Creator himself, a path leading back towards polytheism, but his verses radiate a similar reverence for the world. His "language of Existence" is not so much a catalog of fact as it is a meditation suffused with wonder.

Behold! In the creation of the heavens and the earth; In
 the alternation of the Night and the Day;
 In the sailing of the ships through the Ocean
 For the profit of mankind;
 In the rain which God sends down from the skies,
 And the life which He gives therewith
 To an earth that is dead;
 In the beasts of all kinds that He scatters through the earth; In
 the change of the winds, and the clouds which they Trail
 like their slaves between the sky and the earth;— Here
 indeed are Signs for a people that are wise.

(ii.164)

The most essential aspect of the world, and the source of our sensual delight in it, is change. The winds *change*, they *trail* the clouds like slaves, night and day *alternate*, ships *sail* that mankind may *profit*, rain is *sent down*, a dead earth *springs to life*, beasts are *scattered*, all is in motion. *Man is time*. Our "language of Existence" concerns the perceptual world of change. Nothing can endure in consciousness except as it *returns* to consciousness. One radical root of monotheism is the insight that change could register only against the Unchangeable. In this sea of change which alone could sustain the vividness of sensation, the *Quran* postulates an unchangeable God, the Great Invariant, in whose absence nothing could exist, not even nothingness, or Non-existence. How Abraham—emigrating from Chaldean polytheism—awoke to this primal monotheistic revelation is one of the most charming inventions of the *Quran*. The first three of the following verses dramatize *man as viewpoint*; they exemplify our "language of Sacrifice" in the sense that Abraham sacrifices one viewpoint after another to make room in his consciousness for a new truth. But notice how the third verse ends—in a total release from this succession of viewpoints.

The Education of Abraham

When the night covered him over, he saw a star:
 He said: "This is my Lord."
 But when it set, he said:
 "I love not those that set."

When he saw the moon rising in splendour
 He said: "This is my Lord."
 But when the moon set, he said; "Unless my Lord guide
 me,
 I shall surely be among those who go astray."

When he saw the sun rising in splendour,
 He said: "This is my Lord: this is the greatest of all."
 But when the sun set, he said:
 "O my people! I am indeed free
 From your guilt of giving partners to God."

(vi.76-78)

....

Abraham was indeed a model,
 Devoutly obedient to God,
 And true in faith, and he
 Joined not gods with God.

(xvi.120)

The Abrahamic revelation is presented here as a release "I am indeed free from your guilt..." This affirms the Great Negative which reverberates endlessly throughout Islam: "There is no god but God." This highest wisdom is achieved by a renunciation—by a "sacrifice"—of all the perspectives or viewpoints which led toward it. Logic is ruthless. But there is no "cultural lobotomy" of other peoples' viewpoints, for this statement is left undefined. The Unicity of God embraces an infinity of reasons. There is no Muslim catechism on this point, no approved dogma of exegesis, no effort to exclude the reasons of any other people, and no claim whatever to any uniquely Islamic viewpoint or insight. It seems remarkable that this "first principle of Islam" is free from the slightest taint of Islamic parochialism. Here in the story of Abraham we gain our first intimation of the "language of Embodied Vision," which constitutes the richest treasure of meaning in the *Quran*. Jew and Christian might expect some principle of exclusion, such as physical circumcision into the tribe or mental circumcision into the family defined by dogma, but Islam knows only the principle of universal inclusion of all monotheists. Islam rejects only those who believe that the world is governed by the multiple gods of fate, or those who believe it is left ungoverned to pure chance. For those of us raised in any

western tradition whatever, beyond pure skepticism, it is almost impossible to believe that "no god but God" is an affirmation which sacrifices any attempt to define itself, and which therefore offers the world the widest-open door to a world fellowship. Experience teaches us to mistrust an honest simplicity and to look for a hidden restriction which is entirely absent.

God and Man

If Abraham "was indeed a model," God himself is a far stronger one. Before examining the Muslim image of God, let us digress for a moment into the Greek rationalism which powerfully conditions many of us in our own approaches to religion. A thousand years before Muhammad, Xenophanes asserted that man always creates gods in his own image:

If oxen and horses and lions had hands or could draw with hands and create works of art like those made by men, horses would draw pictures of gods like horses, and oxen of gods like oxen, and they would make the bodies of their gods in accordance with the form that each species itself possesses.³

If Xenophanes is correct, as modern psychology teaches us to assume, then the Muslim image of God as "the Cherisher and Sustainer of the Worlds" (i.2), a formula repeated in every prayer, must be considered as the projection of the Muslim understanding of man's own essential nature. Could any self-image be more "selfless?" The first line of the same prayer, "In the name of God, Most Gracious, Most Merciful" (*Rahmān* and

³ Kathleen Freeman, *Ancilla to the Pre-Socratic Philosophers* (Cambridge: Harvard University Press, 1966), p. 22.

Rahīm), attributes to God two qualities every Muslim hopes are his own. Has human wisdom ever suggested a healthier human goal or invented a better device for making it an unconscious human aspiration?

Ibn 'Arabi (1165-1240 A.D.) wrote a famous commentary on the aphorism attributed to Muhammad, "Whoso knoweth himself knoweth his Lord."⁴ This statement seems to agree surprisingly well with that of Xenophanes, although the Greek temper and intentionality is far removed from that of either Muhammad, who coined the phrase, or the Sufi mystic who was transported by this thought. This is a theme we shall develop later.

The genius of the *Quran* is that its profundity is guileless. The book embodies a philosophy while appearing entirely unphilosophical. For me and for others like me, Muhammad is "the last of the prophets," Islam's second principle, in the sense that he reminds us of the last duty of the wise: Whatever victories science and philosophy can win must be transmuted, poetically into the stuff of public images and private mythology. Muhammad provides the model. Although we understand him not, the *Quran* proves poetry's eternal worth by its magical power in the souls of those who love it. One of the most beautiful *Sams* defines human success and human failure in poetically precise terms:

By the Sun and his glorious splendour;
 By the Moon as she follows him;
 By the Day as it shows up the Sun's glory;
 By the Night as it conceals it;
 By the Firmament and its wonderful structure;
 By the Earth and its wide expanse;
 By the Soul, and the proportion and order given to it;
 And its enlightenment as to its wrong and its right;—
 Truly he succeeds that purifies it,
 And he fails that corrupts it!

(xci.1-10)

⁴ Ibn 'Arabi, "Whoso Knoweth Himself . . ." (London: Beshara Publications, 1976).

Failure is the corruption of "the proportion and order" in one's own soul, and the loss of "enlightenment as to its wrong and its right." Success is their purification. The eternal struggle between Existence and Non-existence is thus completely interiorized and centered on one's private morality. The articulated beauty of the phenomenal world—note the appeals to perception of sun, moon, day, night, firmament and earth—is the model for our effort to articulate a comparable "proportion and order" in the soul. The life of the spirit within us must aim for the aesthetic perfection we observe in God's own handiwork.

Muhammad is not content with generalities. His *Quran* is conceived as "the Book that makes things clear," an oft-repeated formula. The historic contentiousness of the Jews proved that the books of Moses, despite the explicitness of their laws, were far from clear. The savage rivalry between Christian bishops and rival sects affected Muhammad's Arabia and proved the *New Testament* even less clear to those who knew it best. The *Quran's* simple language and unmistakable clarity is directly inspired by the failures of the *Bible*. What constitutes "righteousness" is spelled out in detail:

It is not righteousness that ye turn your faces
Toward East or West;

But it is righteousness—
To believe in God and the Last Day,
And the Angels, and the Book, and the Messengers;
To spend of your substance, out of love for Him,
For your kin, for orphans, for the needy,
For the wayfarer, for those who ask,
And for the ransom of slaves;
To be steadfast in prayer, and practice regular charity;
To fulfill the contracts which ye have made;
And to be firm and patient, in pain or suffering
And adversity, and throughout all periods of panic.
Such are the people of truth, the God-fearing.

(ii.177)

Muhammad had taught his followers to face Jerusalem for their five daily prayers until one day, inexplicably, on an impulse which was not clear even to himself, he turned and faced Mecca instead. His surprised congregation reversed direction with him, and the present custom was established. The *Quran* remains indifferent to such liturgical detail. One's love for God is proved prosaically in caring for man. Believing rightly is less important than behaving generously toward those less fortunate. At the heart of Islam is thus a social doctrine for which "righteousness" can gladly sacrifice ritual. Orphans, the wayfarer, slaves, pain, adversity, and panic betray the problematic character of life and the all-too-ready dissolution of whatever level of Being we may attain. The ultimate Quranic aspiration, therefore, grounded on the Abrahamic view of God as the only Reality, is to achieve Heaven. Only there could anything we care about really endure.

The Promise of Resurrection

Adversity, essential to our experience of prosperity, is the common lot of mankind. Whatever has been gained is subject to loss and is cherished in proportion to the threat of loss. Dissolution into Non-existence is as likely, as normative to human experience, as crystallization into Existence.

Existence \longleftrightarrow *Non-existence*

Time destroys everything.

By the Token of Time through the Ages,
Verily Man is in loss,
Except such as have Faith and do righteous deeds,
And join together in the mutual teaching
Of Truth, and of Patience and Constancy.

(ciii)

If the faithful were not tested by suffering, how could joy Exist?

Be sure We shall test you with something of fear
 And hunger, some loss in goods or lives or the fruits Of
 your toil, but give glad tidings to those
 Who patiently persevere.

(ii.155)

The *Quran* makes no effort to explain evil in the world in either Greek or Hebraic terms, and it has no patience at all with the Christian obsession with original sin. Islam *accepts* the world, and without presuming to *explain* the world. Satan (*Iblis*) is very much alive, he diverted Adam and Eve from their primal felicity (ii.36), but "no authority has he over those who believe and put their trust in their Lord" (xvi.99). The *Quran* never wavers on man's essential worth. Where Muhammad breaks with the earlier Judaic revelation, consciously following the Christian example, is in promising a hereafter which will compensate for the present:

By the Glorious Morning Light,

And by the Night when it is still,—
 Thy Guardian-Lord bath not forsaken thee,
 Nor is He displeased.
 And verily the hereafter will be better for thee
 Than the present.

(xciii.1-4)

The resurrection theme is developed in some of the most beautiful language and most striking metaphors of the whole book.

When the sun with its spacious light is folded up:
 When the stars fall, losing their lustre;
 When the mountains vanish like a mirage;
 When the she-camels, ten months with young,
 are left untended;
 When the wild beasts are herded together
 in human habitations;
 When the oceans boil over with a swell;
 When the souls are sorted out, being joined, like with like;
 When the female infant, buried alive, is questioned—For
 what crime she was killed;
 When the Scrolls are laid open;
 When the World on High is unveiled;
 When the Blazing Fire is kindled to fierce heat;
 And when the Garden is brought near;—
 Then shall each soul know what it has put forward. So
 verily I call to witness the Planets—that recede, Go
 straight, or hide;
 And the Night as it dissipates;
 And the Dawn as it breathes away the darkness;—
 Verily this is the word of a most honourable Messenger,
 Endued with Power, with rank before the Lord
 of the Throne,
 With authority there, and faithful to his trust.

(1xxxi.1-21)

The "honourable Messenger" is Gabriel's reference to himself, as he brought this revelation to Muhammad.

Muhammad

Concerning himself, Muhammad claims to be "no more than an Apostle" (iii.144). Islam objects to being referred to as Muhammadism on the ground that Muhammad himself is not

worshipped and is not even considered the founder of a religion. He conceives his duty to be that of a "Warner" to his people, calling them back to a primordial religion from which they had strayed. God instructs him to tell his critics:

I follow but that which is revealed
 To me by inspiration; I am but a Warner
 Open and clear. (xlvi.9)

His warnings of Hell's fire are as passionate as any which the Church has enjoyed. The "Day of Noise and Clamour" brings the total dissolution of the created world as Existence crumbles into chaos and then vanishes into Non-existence.

The Day of Noise and Clamour (Al-Qāri'a)

The Day of Noise and Clamour:
 What is the Day of Noise and Clamour?
 And what will explain to thee what the Day
 Of Noise and Clamour is?
 It is a Day whereon men will be like moths scattered about,
 And the mountains will be like carded wool.
 Then, he whose balance of good deeds will be found heavy,
 Will be in a life of good pleasure and satisfaction.
 But he whose balance of good deeds will be found light,—
 Will have his home in a bottomless Pit.
 And what will explain to thee what this is?
 It is a Fire blazing fiercely!

(ci.1-11)

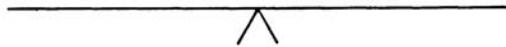
The Problem of Balance

Few Jews or Christians ever open the *Quran* to discover how much of their own faith it appropriates and how very beautifully it expresses the ideas held in common. The *Bible* is a library with many authors, many subjects, many points of view. The *Quran* is unified—by Muhammad's ear. I cannot help referring to him as if he were the poet author, but actually he was terrified of the possibility that his angel visitations were merely the routine seizures expected of poets. Poets "wander distracted in every valley" and are guilty of saying "what they practise not" (xxvi.224-225). The angel reassures him. "We have not instructed the prophet in poetry" (xxxvi.69). "This is a Message sent down from the Lord of the Worlds" to an honored apostle; "it is not the word of a poet" (lxix 41 and 43). If it seems awkward for us to accept this denial of Muhammad's authorship, it proves even more awkward in the end, when we comprehend the *Quran* more fully, to explain how an essentially uneducated merchant-trader in 7th century Arabia could possibly have produced such a document. The *Quran* displays a surprising range of subject matter, of mood, and tone. One of its most intriguing qualities, familiar to every Muslim, is its achievement of a perfect balance between opposing concerns. Balance in the soul is a primary concern. In the verse quoted above, the heavy or light balance of one's good deeds determines admission to Heaven. The following example, full of polarities, is a typical harmony between warning and reassurance, between poetic feeling and precise thought.

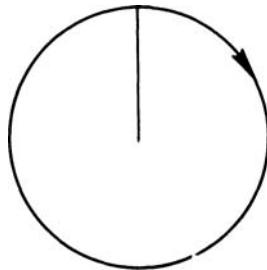
By the Night as it conceals the light;
 By the Day as it appears in glory;
 By the mystery of the creation of male and female;—
 Verily, the ends ye strive for are diverse.
 So he who gives in charity and fears God,
 And in all sincerity testifies to the Best,—
 We will indeed make smooth for him the path to Bliss.
 But he who is a greedy miser and thinks himself
 self-sufficient,

And gives the lie to the Best,—
 We will indeed make smooth for him the Path to Misery;
 Nor will his wealth profit him when he falls headlong into the
 Pit.
 Verily We take upon Ourselves to guide,
 And verily unto Us belong the End and the Beginning.
 (xcii.1-13)

Polarity and change—a restless dynamism—are our lot, but on God's compass End and Beginning are the Same. Muhammad has no quarrel with life—indeed, it completely furnishes his heaven, but with Invariance. Change is excluded there. The precarious equilibrium of life on earth and the coincidence of End and Beginning in God's heaven are appeals to our geometric imagination—freighted not with the formal definitions of the classroom but with embodied feeling resulting from the memories of our wider experience in living.



The balance of good deeds.



Unto Us belong the End and the Beginning.

Balance is one of our oldest metaphors derived from Egypt. To gain admission to the eternal realm of Osiris the deceased must have his "intention of the heart" weighed symbolically

on the scales of Justice against "the feather of the Law." The endless *circle* is one of our oldest symbols for the heavens, the universe, the totality of the city, the infinity of time, the sun, and the soul. Behind the simple Quranic metaphors lie ages of human experience—including the profundity of Greek philosophy. Plato pictured the Creator forming the World-Soul and the soul of man from a "fabric" first carefully proportioned from an Existence compounded of Sameness (invariance) and Difference which he then "bent around into circles" (cycles).

As a guide to life, the *Quran* embodies philosophy in the concrete images of a poetry addressed to the common man in a largely illiterate desert society. The abstractions beloved by western philosophy at least since the time of Plato and Aristotle, and their theological imitations, are absent here. In the growing illiteracy of our own age, with its massive appeals to the eye and increasingly noisy assaults on the ear, the *Quran* retains a pristine, poetic innocence which is, perhaps, more compelling to more people than ever. If the West faces any real threat from Islam it is because the *Quran* radiates a wisdom from man's pre-literate, pre-historic past in words which the ear of the simplest mind conveys to the heart with none of the delaying, inhibiting interference of thought. In commanding the allegiance of our souls the only power greater than a poet's is that of a stronger poet. We have no defence at all against appeals to our inner sense of truth, value, goodness, beauty. Any society threatened by disintegration from within, impoverished by materialism, and confused by the conflicting claims of its own reason is thereby precariously ripe for simplification—and defenceless before the poet who knows how friction can be focused into renewed spiritual flame.

The Languages of Intentionality

The Greek fascination with *Being* as opposed to *Nonbeing*, or *Existence* as opposed to *Nonexistence*, produced an articulate philosophy and a complex mythology concerning the different

status of things we experience. Plato even went so far as to invent the myth of a counter-rotating universe in which all things, including man himself, grew ever younger until at last "they faded into non-existence and one by one they were gone" (*Statesman* 270e). The vitality of the *Quran* owes much to the senses—and to its reminders of the precariousness of everything perceived. *Reality*—the invariance associated only with Deity—is as transcendent for Muhammad as it was for Plato. The Socratic realm of "true-Being" among the abstract Platonic forms transfers reality from our realm of sensuous appearances to the transcendent philosophical realm of invariant pattern. The *Quran* embodies a similar philosophy but without articulating it formally. The Muslim reality is the Resurrected World standing outside history. But Muhammad's heaven is not Plato's. The philosophy of the *Quran* is neither Greek nor Christian. The Muslim achieves heaven neither by climbing the Greek ladder of abstraction from music through arithmetic, geometry, and astronomy to the rarefied region where dialectics ends, nor by vaulting there in one leap as a Christian can by merely assenting with appropriate conviction to the approved verbal formula. The Muslim must earn admission there by his conduct here towards his fellow man. The Way of Muhammad, open to all, is thus both harder and easier.

Quranic simplicity is deceptive. It appeals through the ear with concrete images a child can grasp, but we misunderstand it completely if we fail to appreciate why it could appeal to Islamic philosophers and scientists during the centuries of Islam's greatness. There is nothing in the *Quran* which would discourage philosophy, science, or art, and much by way of a reverent attitude toward the world to encourage their development. The four "languages" or "intentionalities" introduced here function as the general categories which our foreign Otherness needs in order to discover a way of reading the *Quran* across the abysses of culture, religion, and philosophy. Our "language of Existence" concerns all things linked by the laws of reason and perception; holiness, as in the old Biblical sense, attaches to everything clear and distinct, to everything named by Adam, and the test is ultimately *perceptual*.

clarity. Our "language of Non-existence" formalizes the precariousness of all things that come-to-be for the senses and alerts us to the Prophet's own awareness of the nature of temporality. Since man is essentially time, or viewpoint, he both grows and survives by surrendering what he cherishes most at any given moment, respecting the needs of the next moment. Our "language of Sacrifice" formalizes for us the Prophet's virtuosity in finding effective new viewpoints within the turbulent stream of his own time, and alerts us to the problematic character of his own successive revelations. Our "language of Embodied Vision" refers to Muhammad's own *way* in the world and can perhaps be likened to that of all craftsmen who have mastered their tools and techniques so that they can play confident variations on the specific materials of their craft—free from the dogmas which guided their apprenticeship. Muhammad's special craft was listening—to inner voices. East and West, Islam is perceived as necessarily dogmatic, but in the next chapter I shall argue that this is a superficial misconception and one which makes the *Quran* itself a grave internal threat to any narrowly defined Islamic self-identity. The four "languages" are used here like the tools of any craft, that is, as they seem relevant and useful for illuminating the varied aspects of a document produced by an aural culture—and they lead to a "great negation" of dogma.

"Seek and ye shall find" is a truth with ironic twists in our seeking. For the *Quran* to be read in the West where we lack the intimate association from childhood with its symbols and the way of life they sustain, we must bring to it an active imagination, not a passive one. We must dare to assume in advance that a book which has commanded the fervent loyalties of hundreds of millions, including some of the greatest minds that ever lived, necessarily embodies some essential human treasure. Our four languages are merely epistemological tools, and only in this sense are they necessary and sufficient. I make no claim to any other metaphysical necessity and sufficiency" of those languages for the task of understanding the *Quran*, for there is no test of sufficiency beyond that which is implicit in one's capacity to accept what

the book says about itself, but I do believe that it is necessary to employ an analytical scheme of at least comparable subtlety in studying all the religious poetry we have inherited from the aural past.

A word, like a tone, needs both an immediate context and an entire cultural context in order to have meaning. In a particular poetic or musical setting single words or tones can become highly charged with motivic meaning; poets and musicians are masters at composing limitless edifices out of the same basic ingredients. Opposed to this evocative musical use of the poetic word is a tremendous human effort to codify terms for the purpose of purely rational discussion. Aristotle's efforts to compile a dictionary were first steps in this direction. Euclid's clearly defined terms and linearly logical postulates and theorems are the first great architectural victory for the scientific, as opposed to the poetic, use of language. The idea of a perfect dictionary has tantalized many minds, and died hard only in the 20th century. Euclid has remained the model for the anti-poetic and rational; all the subtleties of his arguments were eventually reducible to self-evident truths which the eye could validate. What the ear validates, however, is an omnipresent plurality of possible intentionalities. Eye and ear are complements to each other, not substitutes for each other, and primordial religious truth has always been discovered by the ear.

Behind Muhammad's certainty that the universe is orderly are three millennia of epistemological verification by the "Pythagorean" proto-sciences in Egypt, Mesopotamia, India and Greece, about which he probably knew very little. The *Quran* exudes poetic joy that the Unicity of the Creator is beyond question, and the beauty of the original text remains a continuing source of wonder to the believers, but what it proffers the reader is not a logical discourse but rather a meditation, endlessly varied, on a very few central themes. God is answering Muhammad's questions.

"Theme and Variation" form is familiar in music and offers a lesson relevant to its poetic companion. In retrospect, and particularly under close analysis, a musical theme turns out to be simply one more possible variation; the "theme itself" can never be isolated. Though it be some simple tune we all

know, it admits endless variants of equal legitimacy. (Not even an act of Congress, for instance, has succeeded in stabilizing the American national anthem.) So it is with the fundamental precepts of the *Quran*. *Allah*, Arabic for God, has "99 names of perfection" without endangering his Oneness. Islamic scholars produce interesting semantic studies of the original Quranic vocabulary, but we may doubt whether Quranic meaning in general is critically dependent on word meaning in particular. By way of contrast, think how important it is to explain why the *Elohim* (Gods) of the creation epic has a plural form in Hebrew, and consider Christian consternation at the suggestion that the word originally translated as "virgin" really ought to have read "young girl." The *Bible* is the product of a brilliantly literate tradition. The *Quran* is admittedly the product of an aural tradition. When we move from the *Bible* to the *Quran* we take a giant step *backwards* in literary style, and we need to reverse some of our mental gears, else the *Quran* will read as badly for us as it did for Gibbon. The book advertises itself honestly: it proclaims an old message, not a new one, and in simple language, without intellectual guile. In art simplicity and profundity can wed, and there is nothing newer than an old idea which has been forgotten.

A Western Perspective

One irony of our present moment in history is that peace for Christendom and survival for Israel depend in part on a Muslim cousin we have rarely tried to love. His mind is shaped by a book we rarely read and even less often try to understand. To Christian crusaders the Muslim seemed an unbelieving infidel. In the modern West, newly emerging from a millennium of struggle with religious superstition, the Muslim seems to pose an opposite problem: his belief is too great for our comfort. He reminds us too poignantly of all that we have struggled to escape. We adroitly keep Islam in the role of Other as we reverse positions and ignore the effort it makes to be

understood in its own way. *Islam* means *submission* to God, not to Muhammad or the Millas (*Ulama*, scholars of theology), and from the beginning to the end of time whoever lives in submission to God is *Muslim* with no parochial limits of place or race. Contrast this generosity with Jewish exclusiveness, for instance, or with Christian bewilderment as to how to handle the paradisaical immortality of a hero like Plato, born too soon to have been "saved" by Christ, yet the essential foundation for Christian theology. For those who follow the way of Muhammad, "Abraham was not a Jew nor yet a Christian" (iii.67), but a Muslim—for he submitted to God. Christ is a Muslim. His Apostles are Muslim (v.114). Christianity cannot compete with such catholicity and Judaism never aspired to. In any purely spiritual confrontation, Jewish and Christian self-identity may have to surrender to Islam; its self-defining terms are broader. The theological reductionism of Muhammad's monotheism is extreme. He aimed for the ultimate simplicity. His "Book that makes things clear" may have achieved the ultimate monotheistic generality, and in contests of ideas the particular loses to the general.

It is patently unfair to equate Judaism with the *Old Testament*, Christianity with the *New Testament*, and Islam with the *Quran*. Such equations would be only partial truths, for each religion is sustained by a body of inherited tradition which often far outweighs the teachings of its sacred text. This is not a formal study of Islam, and certainly not of modern Islam, but is limited to a meditation about what seems self-evident in the *Quran*.

Structure and Contents of the Quran

The contents of the *Quran* were revealed to Muhammad over a period of twenty-three years, beginning when he was forty and ending with his death in 632 A.D. Some verses were recorded during his lifetime, and the collation and editing into its present form was completed within a century. The 6,326

verses are grouped into 114 *Sūras* (chapters) varying greatly in length, *Sūras* II containing 286 verses (Ayat) and *Sūras* CX containing only three.⁵ The *Sūras* are generally arranged in order of decreasing length, without regard to subject matter or the time and place of revelation; they freely commingle various topics, they lack a narrative thread, and they are repetitious to the point of exasperation unless one is charmed by their spell. It is not permitted to doubt that the words are God's own, transmitted to the Prophet by the angle Gabriel: "This *Quran* ("to read") is not such as can be produced by other than God" (x.37). "Gabriel... brings down the revelation to thy heart by God's will" (ii.97). The revelations were concrete guides to action through the vicissitudes of more than two decades and concern everything from heaven and hell through public questions of morality, governance and warfare to the embarrassingly private matter of the Prophet's own sexual conduct. The text is enlivened by considerable dialogue. As in Plato's *Republic*, where Socrates narrates even the objections of his interlocutors, God recapitulates all the arguments friends and enemies gave to Muhammad and then supplies the answers. This format puts even Satan's speeches in God's mouth.

Every remembered utterance of the Prophet is preserved either in the *Quran* or in the accompanying *Hadīth* ("reports"), the commentary of the Prophet as reported by his Companions, together with an uncertain number of ideas deemed appropriate to add. The well-intentioned effort to preserve everything he said, however trivial, and the failure to give it a convincing literary shaping leaves Muhammad vulnerable to unfair criticism. Muslim tradition affirms that the present arrangement of the *Quran* is Muhammad's own; critics think otherwise and wonder whose hands have touched it. Muhammad's own gift for imagery, his flair for style, his sense of drama, and his flawless ear could surely have shaped a more acceptable literary form had such been his intent, and if he had lived through the period of collation and editing. The Book as it stands is beyond explanation.

The classical Arabic of Muhammad's own Quraish tribe employed in the *Quran* has a vocabulary in which each root-

⁵ A Yusuf Ali, *The Holy Quran* (Lahore: 1934 and Washington: 1978), p. xxi.

word enjoys comprehensive meanings which no modern analytical language can match. The several English translations now available convey somewhat different impressions. Translation is inevitably interpretation.⁶ Those of us who cannot read Quraish Arabic can never share *Quranic* subtlety; we are condemned to miss much, and to be often mislead. Even modern Arabic involves translation from Quraish. Far more serious, however, is the problem created by our expectations. We tend more and more to use language for matter of fact communication. We tend to overlook the range of symbolic meanings concentrated in ancient texts and reduce their meanings to something within our normal range of expectation. To the Muslim ear Quraish Arabic is a beautiful music, and everyone aspires to read aloud at least the sounds of a few words whether or not he understands their meaning.⁷ Such an attitude exposes sheer sound—tone, and the feeling tone evokes—as the real ground of communal meaning. The *Quran* forces us to transcend language altogether and recover within ourselves—not verbally, with minds alone, but in our very flesh—a radical ground of aesthetic feeling. Thought must follow, though it fain would lead. We must somehow evoke in ourselves a whole context of aesthetic feeling before judging the content of a single verse. Reading must become a creative act, literally a re-creation; it will be inevitably freighted with personal idiosyncrasy, but unless we are willing to become personally involved we may as well call ourselves "European infidels" and leave the book alone.

⁶ *Ibid.*, p. x. For comparison see the translation by N.J. Dawood, *The Koran* (Harmondsworth: Penguin Books, 1956 and 1959), and that by Mohammad Marmaduke Pickthall, *The Meaning of the Glorious Koran* (New York: New American Library, 1953), the latter frankly described as "An Explanatory Translation." Differences notwithstanding, they seem little relevant to my purposes here. I like the translation used here partly for its sound in English, which the translator has respected as much as the sound of Arabic which he loves more, and also for its 6310 valuable footnotes and extensive commentary.

⁷ *Ibid.*, p. 15.

Epistemology and the Ear

Not words but pure sound—the blast of the angel Isrāfil's trumpet—signals the most important event in history, The Day of Resurrection. The *Quran* mentions this acoustic event in a dozen places. The soft voice of Gabriel, the Caller, next calls "Arise!" and the "Day of Noise and Clamour" (ci.1) gets under way. Relationships between men are ended (xxiii.101). "The earth is moved, and its mountains, and they are crushed to powder at one stroke . . . and the sky will be rent asunder, for it will that Day be flimsy" (lxix.13-16). "We shall gather the sinful, blear-eyed with terror" (xx.102). Then "all sounds shall humble themselves in the presence of God Most Gracious;" and in the silence which follows, "Nothing shalt thou hear but the tramp of their feet" of those condemned to Hell (xx.108). "There, sobbing will be their lot, nor will they hear aught else" (xxi.100). The language of Non-existence could not be more vivid.

Acoustical imagery in the *Quran* includes "The Winds like heralds of glad tidings, going before His Mercy" (vii.57). The text itself is to be recited with respect for its sound: "Recite the *Quran* in slow, measured rhythmic tones" (lxviii.4). "Prayer at the Sacred Mosque (the Ka'ba) by those who do not understand... is nothing but whistling and clapping of hands" (viii.35). Man himself is primarily an acoustical image: "We created man from sounding clay; from mud moulded into shape" (xv.26). "He created man from sounding clay like unto pottery" (1v.14). As tone itself is *order* emerging from the ambience of disorder ever present as background noise, so the soul acquires "proportion and order" as man emerges Existent as "sounding clay."

In the context of the *Quran* the ear is the most important organ; hearing is God's own avenue of understanding. "God is One who heareth and knoweth all things" (ii.224 and 244; vii.200). "He is the All-Hearing, the All-Knowing" (ii.13,7). The Prophet himself, by his detractors, was called "all ear" (ix.61), meaning that he listened to everybody.⁸ The *Quran* answers

⁸ *Ibid.*, p. 458, n. 1321.

these critics: "Say, 'He listens to what is best for you: he believes in God, has faith in the believers, and is a Mercy to those of you who believe' " (ix.61). To be deaf is to be damned, inaccessible to the Warner: "I do but warn you according to revelation; but the deaf will not hear the call, even when they are warned" (xxi.45)! In a parable of the Cave, God draws a "veil" over the ears of a group of young men "for a number of years," making them ignorant of the passage of time (xviii.11). That God has destroyed countless generations of contentious people is proved not only by their disappearance but by their silence: "Canst thou find a single one of them now or hear so much as a' whisper of them?" (xix.98). Silence is the ultimate Non-existence.

We are no longer accustomed to thinking of the ear as the most important organ; today we are powerfully visually oriented. It is part of our Greek heritage to consider sight the very greatest blessing. Geometry revealed to the Greeks insights which earlier people had never possessed. Greek philosophy changed from dialogue to literature in the works of Plato. The transition from aural to written revelation is evident in the *Bible*; much of the *New Testament* consists of Paul's letters, and the Gospels themselves are literary creations. Now a written literature, which still owes everything to the word, is obviously rooted in hearing. The *Quran*, as the Word of God, owes everything to the ear of the Prophet, however, not because its words express ideas but because they express *feelings*. Gospel means "good news;" the *Quran* disclaims novelty. As we shall note later, for many Muslims the whole meaning of the *Quran* can be distilled into the wordless dance of the dervishes. More important than the word is sheer sound, "the greatest key to interiority among all of our senses," as de Nicolás has reminded us. "It is only through sound that interiors as interiors are manifested .. .It is only sound which makes true interiority communicative." ⁹ "Sound is absolute presence." ¹⁰ In the Semitic tradition, God reveals his presence to the ear, not the eye, and Muhammad delights in making this clear to his Quraish kinsmen.

⁹ Antonio T. de Nicolás, *Meditations Through the Rg Veda* (Stony Brook: Nicolas Hays Ltd., 1976), p. 123. (Referred to hereafter as *Meditations*.)

¹⁰ *Ibid.*, p. 124.

Has the story of Moses reached thee?

Behold, he saw a fire: so he said to his family,
 "Tarry ye; I perceive a fire; perhaps I can
 Bring you some burning brand therefrom,
 Or find some guidance at the fire."

But when he came to the fire, a voice was heard: "O
 Moses! Verily I am thy Lord!

Therefore in My presence put off thy shoes:
 Thou are in the sacred valley *Tuwa* (below Sinai).

"I have chosen thee:
 Listen, then, to the inspiration sent to thee.

"Verily, I am God: There is no god but I."

(xx.9-14)

Fire attracted Abraham's eye, but the revelation came to his ear. Thus visible truth itself is "sacrificed" on the altar of a higher and aurally mediated understanding.

The distrust of the eye is a curious product of human experience. We have all experienced mirages. We know that photographs can lie. That things are not always what they appear to be is insight necessary to survival. The eye must learn that it is not fast enough to catch all relevant motion, and learn also that the meaning of a scene frozen in one perspective can be known only from the wider context of what precedes and follows, and what can only be viewed from other angles. Seeing is often not believing, despite our clichéd aphorism. The *Quran* makes an amusing appeal to such distrust in quoting the quibbling argument of "those Who disbelieve:"

Even if We opened out to them a gate from heaven,
 And they were to continue all day ascending therein,

They would only say: "Our eyes have been
 intoxicated:
 Nay, we have been bewitched by sorcery."

(xv.14-15)

The Whole Sensorium

The *Quran* is addressed to those "Who believe in the Unseen" (ii.3). Evidence, however, involves all the senses. Much imagery does appeal to vision, and God is described also as "He that heareth and seeth all things" (iv.134). God's gifts to man include "hearing and sight and intelligence and affections" (xvi.78), or alternately, "hearing, sight, feeling and understanding" (xxiii.78). Muhammad himself had visions of Gabriel (liii.1-18). Descriptions of heaven and hell appeal vividly to the whole sensorium. The damned will find that "their hearing, their sight, and their skins will bear witness against them" (xli.20). The food of the sinful "will boil in their insides, like the boiling of scalding water" (xliv.45-46) which "cuts up their bowels to pieces" (xlvii.15). "Nothing cool shall they taste therein, nor any drink, save a boiling fluid and a fluid dark, murky, intensely cold" (lxxviii.24-25). Angels will tear out the souls of the wicked "with violence," but "gently draw out" the souls of the blessed (lxxix.1-2). And for the blessed, "Not the slightest sound will they hear of Hell: What their souls desired, in that will they dwell" (xxi.102). The senses are never denigrated; they are the paths to understanding and the avenues of feeling to which Quranic argument is addressed.

The Sensuality of Heaven

There is a powerful contrast between the sensuality of Muhammad's heaven and the bloodless, ascetic Heaven of the *New Testament*. Christianity was born at the nadir of Hebraic despair, and its sacred book essentially rejects this world and its pleasures, doomed for early destruction. Islam was born of hope, not despair. It shares Christianity's conviction of a better world to come, but Muhammad's heaven is modelled on earth and contains every delight earthly experience could suggest.

The Muslim heaven is an Arab garden. Admission is not a reward simply for right belief but a recompense for good deeds. Notice the appeal to *feeling* in the following quotations. Some Muslim commentators, perhaps too much influenced by Neoplatonism and by Christianity, insist upon a spiritualized interpretation which tends to unbalance the *Quran's* harmonious unity of body and soul and to degrade the healthy aesthetic sensuality so obvious in the following verses.

As to those who believe and work righteousness,
Verily We shall not suffer to perish the reward Of
any who do a single righteous deed.

For them will be Gardens of Eternity; beneath them
Rivers will flow: they will be adorned therein
With bracelets of gold, and they will wear
Green garments of fine silk and heavy brocade;
They will recline therein on raised thrones.
How good the recompense!
How beautiful a couch to recline on!

(xviii.30-31)

"In all Muslim languages . *Jannat* (Garden) is now specialized for Heaven."¹¹ The Righteous are assured "a position of security," "Companions with beautiful big, and lustrous eyes," and "every kind of fruit" (xliv.51-55). They will enter the Garden with their wives (xlvi.70), "no sense of fatigue shall touch them" (xv.47), and "they will not there hear any vain discourse" (xix.62). God will "remove from their hearts any lurking sense of injury" (vii.43), and the delights of the Garden will "endure" (ix.21). The *Quran* never tires of describing the Garden, which Sara LV multiplies to four gardens (two pairs), with fruits and pleasures paired. In contrast to Christianity,

¹¹ A. Yusuf Ali, *op. cit.*, p. 1466.

which denies admission to Heaven to anyone, no matter how virtuous, born before Christ, Muhammad's heaven generously admits "a number of people from those of old, and a few from those of later times" (lvi.13-14). Thus among the great unities of Islam is the absolute unity of past history, which Christianity denies, and the unity of all men who believe in the One God and who behave with decency and kindness.

Universality of the Quran

One problem of the *Quran* is that it is, as it claims, so entirely unoriginal except in the accidental ways due to its Arab locale. The reader who knows the *Bible*, for instance, is likely to be gravely disappointed. The *Quran's* morality is common to all great cultures, and a reader who has been civilized by any other route learns nothing new from Muhammad's book. He is not supposed to. "I am no bringer of new-(angled doctrine . . .; I am but a Warner open and clear" (xlvi.9). God himself, through Gabriel, warns Muhammad: "Nothing is said to thee that was not said to the apostles before thee" The entertainment provided by the Arab coloring of the *Quran* is wholly superficial and inconsequential, except perhaps for our understanding the psychology and motivation of the Prophet. Had Muhammad known the *Bhagavad Gītā* he could easily have quoted the following Hindu distinction between the saved and the damned, although he would have been horrified to learn that Krishna's advice to Arjuna is in the context of a polytheism more elaborate than pagan Arabia ever knew.

The Yoga of the Distinction between Liberating and Blinding Conditions

The Blessed One said:

1. Fearlessness, essential purity of being, perseverance in the yoga of wisdom,
Charity and self-control and sacrifice,
Study of the Veda, austerity, rectitude,
2. Nonviolence, truth, freedom from anger,
Relinquishment, peace, lack of malice,
Sympathy for beings, freedom from covetousness,
Gentleness, modesty, absence of fickleness,
3. Vigor, forbearance, firmness,
Cleanness, loyalty, absence of overweening pride:
These belong to one whose birth is of a divine condition,
O Bhārata.
4. Hypocrisy, insolence, overweening pride and anger,
Harshness and ignorance:
These are the endowments of one born of a demonic condition, O
Son of Prthā.¹²

¹² Antonio T. de Nicolás, *Avatāra: The Humanization of Philosophy Through the Bhagavad Gītā* (New York: Nicolas Hays Ltd., 1976), p. 147. (Referred to hereafter as *Avatāra*.)

The Book of the Dead

Islamic morality is as ancient as Egypt. The papyrus manuscripts known as the *Book of the Dead* contain 42 "negative affirmations" which the soul of a dead Egyptian had to make to his examiners to qualify for admission to the Egyptian afterlife in the realm of Osiris. Had Muhammad known these 42 Egyptian tests of human worth they might have reappeared intact in the *Quran* for they are essentially a summary of Islamic values.

I have not stolen, robbed with violence, done harm or murder, caused pain or the shedding of tears, spoken scornfully, cursed God or the king, caused terror, worked grief, stirred up strife, acted with insolence, judged hastily, spoken lies, acted guilefully, dealt deceitfully, behaved with arrogance or overweening pride, committed fornication, defiled the wife of any man, fouled the water, defrauded the offerings of the gods, filched the food of the infant, burned with rage, stopped my ears against the words of Right and Truth, eavesdropped or slandered, been angry and wrathful except for just cause, multiplied words exceedingly, or slighted the god in my town. [Rearranged here with some duplication eliminated.]¹³

In the Arabian desert it might have seemed an anachronism to swear also that "I have not laid waste the ploughed land," and the multiplicity of Egyptian gods would have ignited all the anger Muhammad owned, but these "negative affirmations"— 3000 to 4000 years older than Islam—conclusively prove Islam's right to think of itself as a *restoration* of man's oldest religion. (This is not the place to argue further that the ancient

¹³ E.A. Wallis Budge, *The Egyptian Book of the Dead* (New York: Dover, 1967), pp. 345-351.

Egyptian religion, whose pantheon of deities we are only beginning to understand, also contained a very strong element of monotheism which has been historically overlooked and understated. Islamic monotheism is grounded on a *central perspective* present in all the old polytheisms in ways which Chapter 3 will illustrate.)

Criticism of Jew and Christian

The *Quran* owes so much to the *Bible* that we should probably expect it to emphasize its differences, if not with the *Bible* at least with Jews and Christians. If the Prophet really had nothing more to offer than a translation into Arabic of what had already been revealed in Hebrew or Greek, as the *Quran* seems to imply in some passages, then conversion would have been simpler than founding or restoring another religion. But in Muhammad's century the whole Middle East was tortured by Christian sectarian controversy, by Christian anti-Semitism, and by both Judaic and Christian animus toward all polytheists, which included most Arabs. Muhammad quotes from both *Old* and *New Testaments*, paraphrasing freely as one trusting memory and ear, whatever makes sense to him, and then *assumes* that it has a clear, common-sense meaning, but he mocks Jewish behavior and ridicules some Christian beliefs so that the *Quran* is wholly pleasing only to a Muslim. The Jews are treated worst.

Most of the *Quran*'s complaints about the Jewish character come straight from the *Bible*. They "worshipped the Calf" even after Moses brought the true revelation (ii.92). They are careless of their own dietary laws (v.45). They are arrogant (ii.80-88). They are divided and rebellious (vii.161-171). They believe only part of their own Holy Book (ii.85). They can be seen "racing each other in sin and rancour, and their eating of things forbidden" (v.65). Of all people, the Jews had the best chance for salvation:

If only the People of the Book had faith,
 It were best for them:
 among them are some who have faith,
 But most of them are perverted transgressors.

They will do you no harm, barring a
 trifling annoyance;
 If they come out to fight you, they will show you
 their backs,
 And no help shall they get.

Not all of them are alike: of the People of the Book
 Are a portion that stand for the right;
 They rehearse the Signs of God all night long, And
 they prostrate themselves in adoration.

(iii.100,111,113)

Initial alliances between Islam and Jewish communities were dissolved and Jews were expelled in Muhammad's lifetime, and the *Quran's* taunt of Jewish cowardice is a continuing literary embarrassment, but Muhammad's passionate embrace of the whole Mosaic revelation gives cause to hope for a future rapprochement. Abraham is a Muslim hero, and so is Jacob, Joseph, David, Solomon, Job, Elijah, and others. The *Old Testament* is essential to Muhammad's Arabic identity as well as to his Muslim identity, in ways we shall explore later. The *Quran's* worst accusation against the Jews reads very curiously today:

Thou wilt indeed find them, of all people, Most
 greedy of life,—even more
 Than the idolators: each one of them wishes
 He could be given a life of a thousand years.

(ii.96)

Muhammad is promising the faithful a life everlasting, not one of a mere "thousand years." From beginning to end the *Quran*

resonates with reverence for life and joy in life. No one can be accused of cherishing life more than the Prophet himself, although he exposed himself dangerously in battle, and his God is "the Cherisher of the Worlds" (vi.45). In any context but the *Quran* this accusation against the Jews would be a compliment. Here it is a rhetorical flourish, derived partly from Christian resurrection rhetoric and partly from Muhammad's effort to steel believers into risking lives. But there is a deeper meaning. The meaning of human life transcends chronology. The Muslim faithful belong to the whole of history, to a past that always was and to a future that ever will be. Life is merely that part of eternity which belongs to the present, and only the short-sighted would tarry here.

Muhammad felt a strong empathy with Christianity:

Strongest among men in enmity to the Believers wilt thou
 Find the Jews and Pagans; and nearest among them in love
 To the Believers wilt thou find those who say,
 "We are Christians;" because amongst these are
 Men devoted to learning and men who have renounced
 The world, and they are not arrogant.

And when they listen to the revelation received
 By the Apostle, thou wilt see their eyes overflowing
 With tears, for they recognise the truth:
 They pray: "Our Lord! We believe;
 Write us down among the witnesses."

(v.85-86)

Unfortunately for the peace of the world, Islam can open its heart to Jew and Christian, as the above quotations suggest, only when they are on their knees—which is not the preferred position for international diplomacy. The conditions under which synagogue and church would open their hearts to Islam, however, are not apparent.

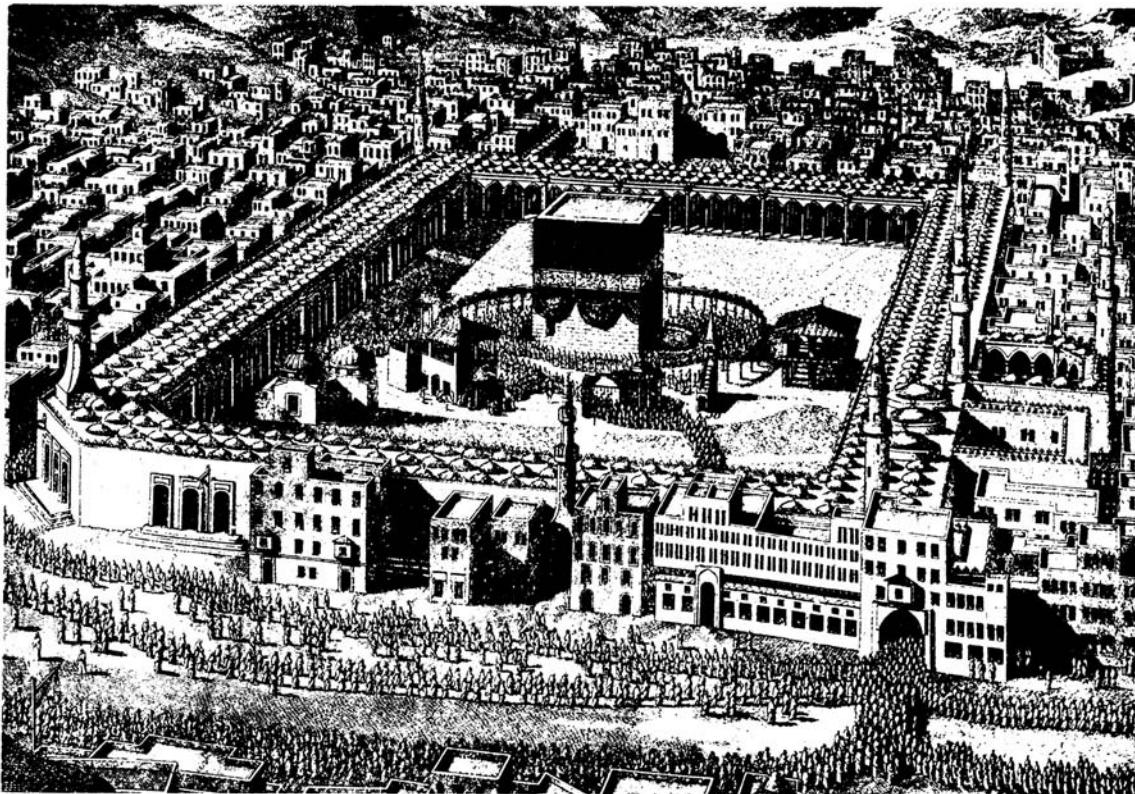
Although Muhammad treasures Christ as a brother and his *Quran* sings praises to the Virgin Mary with as much fervor as Christian Mariolatry—she too *submitted* to God—he scorns that version of Christian theology which the Church eventually canonized. "They do blaspheme who say: God is one of three in a Trinity" (v.76). To suppose that Mary's pregnancy required a Holy Ghost is ridiculous: God creates by saying, "Be!" (iii.59 and xix.35). He fathers no one, Christ included: "How can He have a son when He hath no consort" (vi.101)? "Christ the son of Mary was no more than an Apostle" like himself (v.78). Jesus was not crucified: "They killed him not" (iv.157). And the *Quran* rejects Christian monasticism: "The Monasticism which they invented for themselves, We did not prescribe for them" (lvii.27). Rejected explicitly is the doctrine of original sin, of cardinal importance to the Church's explanation of why Christ was sent to save us: "We have indeed created man in the best of moulds" (xcv.4). God has "made your shapes beautiful" (x1.64). There is no need for rescue by a "Son of God."

The separation of Church and State in the West has largely defused these issues between Christianity and Islam, and the development of a modern, mythic consciousness has further defused them for western intellectuals. Today many nominal Christians would no doubt find themselves more comfortable with the theology of the *Quran* than with that of their own churches. The *Quran* intends to make clear its disagreement with the Church, however, and it succeeds well enough to trouble conservative Christians—if they bothered to read it.

The New Challenge of Islam

Islam has enjoyed a phenomenal success in winning converts. Among her most effective apologists today are western intellectuals, many of them as captivated by the

timeless beauty of Muslim architecture as by the beauty and universalism of the *Quran* or the spirituality of Islamic philosophy. But the most interesting recent development is the appeal of Islam to the despised and rejected in the ostensibly Judaic-Christian countries. In America, for instance, we are awakening to the fact that the Black Muslim movement is something other than a vogue, that its adherents are truly finding in themselves a nobility of character and reaping from each other a powerful social reinforcement for their human dignity which our society never provided. Within our jails, among the lost and bewildered children of seemingly enlightened homes, among the drop-outs from our exaggerated individual competitiveness, Islam—with its denial that man is born sinful, with its insistence on personal discipline, with its promise of Heaven as a reward for behaving rightly, with its joy in life and its uncomplicated theology—is a force to be reckoned with. Wherever synagogue, church, and state fail to reconcile individuals to their fates and to each other and to envelop them in sustaining love, Islam may prove to be revolutionary. It produces self-respect, and with loyalty to the community, and less emphasis on the self. Jew, Christian, agnostic, atheist—or whatever else a western man can be—could well cherish Islam not for himself but for the successful alternative it can offer to those whom we fail. There are already some among us who must study Muhammad's book in order to understand our own children. In some ways the optimism of the *Quran* is better in tune than the pessimism of the *Bible* with our own secular faith in progress, which is progressively distancing us from the original Christian vision. But the main effect of the *Quran* is to instill a sense of direction. It is an antidote for materialism. It denies mere matter-of-fact can rule our lives. It makes life itself a joyful sacrament. In short, it subverts the whole notion of a secular society. Intentionally!



Courtesy of Manly P. Hall. This illustration appears on page 191 of An Encyclopedic Outline of Masonic, Hermetic, Qabbalistic and Rosicrucian Symbolical Philosophy published by The Philosophical Research Society.

Chapter 2

The Quran as a Problem for the East

Time as Context

To speak of the *Quran* as a *problem* proves one a foreigner to the faith. To imply further, as I mean to, that the *Quran* is a problem to the believer himself is to risk giving an offense which I do not intend. We must all assume *something* in order to live, and our lives are made problematic in part by those assumptions, whatever they are. The believer who assumes the perfection of the *Quran* finds in it a guide to every action, an explanation for every difficulty; the book establishes the total horizon for both his private psychic life and his public

social life. And because the *Quran* is silent on the specific issues of science and philosophy, scientists and philosophers—as Islam proved from the 8th to the 12th centuries A.D., her time of greatness—can harmonize their specialized wisdom with that of the *Quran* as happily as the simplest nomad. The common images of Muhammad's book thus constitute a binding social fabric; feelings can be articulated and thoughts shared even among strangers in the subtle ways usually enjoyed only by members of some limited sub-culture. The very warmth of this communalism, however, together with the self-satisfaction it engenders, can sharply separate Muslim from non-Muslim and make each unduly suspicious of the other.

The outsider is always a threat to anyone's faith. He is a living reminder that other assumptions than one's own are also possible. A great deal of human energy is invested in trying to win others to our own points of view; our inner security needs reinforcement. Muhammad, however, is one of the great exceptions. He did not become a leader in the usual manner by embodying purposes or aspirations present in the culture, but rather by his power to force a new vision on his people. There is thus an inherent contradiction between the revolutionary and reforming *activity* of the *Quran* and the attempt of believers to *conserve* Muhammad's vision without its inherent dynamism. If imitation is the sincerest flattery, lovers of Muhammad presumably should imitate him. Instead they tend to conceive it their duty, like the followers of Plato, Christ and others who changed history, to freeze themselves permanently into an attitude of adoration.

The intellectual dynamism of greatness is permanently at war with the intellectual lethargy of its own pious followers, no matter what thinker or what book we take as our model. Great men and great books are products of particular times and particular places. We can universalize them only by distinguishing between essence and accident, that is by continuing criticism. But dogmatic faith never tolerates criticism. It resists the only activity which ensures immortality for what it treasures. Dogma forgets that Time is Context for all human endeavors.

In his effort to "make things clear" to his own Quraish tribe, Muhammad became the vehicle for legislating a host of details far more relevant to 7th century Arabia than to succeeding millenia of Muslim experience throughout the world. The *Quran* gives explicit advice on manners, dress, forbidden foods, marriage, divorce, the education of children, conduct in the Mosque, questions allowed in religious discussion, the waging of war, the ransom of prisoners, divisions of inherited property and spoils of war, punishment for crime, the treatment of slaves, and many other matters. The Prophet certainly never envisaged how the world would change and thus change the context of God's very specific advice to the Arabia of his generation. To worship every word of the *Quran* with equal reverence as the word of God Himself is to forget that "man in the flesh is man and circumstance."¹ Many verses within the *Quran* itself are abrogated by other verses revealed at a later time. Time did not stand still in Arabia even for the few years of the Prophet's revelations. Guillaume points out that 'he "Verse of the Sword" (9:5), "Slay the polytheists wherever you find them," supposedly cancelled 124 earlier verses enjoining toleration and patience.² Thus even the *Quran* emphasizes the problematical character of its own legislation. It was never edited in a way which removed its inherent self-contradictions. The book thus raises questions in the reader's mind even as it seeks to end all of his doubt. In a historical document such "flaws" are priceless clues to the intentionality of the particular circumstances in which it was produced.

The Need for Interpretation

That the *Quran*, like other sacred books, needs interpretation arises simply from the fact that "man never stands on the same ground" for more than a few moments, a few years, or in

¹ *Avatāra*, p. 21.

² Alfred Guillaume, *Islam* (Harmondsworth: Penguin Books, 1954), p. 187.

a strongly traditional culture and in limited ways, perhaps a few centuries. Raimundo Panikkar has written:

Any authentic reading of a text is as much a reading *into* as a reading *from*. A sacred document is always a text which allows this liberal reading without screams of betrayal.³

The special problem of the *Quran* arises from its aim at clarity and simplicity and from its own rather extensive commentary on how it is to be read and interpreted, that is, from the original effort to make it a text "readable by its own criteria." This effort is successful enough to inhibit reinterpretation in later ages. To argue with the *Quran* is to argue not with Muhammad but with God Himself. Muslim criticism of its own sacred book is thus obstructed exactly in the same way as orthodox Christian criticism of the Bible. The faithful, having been taught that the written word is God's own, will not tolerate the kind of vigorous questioning and confrontations with the Other which produces sacred books in the first place. Process is frozen into dogma. The same tendency is at work in philosophy and science—until new questions and contradictions force old assumptions to be reviewed. From the viewpoint of contemporary Western philosophy, to read any book, including a sacred one, uncritically is to commit the sin of idolatry. The West is more than weary of its own bad habits with successive dogmas of church, of state, of philosophy, art and science. The East is alive with tensions arising from the same problem of time as context even for the *Quran*.

No Muslim teacher, writer or politician can survive in his own society if he breathes a public criticism of the *Quran*. Whatever he thinks privately must be carefully edited for public consumption. Thus the simplicity of many of the faithful is at odds with the very purpose of the *Quran* and with its own incitement to reflection on the temporal aspects of

³ *Avatāra*, p. 11.

particular truths. *Compassionate* is the adjective applied most often in the book both to God and to His Prophet; this word emphasizes empathy, I believe, rather more than reason. A more critical analysis of the *Quran* with attention to its own criteria—might reveal it as the triumph of human feeling over the limitations of human understanding and set its dynamism to work on the problems of the modern world.

The vigorous sectarianism of modern Islam is an inevitable consequence of tensions within the book. The most violent controversies, however, concern a matter on which the book is virtually silent, that of spiritual leadership after the demise of the Prophet. As in Jewish and Christian sectarianism, the fervor of disputants is proportional to the insecurity of their arguments within the sacred text itself, and I shall not pursue these questions further. Since Islam recognizes no division of authority into sacred and secular, sectarian controversy has immediate political consequences. Nothing wearied Muhammad more than the sectarian disputes of Jews and Christians. He thought he was precluding it from Islam. The *Quran* denounces it in advance: "Be not ye among those . . . who split up their Religions, and become Sects" (xxx.31-32). Jews, Christians, and Muslims alike are warned: "Remain steadfast in Religion, and make no divisions therein" (xlvi.13). On Judgement Day, "every sect will be called to its Record" (xlv.28).

We sent down the Book to thee for the
express purpose,
That thou shouldst make clear to them those
things In which they differ.

(xvi.64)

It is to forestall sectarian subdivision that the *Quran* is filled with explicit instructions for its self-interpretation. These passages are of historical interest in helping us understand how Muhammad viewed his book.

The Quran's "Self-Interpretation"

The *Quran* (meaning "to read") is first of all a message in Arabic to Mecca, "the Mother of Cities" and Muhammad's home, "warning" her of the Day of Judgement, which was not an Arabic idea. The book commingles two quite different kinds of material: basic verses which constitute "The Mother of the Book," and additional material which is metaphorical or allegorical.

In it are verses basic or fundamental
 Of established meaning: they are the foundation
 Of the Book: others are allegorical. But those
 In whose hearts is perversity follow
 The part thereof that is allegorical, seeking discord,
 And searching for its hidden meanings,
 But no one knows its hidden meanings except God.

(iii. 7)

Nowhere does the *Quran* imply that even Muhammad understood its "hidden meanings." This allusion to them mainly recognizes that words are endlessly evocative, that the poetic language of Revelation never constitutes a formal symbolic logic, and that God's meanings may extend further than even His prophets appreciate. Nothing in the "Mother of the Book" (*Umm-ul-Kitab*) is secret:

O ye who believe! Ask not questions About
 things which, if made plain to you, May cause
 you trouble. But if ye ask about Things when
 the *Quran* is being revealed, They will be
 made plain to you.

(v.104)

The *Quran* is everywhere described as "the Book that makes things clear," meaning to ordinary common-sense, never to

initiates of some esoteric doctrine. It is "a Book whereof the verses are explained in detail" (xli.3). It is "a beautiful Message in the form of a Book, consistent with itself, yet repeating its teaching in various aspects" (xxxix.23). Today some of the words of the *Quran* have acquired new meanings in modern Arabic, and many of the historical circumstances which inspired parts of it have been forgotten so that Muhammad's text is less clear than he supposed, but he aimed at absolute clarity:

So have We made the *Quran* easy

In thine own tongue, that with it thou mayest give
 Glad tidings to the righteous,
 And warnings to people given to contention.

(xix.97)

The whole story could not be told "all at once," however; an aural revelation, unlike a visual one, is necessarily *progressive*. "It is We Who have sent down the *Quran* to thee by stages" (lxxvi.23). "By degrees shall We teach thee to declare the Message, so thou shalt not forget, except as God wills" (lxxxvii.6-7). God explains, "For the benefit of mankind, every kind of similitude" (xviii.54), or "every kind of Parable" (xxx.58). "God knows best what He reveals in stages" (xvi.101). The *Quran* intends neither an esoteric doctrine nor a new doctrine: "It is a confirmation of revelations that went before it, and a fuller explanation" (x.37), a doctrine obviously easily misunderstood.

The fact that the *Quran* is a "revelation in stages" means that it must be studied as a whole; the whole gives meaning to the parts. The necessity for studying the entire context of the *Quran* in order to comprehend the significance of individual statements makes the book as vulnerable as the *Bible* to abuse by the ignorant and the contentious, particularly as it advertises continually its own clarity. It is as easy for a Muslim to pervert the meaning of the *Quran* by taking his stand on some particular quotation as it is for a westerner to buttress

ill-feeling toward Islam and its Prophet by similar quotations out of context. The *Quran*, the main unifying factor in the world-wide context of modern Islam, is thus probably the most potent source of Islamic friction. Sectarianism is inevitable where absolute certainty is the test of faith.

By way of examples, let us review the wider Quranic context of the Islamic penal code and also the context of its pronouncements on women. What Muhammad thought the book intended is widely misunderstood in the West partly because its words have been abused in the East.

The Islamic Penal Code

The desire for vengeance and retribution are deeply ingrained in human nature and in Arab custom. The *Quran* summarizes Mosaic law: "Life for life, eye for eye, nose for nose, ear for ear, tooth for tooth, and wounds equal for equal," and then adds a remarkable qualification. "But if any one remits the retaliation by way of charity, it is an act of atonement for himself" (v.48). Wounds "equal for equal" are the *limits* of retaliation: "After this whoever exceeds the limits shall be in grave penalty" (ii.178). "But if a person forgives and makes reconciliation, His reward is due from God" (xlvi.40). "Repel evil with that which is best" (xxiii.96). "Repel evil with what is better: then will he between whom and thee was hatred become as it were thy friend and intimate" (lxv.34)!

Muslim canon law is troubled by the question of how great a theft merits cutting off the hands of a thief; our translator notes that crucifixion was the punishment in Jesus' day. But note how this matter is actually stated in the *Quran*:

As to the thief, male or female,
 Cut off his or her hands: a punishment by way
 Of example from God, for their crime:
 And God is exalted in power.

But if the thief repent after his crime,
 And amend his conduct,
 God turneth to him in forgiveness.

(v.42-43)

Both God and his Prophet are *compassionate*. It is easy to understand why Muslim countries are troubled by a code which indicates maximum penalties while emphasizing the superiority of forgiveness. The *Quran* is actually forcing the faithful to make moral and ethical judgments on their own initiative while ostensibly making such judgments for them. It is a book which makes things absolutely clear only to those who read it carelessly, superficially, out of context, or from some private point of view. The book points out a Way by means of examples relevant to Muhammad's immediate needs; it does not, as it sometimes seems, solve in advance the problems by which the thoughtless can glide through life. Continuous re-interpretation is essential.

What the modern world knows as the Islamic penal code is no invention of the *Quran* whatever, but is a code at least as old as the *Bible*. The full force of the *Quran's* moral persuasion is employed to mitigate the cruelty of an inherited Semitic code. Muhammad's book sets absolute limits to the custom of retaliation, whose excesses were provoking bloody feuds. It preaches a forgiveness at times like that which Christianity associates with Christ, but Muhammad knew his people far too well to expect them simply to "turn the other cheek." He was not the purely spiritual leader of a people withdrawn unto themselves and denying the authority of the state in their private lives. He was, rather, the focus of all power—spiritual, temporal, civil, military, and economic—among a people proud of their autonomy, and famous for their pride. On punishment and retaliation his *Quran* emphasizes both humane treatment aimed at curbing the excesses of moral indignation and healing

the wounds between the wronged and the wrong. "Repel evil with that which is better, then will he between whom and thee was hatred become as it were thy friend and intimate." Such a principle perhaps hopes for too much, but it is without cruelty, and it puts human love above righteous indignation.

The Status of Women

Few aspects of Islam are more ridiculed in the West than Islamic treatment of women, but the *Quran* clearly and unmistakably champions women's rights against the prevailing temper of Muhammad's time. Guillaume notes that the book gives more attention to the status of women, then widely abused, than to any other social question.⁴ The general theme is *equity*: "Women shall have rights similar to the rights against them, according to what is equitable" (ii.228). This is not to be construed as *equality* in the modern sense, but it hurt—as it intended—the traditional authority men held over their wives.

Sexual gratification, following Hebraic rather than Christian examples, is considered a normal human need, not a sinful one, and women have equal rights with men to such pleasure: "They are your garments and ye are their garments" (ii.187). Muslim men no longer automatically inherit a deceased brother's widow: "Ye are forbidden to inherit women against their will" (iv.19). In a *Sūra* revealed at a time when the Muslim community was left with many orphans and widows, "two, three, or four wives" are permitted (iv.3), but a restriction to only four wives was against custom. Furthermore, multiple wives were now permitted only on the condition that they be treated perfectly equally and allowed to live "in the same style as ye live, according to your means" (lxv.6).

⁴ Guillaume, *op. cit.*, p. 71.

The *Quran* recognizes, however, that "ye are never able to be fair and just as between women, even if it is your ardent desire" (iv.129), and it formalizes the treatment of disputes in a humane way. Reconciliation must be attempted before recourse to divorce; when a breach between husband and wife arises two arbiters must be appointed, "one from his family and the other from hers" (iv.35). "If a wife fears cruelty or desertion on her husband's part, there is no blame on them if they arrange an amicable settlement between themselves" (iv.128). "For divorced women maintenance should be provided on a reasonable scale" (ii.241). In case of a reconciliation later, "a divorce is only permissible twice: after that, the parties should either hold together on equitable terms, or separate with kindness" (ii.229). This reads like the prescription for an enlightened, liberal society, not a repressive one.

Men are—"the protectors and maintainers of women" for two reasons: "God has given the one more strength than the other, and because they support them from their means" (iv.34). Greater strength entails greater responsibility. "As to those women on whose part ye fear disloyalty and ill-conduct," men are instructed to "admonish them first, next refuse to share their beds, and last beat them lightly" (iv.34). The modern Western woman who bristles at such words in a holy book should remember that in the context of 7th century Arabia it is dramatically improving the status of women. The pagan Arab was allowed an unrestricted number of wives, who could be divorced at will and humiliated by the withholding of conjugal rights, whimsically legalized by the *Zihār* oath: "Thou are to me as the back of my mother." [5] ⁵Marriage was a profoundly important and successful experience for Muhammad; it played a central role in helping him first define and later maintain his identity. He cared deeply about women, and not merely as sex objects or as mothers for his offspring. The *Quran* firmly protects the inheritance rights of daughters (iv. 8-12). But it goes further: Muhammad Was particularly horrified by the Arab custom of burying alive unwanted daughters, whose customary marriage dowries could actually bankrupt a father.

⁵ A. Yusuf Ali, p. 1510, n. 5330.

Kill not your children for fear of want: We shall
 Provide sustenance for them as well as for you.
 Verily the killing of them is a great sin.

(xvii.31)

That Islamic society is powerfully male-dominated is apparent to itself and to the rest of the world. Quranic emphasis on women's modesty, couched in terms appropriate to the 7th century A.D., may prove less effective in the future than Quranic emphasis on women's rights, which probably owe very much to Muhammad's first wife, *Khadija*. They married when he was twenty-five and she was a widow of forty—and his employer. His visions began fifteen years after their marriage. *Khadija* was his first convert and his constant support during the tribulation which followed. She ranks as one of the most important women in history for her indispensable support of him, and she is one of only four "perfect women" known to Islam.⁶ (The other three are Pharaoh's daughter-wife, *Asiya*, presumably she who rescued Moses; Mary, the mother of Jesus; and *Fatima*, Muhammad's own daughter.) The dozen wives Muhammad took in his later years—special dispensation exempting him from the Quranic limitation to four—mainly cemented relations with friends or with neighboring tribes, in the Arab custom, or protected the widows of deceased comrades. They shared the frugality of his life and the duties incurred by his leadership. His later domestic situation was anything but tranquil; even the *Quran* alludes to his uncontrollable passion for Mary, his black slave, and his effort to be fair to his wives, and to judge correctly their faithfulness to him.

Since about the 11th century A.D. the position of Islamic women has declined along with the general decline of Islamic countries. The *Quran* clearly aimed for a new level of equity between the sexes. It clearly understands and approves the sexual needs of both men and women, and beyond the practical aspects of child-bearing. If literal interpretation has allowed the *Quran* to become an instrument of oppression to women, it

⁶ *Ibid.*, p. 1673, n. 5549

still remains a potentially explosive force by which Islamic women could regain the power and respect they once enjoyed. We do not associate the idea of democracy with Islam, but no holy book has made clearer the essential equality of all believers than the *Quran*. Any Islamic country which fails to grant civil equality to its citizens while continuing to revere the *Quran* is threatened from within more powerfully than from without. The internal tension must be strongly felt, however dimly its source is perceived.

The Crisis of the Intellectual

Today the Islamic world is rapidly emerging from a long period of foreign domination and internal intellectual stagnation. We have become aware of a new spirit in North Africa, Iran, Iraq, Pakistan, and in Arabia itself. All the strength of long-dominant Europe has been powerless to prevent the drive for autonomy and the affirmation of local pride which the *Quran* assumes to be the normal condition for life. There is not only increased literacy among the poor and humble but there is also a mastery of western science and philosophy among the new intellectual and often western-educated classes. The new foreign education of the intellectuals, however, is a powerful divisive force in Islamic society and even within the individual himself, for it exposes clearly the romanticism and utopianism of traditional Islamic ways.⁷ The new leaders cannot fail to discern the internal crises which western countries suffer, and they would be mad to try to adopt our ways uncritically. But blind loyalty to tradition by their fellow countrymen, impoverished and oppressed, is another face of madness. People who have been taught to believe that God can accomplish anything merely by saying "Be!" are hardly prepared to help

⁷ This problem is discussed eloquently by Abdallah Laroui in *The Crisis of the Arab Intellectual: Traditionalism or Historicism?* (Berkeley: University of California Press, 1976).

themselves, for they have little sense of material causality and no awareness of the extent of man's responsibility for the fate of the world or the possibilities latent within himself. The *Quran* is not to be blamed, although the fervor of its unsophisticated adherents is a powerful deterrent to change. The *Quran*, so it seemed at the time, was the great inspiration for the cultural explosion in Arabia beginning within a century of the Prophet's death. It is interesting that when the Platonic Academy in Athens was closed by order of the Emperor Justinian in 529 A.D., many of its faculty fled to Persia; and when the Persian capital fell to the invading Muslim Arabs in 637 A.D., Greek learning then began to find a new home among the Arabs. Most of the Greek classics were translated into Arabic by the 9th century. Christian Europe was awakened from its Dark Age largely by the Otherness of an awakened Arabia, which in turn had been awakened, via Persia, by the Otherness of Ancient Greece. We do not understand very well how cultural confrontations lead to sometimes explosive growth and development, but history is full of examples—and history proves that the *Quran* can either bind or release the creative powers of its believers. The crisis for the current generation of Islamic intellectuals, who can lead their people only within an horizon bounded by Quranic imagery and ideals, is the urgent necessity for rediscovering how the *Quran* can be made to release creative energies.

Those of us who are outside Islam can only watch and pray as its own intellectuals struggle for their survival and for an internal healing in their homelands. America and Europe are busily documenting the futility of a purely secular approach to life and wondering how to heal themselves. Islam faces a still superior but tired rival at a moment in history when mankind has become aware of how much any culture needs others to save it from itself. The real enemy is always within. Muhammad knew it, and the Quranic Satan exemplifies it in ways we shall study later.

Whether the *Quran* functions as an instrument of liberation or repression depends entirely on interpretation, and interpretation in turn depends partly on one's attitude toward the *written word*.

The Written Word

In the *Quran* the written word is accorded a very special and restricted status. *Short-term legal contracts* must be reduced to writing wherever possible (two witnesses are required in other circumstances) to forestall misunderstanding:

When ye deal with each other,

In transactions involving future obligations
In a fixed period of time,
Reduce them to writing.

(ii.282)

The length of everyone's life is also a "term being fixed as by writing" (iii.145). Notice that the purpose of such writing is to absolutize meaning. Notice also the limited scope of things which are to be written. There is no suggestion that the *Quran* itself—either the transparent "Mother of the Book" or the "allegorical parts"—has the definiteness or literalness of a short-term legal contract. When the *Quran* is read to assembled multitudes in the mosque, auditors feel themselves bound to each other in an historic social rite. The moving flow of sound evokes something of the whole larger context of Islam, its history, its shared feeling, and its remembrance of the Prophet and his struggles. The printed page atomizes context and allows verbal meaning to become static. The *Quran* is Muhammad's dialogue with God. Reading and interpretation can become a private act rather than a social one, and especially for readers of modest education a binding literal interpretation is facilitated; a writing merely repeats old answers to the questions we ask. The ear forces thought to observe a moving stream of stimuli; the eye allows it to fix on a single item while the context fades from view. The Jews, for instance, think of themselves as "the people of the Book," and they have gone to heroic lengths to live by the inherited words; but one of the remarkable aspects of Jewish life is the continuing tradition of rabbinical scholarship which ponders and questions every

word of the text, and the no less remarkable continuing Jewish dependence on the Rabbi for aural interpretation as to what those words mean in the particular context of one's life. The Bible records growth towards intellectual autonomy and moral responsibility. Protestant Christianity, heavily dependent on translation into the vernacular of each country, demanded that the words mean what they say quite literally, reckless of scholarly caution. The Muslim considers both Jew and Christian, like himself, "people of the Book." All three, so it seems, are equally tempted to idolize details while forgetting the vision.

The tendency to subvert the poetic force of the Quranic vision by taking its statements as literal truth was present in Islam from the very beginning. While Muhammad lived, every rigidity was endangered by the possibility of a new revelation negating a previous one. Like any leader, he had to contend with the extreme conservatism of his own converts—until, that is, his untimely death only two years after conquering Mecca relieved them of having to worry about another visitation by Gabriel. The tension between a liberating poetic reading and an enslaving literal reading was never more apparent than it is today. Every ancient religion suffered this tension, every modern religion still suffers it, and in their own ways every modern rational discipline also suffers a similar tension between what it assumes to be fact and what it must remember is only metaphor. Today's secular "theological" debates concerning necessary *a priori* assumptions enliven Academia, and participants cling with unembarrassed affection to their inherited ceremonial clerical garb. We are still trying—and failing—to formulate eternal truths in a purified prose, but everything important has to be said indirectly, by allusion or metaphor, or by paradigmatic examples whose meanings transcend their inherent limitations. "Uttering a word," Wittgenstein writes, "is like sounding a tone on the keyboard of the imagination.⁸ That was how Gabriel's words affected Muhammad, and how Muhammad affected his auditors. Legalism came later. It requires no imagination: indeed, it

⁸ Ludwig Wittgenstein, *Philosophical Investigations*, trans. by G.E.M. Anscombe (Oxford: Blackwell, 1968), p. 4e

trembles before imagination: it has no ear for music. "*The limits of my language* means the limits of my world" to a musician-philosopher like Wittgenstein.⁹ Whoever reads the *Quran* without a musicalized, poetic imagination, trying to reduce it to the prosaic "legal" status of the factual kind appropriate for a mathematics textbook thereby radically diminishes his own world and falsifies Muhammad's.

The ultimate reduction of horizons to what can be seen from a particular viewpoint and known with apodictic certainty by the eye was achieved in geometry by Euclid. Geometric truth had infatuated the Greeks for generations, and their success with *visual* models of truth still seduces our souls. But the intangible, evanescent, multi-horizoned and variably-dimensioned realm of aural experience remains truer to the whole of life. Reason appeals, quite legitimately, to the eye, but God has always addressed Himself to the ear.

The transformation or radical limitation of human feeling which occurs when private visual experience is substituted for a communal aural one has scarcely been investigated. *Social prayer* is the central Muslim activity. All of the great religions are revealed to the ear; their texts are then recited or sung in assembly. The fact that Islamic art in later ages, particularly in Arab lands, has been severely restricted to the *geometrical* and *visual* suggests that Islam has suffered, unconsciously, a subtle and thoroughgoing transformation of its original aural modality. Legalists have banned music from the mosque since the 13th century despite the absence of any such proscription in the *Quran*. Arabian music experienced its greatest flowering in the two or three centuries immediately after the Prophet's death; the *Sufi* sects gave music an exalted role even in worship. Then reaction set in. The powerful beauty of later mosques, unknown in Muhammad's time, was a response to the splendor of Christian temples, foremost of which was the Hagia Sophia of Istanbul, captured by the Turks in the 15th century. Architecture—"frozen music"—is vision's grandest victory.

The *Quran's* appearance created a new climate. It both climaxes and ends oral tradition. Oral revelation ended for the

⁹ Ludwig Wittgenstein, *Tractatus Logico Philosophicus* (London: Routledge & Kegan Paul, 1961/1971), p. 115, prop. 5.6

Jews in 621 B.C. when Hilkiah found "a book of the law" in the temple of Jerusalem, then being rebuilt, and the story of Moses and Mosaic law was revealed to a surprised people. Judaism was henceforth transformed. Sacred books are cultural divides. Believers are "embodied" scripture. When their content, from too much repetition, dulls our current interest, we may choose to turn with rekindled curiosity to its always problematic origins; and in the question of origins we begin to meet ancestors much like ourselves, asking questions of themselves, conversing with God as we converse with Self, and trusting the ear to recognize truth. Unless we question origins we cannot be said to "have" ideas; ideas, rather, "have" us.

A rationality based on the naive visual model of physical space, and tied to the assumptions of Euclidean geometry, possesses room for only "one consciousness at a time." In a *sound* model which speaks to the ear, by contrast, "the whole spectrum of consciousness vibrates simultaneously even though we are only able to focus on the vibratory bands one at a time."¹⁰ A successful visual model of reality must be built up by the integration of successive viewpoints. An aural model carries within itself the contextual substratum of noise and ambiguity and alternative possibilities to remind us of the precariousness of our perceptions and of their dependence upon a field of assumptions. There is important psychological truth in the ancient mistrust of vision and corresponding increased trust of hearing. The effort since Aristotle to ground philosophy on some unshakeable first principle is an effort to find one preferred viewpoint that always works. Human freedom has been guaranteed only by the successive failures of various first principles to achieve what was expected of them. Muhammad's consciousness was never "visual" in this simplistic sense. He confounded and exasperated his followers many times by deviating from consciously "sacrificing"—policies or principles they thought were firmly fixed. For him *context* determined meaning. He considered only the absolute unity of God to be fixed beyond question: "God forgiveth not the sin of joining other gods with Him; but He forgiveth whom he pleaseth other sins than this" (iv.116). He idolized nothing.

¹⁰ *Avatāra*, p. 214.

The whole spectrum of Arab life vibrates simultaneously in Muhammad's consciousness; he embodies an holistic vision appropriate to his century. The many details of Quranic legislation, often arising from the *ad hoc* decisions of crisis, must be studied in the context of Muhammad's dream of leading his people on the "straight way" to heaven. No detail should be treated as an absolute, although Muslims are tempted to treat them so. God Himself insists that man is judged strictly for the *intention* in his heart. Superstition about oaths, for instance, is ridiculed:

God will not call you to account
For thoughtlessness in your oaths,
But for the intention in your hearts.

(ii.225)

It is Muhammad's intention which deserves to be recognized. The changing conditions of modern life make the intention of the *Quran* a perplexing problem. Those of us who remain aloof from Muslim sectarianism must respect the complexity of the challenges it faces. Sectarian controversy is honest dialogue concerning what should be Invariant in a world of change, and concerning ultimate authority in the transmission of tradition. Whatever determines our assumptions owns our souls.

The Way of the Prophet

More important than any legislation in the *Quran* is the *Way* of the Prophet himself—a Way open to all people in all ages. His Way is complex, and deserves to be analyzed.

1. The Way of Muhammad is first of all a "meditation through the paths of Others ." ¹¹ In the Jews, Christians, and

¹¹ *Meditations*, p. 7.

pagan Arabs of his own people, including his own close relatives, he saw the "Other" as "my own possibilities."¹² He lived intimately with these alternatives for forty years before he began to have the visions which finally differentiated his own character.

2. The Way of Muhammad is the intense meditation of prayer, and not prayer for a particular result but prayer for *guidance*. In throwing himself on God's mercy in night-long vigils in the cave of Hiraa, Muhammad consistently pursued meditation on the "controlled situation" in which he found himself until that meditation—as I shall show in a moment—became "capable of transcending the controls by radically falsifying them."¹³ When Gabriel finally spoke it was to deliver a judgment which was absolutely clear. The *Quran* is a book "wherein there is no doubt" (x.37) only because of Muhammad's heroic struggle to win for himself and his followers intuitions which could infuse human behavior with spontaneity and conviction. His meditation was strenuous enough to evoke an admonition from God:

0 thou folded in garments!

Stand to prayer by night, but not all night,— Half
of it, or a little less, or a little more.

(lxxiii,1-4)

Meditation is the proper attitude for hearing God's message: "When the *Quran* is read, listen to it with attention, and hold your peace" (vii.204). Meaning discloses itself in meditation.

3. The Way of Muhammad is a way of transcending the tyranny of language and the tyranny of consciousness. It was obvious even to Muhammad that Gabriel was incapable of telling him anything not already heard before and therefore present in the subconscious depths of his own soul: "Nothing is said to thee that was not said to the apostles before thee" (xli.43). Inner voices which speak to us in our visions say

¹² *Ibid.*, p. 83

¹³ *Ibid.*, p. 6.

nothing we have not heard before; they remind us of something suppressed. In the depths of meditation we relax conscious control and become open to messages from the whole range of accumulated experience, much of it buried deeply in the psyche. Muhammad's "disciplined effort to traverse the paths of others" was intense enough to enable him to "confront his radical capacity to *falsify* any theories and images of man," and to surprise his followers with novelty.¹⁴ The "Others" whom he confronted were Jews, Christians, and pagan Arabs. The theories he "falsified" were not only theirs but his own. His visions were vigorous dialogues with his own former selves.

4. The Way of Muhammad is "the integration of multiple perspectives," each previously attained insight being freely sacrificed for a transcending "embodied vision."¹⁵ We have seen how both Judaic and Christian ideas have been integrated in the *Quran* in ways somewhat offensive to both religions. In Chapter 3 we shall see how pagan Arabian notions are also integrated to make Islam a unique synthesis with a total character different from that of any other religion. Today Islam can boldly insist that it is *not a religion*, a claim which adherents of other religions find incomprehensible: Islam is a *Way*. Specifically, it is the Way of *Submission*. The Deity to whom one submits is the Great Unity we know directly within ourselves, from whom we can feel estranged, and by whom we are sometimes fortunate enough to know ourselves enveloped. It seems fair to call Islam Muhammad's aesthetic vision, and to describe his Way as "the power to sing the world, and to make this song human time, human flesh."¹⁶ The *Quran* is suffused not with philosophic maxims or proverbs but with poetic feeling. *Meaning* is required to *sing* in ways even the childlike can understand. Wisdom lies not in right thinking but in active loving—"to keep life living."¹⁷

¹⁴ *Ibid.*, pp. 7 and 50.

¹⁵ *Avatāra*, p. 321.

¹⁶ *Meditations*, p. 176.

¹⁷ *Avatāra*, p. 15.

The Falsification of Theory

That Muhammad's meditation was intense enough to enable him to falsify his own theories and images of man is proved not only by the *Quran's* revisions of earlier revelations but more importantly by the *limits* it attaches to its pronouncements. We have already noted God's warning to the Prophet not to pray to excess. God addresses Jews, Christians, and Muslims alike in the admonition, "O People of the Book! Commit no excesses in your religion" (iv.171).

To be damned is to lack a sense of *limitation*, to be "a people transgressing beyond bounds" (xlivi.5). God does not demand perfection, he merely judges whether the *balance* of one's good deeds be "light" or "heavy" (ci.6-7). Perhaps the primary image in the *Quran* is Balance. God Himself "set up the Balance" (1v.7-8); instrumentation for testing *limits*. He has sent down to mankind "the Book and the Balance" (xlvi.17 and lvii.25). Nothing is physically easier nor morally more difficult for man to achieve than a sense of balance. Every great religion understands this principle and every religious fanatic forgets it. In the decades following Muhammad's death when his small army of Arab followers found themselves conquering a vast empire to the east with miraculous ease their battle cry became, "The Book and the Sword!" ¹⁸ They little suspected how already deeply rooted in neighboring cultures were ideas similar to the Prophet's, nor how much their own military success owed to the moral decay of neighboring regimes. Swords were seldom needed. To substitute the slogan of "the Book and the Sword" for the Quranic formula "the Book and the Balance" is to falsify the whole mission of Islam as the Prophet conceived it. For him pagan Arabia lacked "balance."

The notion of equity between the sexes is another Muhammadan example of balance. The limit to retribution is another. The Vedic Indians who created the ancient Hindu religion knew that "the poets are those with an ear for the

¹⁸ Bernard Lewis, *The Arabs in History* (New York: Harper and Row, 1958), Ch. 3-4. See also Gibbon (ref. 1, Chapter 1) and Guillaume (ref. 2, Chapter 2).

Norm."¹⁹ Muhammad belongs to the same poetic tradition. His *Quran* makes clear to those who study the whole of it the *norms* of human behavior. Zealots miss this point. The *Quran* prohibits certain foods and then makes clear the conditions of necessity and hunger under which they are allowable (ii.173, v.4; vi.119 and 145). It enjoins certain prayers and then makes clear the circumstances of personal danger under which they may be abbreviated or omitted (iv.101-102). The *Quran* thus interprets the command, "Commit no excesses in your religion," to apply specifically to its own commands. The *Quran* recognizes that "man in the flesh is man and circumstance."²⁰ It accepts the need for holy wars to secure the circumstances in which the Muslim can live in peace. It makes clear the equity, the balance, the norm at which the faithful must aim, and it makes clear the circumstances which invalidate or "falsify" its commands. The poets of the *Bhagavad Gītā* declare that the wise should act "without attachment, Desiring to act so as to hold the world together."²¹ Muhammad's *Quran* makes clear that Muslims should act without attachment to particulars—prepared to sacrifice all lesser values to hold the whole community together. Compared with Christianity, Islam achieves an unusual balance between concern for the individual and concern for the community, but emphasis is on the community—the context which conditions the individual. For a Muslim, Islam *is* balance. Hell knows only extremes.

The principle of balance in Muhammad is inscrutable. He scandalized his earliest followers by breaking the traditional peace at Mecca with an attack on an enemy caravan; it proved a stunning advantage. Later he dismayed the faithful by conceding, under duress when he had been captured, that the older female goddesses at Mecca did indeed share divinity. This tactical concession, easily recanted once power was regained, may have saved his life and guaranteed a future for his nascent religion, but it left many followers permanently distressed by his personal vacillation on the most important dogma of monotheism. That revelation came to Muhammad as he

¹⁹ *Meditations*, p. 162.

²⁰ *Avatāra*, p. 21.

²¹ *Ibid.*, p. 96.

claimed—straight from Gabriel, while in a trance—was once actually doubted by the very scribe assigned to preserve the divine message as it was spoken. Every artist or performer who loses himself in his message knows how ill-defined is the border between conviction and pretense. When characters are "type-cast" for a play, who can tell when they are acting and when they are only playing themselves? The *Quran* is a book which places the believer on the highest moral plane, but the Prophet himself eludes every effort to be defined or explained. Opportunism may signify cynicism, but it frequently accompanies a loftier vision than had previously been articulated.

If Muhammad is truly the "seal of the Prophets," meaning the end of Heaven's direct revelations, it is, I suggest, in the sense that the highest wisdom of which men are capable must always be "brought to earth" in the common vernacular and made relevant to the daily lives of men, women and children who are not personally creative—and the method must remain that of Muhammad, meaning that it must employ the inspiriting language of poetry, a poetry which springs guileless from the heart and shuns all purely intellectual esotericism. The *Quran's* claim that it clarifies and provides an Arabic version of man's primordial divine revelation gains considerable support from modern studies of more ancient religions. Nothing but mutual ignorance stands in the way of a sympathetic rapprochement between Islam and other religions.

What remains intrinsically dangerous to the future of Islam and the peace of many lands is its attitude towards the polytheistic religions of India and the Far East. The secularization of western nations—and the enormity of their past errors—has left them disinterested in continuing the great historic confrontation between monotheism and its parent polytheism. Towards all forms of paganism, the *Quran* shows another face. Fighting in the cause of Truth "is prescribed for you" (ii.216). As for enemies, "slay them wherever ye catch them, and turn them out from where they have turned you out" (ii.191). The first enemies of Islam were Muhammad's own people, still polytheists, and no quarter was given:

It is not fitting for an Apostle
 That he should have prisoners of war until
 He hath thoroughly subdued the land.
 (viii.67)

Later, prisoners were taken and ransomed as a source of income. An uncle of Muhammad was ransomed; he then converted to Islam and became a pillar of the new faith.²² Whole nations were to follow suit, partly because Islam reduced taxation for the vanquished who converted. Its yoke was intended to be easy. The abrupt turn from enmity to love is commanded by the *Quran*:

Fight and slay the Pagan wherever ye find them,
 And seize them, beleaguer them,
 And lie in wait for them in every strategem of war;
 But if they repent, and establish regular prayers
 And practise regular charity, then open the way
 for them:
 For God is Oft-forgiving, Most Merciful.

(ix.5)

Pagan Arabia

Of pagan Arabia we know little beyond what is inferred in the *Quran*. That it was a land which honored tradition above all else we can see from the argument given to Muhammad, and from God's caustic comment:

²² A. Yusuf Ali, p. 432, n. 1235, (ref. 5, Chapter 1).

They say: "Enough for us are the ways we found
 Our fathers following." What! even though
 their fathers
 Were void of knowledge and guidance?

(v.107)

That the Dog-star, Sirius, brightest star of the heavens, was worshipped we know from God's claim that He Himself "is the Lord of Sirius" (livi.49). That the New Moon was worshipped we know from a superstition concerning it which the *Quran* ridicules. Concerning New Moons and traditional practices:

Say: They are but signs to mark fixed periods of time
 In the affairs of men, and for the Pilgrimage.
 It is no virtue if ye enter your houses from the back:
 It is virtue if ye fear God. Enter houses
 Through the proper doors.

(ii.189)

An evil magic "such as came down at Babylon" (ii.102) apparently led to the practices catalogued in one *Sūra*:

It was not God who instituted superstitions
 Like those of a slit-ear she-camel, or a she-camel
 Let loose for free pasture, or idol sacrifices for
 Twin-births in animals, or stallion-camels
 Freed from work. It is blasphemers
 Who invent a lie against God: but most
 Of them lack wisdom.

(v.106)

There is an interesting parallel with Vedic India in the fact that in Arabic the word for moon, *qamar*, is masculine, like

*Soma.*²³ Conversely, in Arabic the sun, *shams*, is feminine; in India *Ushas*, the Dawn, is "daughter of the sun." We still know little about Semitic links with Indian thought.

The *Quran* mentions five false gods in a passage concerning Noah (lxxi.23). The shapes associated with them—man, woman, lion (or bull), horse, and eagle (or vulture, or falcon)—suggest associations with other ancient religions.²⁴ Three female deities worshipped at Mecca are also named in a passage which heaps scorn on the Arabs for considering them "daughters of God," as if the God of a people who buried unwanted daughters alive in the sand would saddle himself with female helpers:

Have ye see Lāt, and 'Uzzā,
And another, the third goddess, Manāt?

What! For you the male sex,
And for Him, the female?

Behold, such would be indeed a division
Most unfair! These are nothing but names
Which ye have devised—ye and your fathers.

(lviii.19-23)

(Lāt, Uzzā, and Manāt apparently represent the Sun, Venus, and Fortune, respectively.²⁵)

The one unforgiveable sin in the *Quran* is that of making God share with "another object of worship" (xvii.22). Pagan Arabia made Time (*Dahr*) into a deity.²⁶ Many cities also possessed a sacred stone; the black stone at the Ka'ba in Mecca is the most famous of these. When the Prophet's army finally captured Mecca his own first act was to smash the 360 idols which had been erected in a circle around the Ka'ba; for Islam, deity is One. That Muhammad deplored infanticide, un-

²³ *Ibid.*, p. 1621.

²⁴ *Ibid.*, p. 1619.

²⁵ *Ibid.*, p. 1622, and Guillaume, *op. cit.*, p. 7

²⁶ *Ibid.*, p. 1620.

restricted blood vengeance, a limitless number of wives and a heartless treatment of women, cruelty to orphans, deceit in business, the breaking of solemn treaties, and a host of habits he attributes to his own people is overshadowed by his hatred of their polytheism. His belief in the superiority of monotheism is a pure postulate, an unexamined assumption rooted primarily in feeling. Nowhere does the *Quran*—or the *Bible* before it—attempt to justify monotheism by *explaining* why it is superior. Like Einstein's belief in a unified "field theory" despite his inability to produce one, faith in monotheism carries so powerful a personal conviction that opposition hardly registers on the believer. Any ideology which can command our assent to one fixed proposition attains a very great hold over all that we shall ever understand. Muhammad, seemingly paradoxically, remains free from the consequences of the ideology he preaches. His convictions cannot be doubted; they fueled his energies, but never paralyzed them. This messenger of love knew well how to hate. His hatred of polytheism is cheaply imitated by followers who know even less history than he did.

Today we realize that "no one religion, school of philosophy, theory of reason, truth, language, and knowledge can justify itself without presupposing itself."²⁷ We cannot fault Muhammad for failing to justify his monotheism: "Philosophy is not just giving reasons; reasons are given because there is already 'philosophy.'"²⁸ In the 7th century A.D. the Egyptian hieroglyphs were unreadable, Babylonian cuneiform tablets were undisturbed in their sandy graves, Sumerians were not yet heard of, and Vedic India was a vague memory even in its own land. There was no way Muhammad, or anyone else who lived before the 19th century, could have known the literature of these ancient peoples and could thus have understood that every human value prized in the *Quran* was developed thousands of years earlier within these parent polytheisms—including even the principle of "Oneness" or centricity always embodied by the highest gods.

Within the last century psychology has taught us to recognize the contention of plural personalities for dominion

²⁷ *Avatāra*, p. 27.

²⁸ *Ibid.*, pp. 44 and 302.

in our souls. Monocentricity and polycentricity, "are each styles the human body can choose for self-expression. Fundamentally, neither form of personality is radical to man ..." ²⁹ A "pluralistic society," as modern democracy likes to view itself, has a considerable affinity with polytheism—which is essentially the deification of plural values. In India and the Far East modern Islam is in direct competition with Hindu and Buddhist polytheism not merely for the loyalty of believers but for land, water, produce, trade, or in short, for sheer survival. More millions of lives are involved than Muhammed ever dreamed could populate the earth. The old religious chauvinism he embodies is more dangerous than ever. The modern world is being forced to re-evaluate polytheism both because of new knowledge of the ancients and new crises within ourselves:

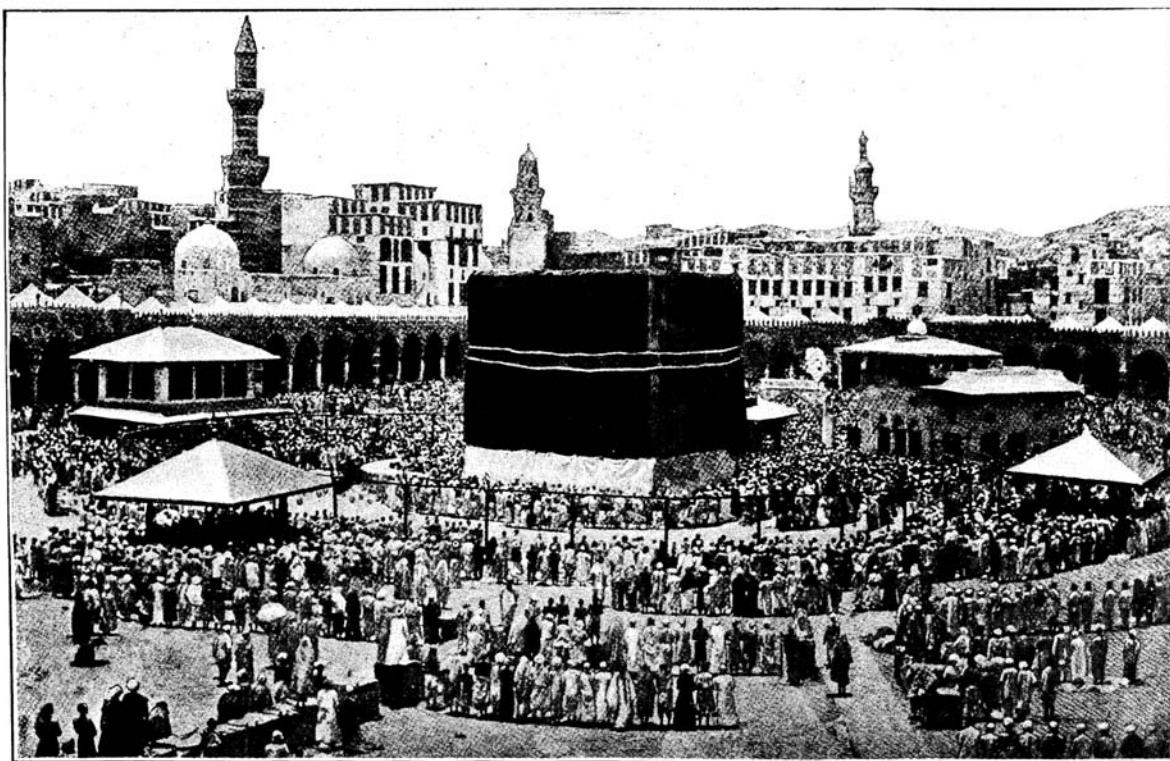
Polytheism in the human body is a psychological response to the challenge of breakdown and disintegration; it is a model for integrating disintegration.
³⁰

This kind of understanding grounds the human bias toward polytheism or monotheism not so much in ideas as in feeling. In both cases the believer is protecting the *integrity of self* and its union with the world.

A reconciliation of Quranic monotheism with its polytheistic forebears would create a new climate in the East. For the Muslim world that reconciliation can be effected only through the *Quran*—which creates the total mental horizon for many believers. One promising path, I suggest, is to study the Ka'ba, Islam's holiest object, until we can appreciate the layers of meaning which this sacred mosque and its associated rites embody. My next chapter is an adventure in mythic imagination, centered on the Ka'ba, where pagan ritual is transformed into Islam's most cherished rite. Islam's claim to be the primordial religion of man, can be validated, I suggest, only by proving *how* the parent pagan polytheism itself contained the essential core of monotheism.

²⁹ *Meditations*, p. 141.

³⁰ *Ibid.*, p. 129.



Pilgrims around the Kaaba in the sacred mosque at Mecca. From The Mohammedan World of Today by Zwemer, Wherry and Barton, F. H. Revell Co., New York, 1906.

Chapter 3

Tones, Stones and Sacred Cubes:

The Quranic Transformation of Arab Polytheism

The Ka'ba as "Holy Cube"

The most sacred symbol for Islam is its Holy Mosque in Mecca known as the Ka'ba, meaning "cube." To make the pilgrimage to Mecca and circumambulate the Holy Cube in remembrance of Muhammad and the original Abrahamic revelation is not merely a solemn duty enjoined by the *Quran* but the greatest privilege in life for every Muslim who can manage it. (See ii.158 and 196-203; iii.97; and xxii.26-33). Planning the logistics of a desert pilgrimage has always taxed human ingenuity. The technology required for a modern

pilgrimage involving millions of people, all wanting to share the ten holiest days in the month of Zul-hajj, is rapidly modernizing Arabia and affecting the whole Muslim world. The pilgrimage to Mecca has become one of the greatest social rites in human history.

Why the holiest object for any people should be a *cube* is an unsolved puzzle for historians. The resurrection city of New Jerusalem, described in the Christian *Revelation of St. John*, is a cube measuring 12,000 cubits on each side. The "Holy of Holies" in Solomon's temple is a cube of 20 cubits on each side.¹ The chapel in the temple of the Egyptian goddess Leto, in the city of Buto near the mouth of the Nile, was cut from a single cubic stone 40 cubits (approximately 60 feet) on each side.² The sacred space in every Hindu temple is an empty cube. The Greek altar at Delphi is a cube inscribed enigmatically with the letter *P*, presumably an allusion to *penta* meaning 5.³ (The central problem of classical Greek geometry is that of "doubling the god's cubical altar at Delphi," a problem requiring the construction of the cube root of 2, accomplished brilliantly by a geometric construction of Archytas, and provocatively by a mechanical solution attributed to Plato.⁴) Thousands of years before the Greeks, the Sumerian ark which rescued a remnant of mankind from the primordial Mesopotamian flood is also a cube—the cube of 60, a value associated with Anu-An, head of the Sumerian-Babylonian pantheons.⁵ In the base-60 "sexagesimal" arithmetic of these early astronomers, several of the first 60 numbers were gods; Anu-An = 60 = 1 was written simply as large 1, meaning any positive or negative power of 60, hence the head of this polytheistic pantheon already stands for unity within the perspective of multiplicity. Not until prime numbers were better understood—leading to an appreciation of the "basic

¹ *Revelation*, 21:15, and *I Kings*, 6:20.

² Herodotus, *The Persian Wars*, trans. by George Rawlinson (New York: Random House, 1942), p. 196, Bk. II, Ch. 155.

³ Plutarch, "The E At Delphi," *Moralia V*, trans. by F.C. Babbitt (Cambridge: Harvard University Press, 1936 and 1969), pp. 194-253.

⁴ B.L. van der Waerden, *Science Awakening* (New York: John Wiley & Sons, 1963), pp. 156-165.

⁵ E.A. Wallis Budge, *Amulets and Talismans* (New Hyde Park: University Books, 1961), p. 427.

theorem of arithmetic" that all numbers can be conceived as the products of primes—can we expect a reduction to One God, grounded on the insight that 1 is the sole generator of primes and hence of all that can be called number. The Ka'ba as a holy cube of an illiterate desert people is probably an idea originally borrowed from more sophisticated and mathematically-minded neighbors. It ties Islam securely to the polytheisms of Mesopotamia, Egypt and Greece. I shall try to make plausible here the interpretation of the Ka'ba as an incarnation of the symbolism in the original Sumerian ark.

The Ka'ba was ancient when Muhammad was born. Originally it stood alone on a small mound in a valley, and his Quraish tribesmen inhabited the enclosing hills.⁶ The Ka'ba was then a sacred refuge for all the surrounding tribes, who were guaranteed free access during the holy months, when a truce in their interminable warfare was scrupulously observed. A few generations before the Prophet was born his people moved down into the valley surrounding the Ka'ba, and Mecca gradually became a city. The Arab calendar was lunar, with an occasional intercalation of an extra month to bring it into better harmony with the solar year. Whoever controlled the calendar at Mecca automatically determined which months were sacred, and in which fighting was therefore proscribed. By manipulating the calendar it was sometimes possible to surprise a traditional enemy without technically violating the customary truce. In pagan Arabia the Ka'ba was thus both sacred and the center of controversy. Muhammad experienced great difficulty in establishing Islam's right of access to the Ka'ba. In 630 A.D., two years before his death, he finally conquered his own tribesman, who had proved themselves his worst enemies, and Mecca has since been Muslim—and access to the Ka'ba has been denied the non-Muslim.

The Ka'ba unifies ancient and modern Arabia. The annual pilgrimage to it, its circumambulation seven times, and the kissing of its sacred stone were rites Muhammad observed in his youth—and probably could not have expunged from Islam had he so desired. The transformation of the Ka'ba from

⁶ Emil Esin, *Mecca the Blessed Madinah the Radiant* (London: Elek Books, 1963), pp. 15-27.

central pagan symbol to central Islamic symbol is one of the most brilliant achievements of the *Quran*. To understand exactly how this transformation was accomplished we need more information than we now possess about the Ka'ba rites in Muhammad's youth. The story that when he captured it in **630** A.D., he rushed inside to embrace the images of Mary and Jesus painted on its walls, ordering these images alone to be saved and all others destroyed, raises more unanswerable questions about earlier relations with Judaism and Christianity.⁷ (These images were expunged in later reconstructions). What is certain is that neither stones nor cubes were intrinsically sacred to Muhammad, who hated every kind of superstition. They are Islam's ties, however, to its polytheistic roots.

Origin of the Ka'ba

The *Quran* credits Abraham and his eldest son, Ishmael (Ismā'il), born to Sarah's maid, Hagar (Hājar), with building the first Ka'ba (ii.124-127). Since the Jews claim descent via Abraham's *second* son, Isaac, born when Abraham was 100 and Sarah was **90**, the *Quran* successfully legitimizes Islam's claim to "priority" in establishing a direct link with Abraham. In Islamic lore it is Ishmael, not Isaac, who unsuspectingly allows his father to lead him to be sacrificed on the holy mountain; it is Ishmael, when he finally understands what is to happen, who gladly offers himself to his father for the sacrifice. When the revelation comes that *human* sacrifice is not what God desires, and a lamb mysteriously appears as a substitute, it is Ishmael and Abraham who build the first temple, the Ka'ba, in joyful thanksgiving. Its site is at the Zam-zam ("humming") well where Hagar, fleeing with her infant son from Sarah's wrath, found succor.⁸ The Biblical story of Ishmael ("God

⁷ Guillaume, *op. cit.*, p. 14. (ref. 2, Chapter 2).

⁸ Esin, *op. cit.*, pp. 18-19.

hears") in Genesis 16 obviously made a profound impression on Muhammad. Ishmael, banished from home but promised "descendants that cannot be numbered for multitude," provides a ready-made myth-of-origins for a Muslim.

In the Hebraic tradition eldest sons belong to God. By substituting Ishmael for Isaac in the revelation story the *Quran* creates for Islam a prestigious beginning whose historicity defies examination. An elder brother merely regains his birth-right, and a Mosaic prophecy is fulfilled. Thus Islamic self-identity is guaranteed not by the Prophet and the *Quran* but by the *Bible* itself. Could sacred history display more genius?

Dimensions of the Ka'ba

What seems most curious about the Ka'ba is that it is not a cube at all—and apparently never was. Today the building actually measures about 10 meters wide, 12 meters long, and 16 meters high, not even close to being a cube.⁹ According to tradition, an earlier Ka'ba was trapezoidal; its four sides measured 20, 22, 32, and 37 ells respectively, and the side which measured 22 ells was curved, and it had no roof.¹⁰ Ishmael allegedly had brought a rock for Abraham to stand on so that the sides could be raised to a height of 9 ells, a story which altogether destroys any effort to conceive of the building as a *physical* cube. The mound on which the Ka'ba stood gradually became a depression as alluvial mud raised the level of the surrounding area, and the building was repeatedly damaged by floods. A fire damaged the Mosque in 605 A.D., and a subsequent flood made it necessary to demolish and rebuild

⁹ Titus Burckhardt, *Art of Islam: Language and Meaning* (London: World of Islam Festival Publishing Company, 1976), pp. 35. In *An Encyclopedic Outline of Masonic, Hermetic, Qabbalistic and Rosicrucian Symbolical Philosophy*, by Manly P. Hall (San Francisco, 1928) p. 191, the measures are given in feet as approximately 30 x 35 x 38. If archeological excavations are ever permitted in this sacred place we may gain new insight into the builders' intentions.

¹⁰ Esin, *op. cit.*, pp. 22, 46, 73, and 133-144.

the whole edifice, a task in which Muhammad himself assisted. It was this rebuilding which supposedly restored the original dimensions of the base. At this time the height was increased to **18** ells; the wreck of an Egyptian ship provided wood for a roof, and apparently also a Coptic carpenter with the necessary skill. Repairs and additions continued to be made; by the 17th century, under Turkish rule, the Mosque acquired seven minarets. Another total reconstruction during that century attempted to restore the appearance of Muhammad's time.

The *Quran* is silent on the dimensions of the Ka'ba. Why the holy cube of a people as geometrically minded as Muslims should depart so much from a cubical shape is cause for wonder. The sanctity of the Ka'ba and the oft-noted "geometrical genius" of Islam forbids us to suppose that departures from standard equal cubic measures could be an error. A cube which is not a cube and yet which stands as the holiest possession of a geometrically minded people is a paradox inviting explanation.

A Theory of Proportion

What follows is an adventure in imagination which aims at grounding the Ka'ba's proportions in the sacred sciences of earlier civilizations. Since Islam already claims a very great antiquity for the Ka'ba, any explanation which appears plausible will merely have the effect of supporting the Islamic claim. My argument is based on the very interesting coincidence between the Ka'ba's *proportions—not* its absolute measures—and those of the Temple of Poseidon in Plato's myth of Atlantis, a myth which has proved capable of very detailed explanation by the methods and metaphors of the Pythagoreans.¹¹ The temple of Poseidon is described as involving the ratios "6:3 *plethora (full)*" meaning 6:5:4:3. The Ka'ba's proportions are precisely these:

¹¹ See my book, *The Pythagorean Plato* (Stony Brook: Nicolas Hays Ltd., 1978), chapters 2 and 7 for a detailed exposition.

	Width	Length	Height
Measures (in meters)	10	12	16
Proportions (in smallest integers)	5 : 6		
	3 : 4		

We can say that the Ka'ba "embodies" the ratios 3:4:5:6, the numbers 3 and 6 being an "octave identity" in Pythagorean harmonic theory. We are investigating not the *visible* geometry of the *Ka'ba* but the proportions which have their meaning in the *invisible* sonar implications of a number theory which the whole ancient world shared in common for several millenia before Muhammad. Muhammad, as an "unlearned" man, has no share in this ancient science; he is merely the agent—as he conceived himself to be—by which ancient knowledge came to new life in Arabia. Before embarking on our new study of the Ka'ba, let us first notice the role which *number* plays in the *Quran*. My whole study would be invalidated—at least for a Muslim—if the *Quran* itself did not virtually ignore geometry and laud, instead, *number* and *proportion*.

Number and Proportion in the Quran

God Himself announces to us: "Verily all things have We created in proportion and measure" (liv.49). "He grants by (strict) measure" (xxix.62). His bounty is sent down "in due measure as He pleases" (xlii.27). All of the "beings in the heavens and the earth" He has numbered "exactly" (ix.93-94). When He first bestowed His blessings during the creation of the earth, He "measured therein all things to give them nourishment in due proportion" (xli.10). The *Quran* could not be more emphatic that God Himself *measures* and *numbers* all things to ensure *proportion*: "No want of proportion wilt thou see in the Creation of God Most Gracious" (lxvii.3). In this context, we dare not assume that the size and shape of the

Ka'ba could be an accident. In studying the Ka'ba by the ancient laws of number and proportion we shall be using the historic methods postulated both by the Bible and by the pagan religions of Greece, Egypt, Mesopotamia, India, China, and Central America. We may err, of course, but our method seems certain to be an effort in the right direction.

God measures by *counting*, but his favorite procedures are *division* and *multiplication*. The whole of mankind is created "from a single person" (iv.1), or "from a sperm-drop" (xvi.4). *Duality* follows: "Then He made you in pairs" (xxxv.11). The duality of the sexes is part of a wider duality permeating the whole of nature: the earth itself "puts forth every kind of beautiful growth in pairs" (xxii.5). At the time of creation, "He sent down for you eight head of cattle in pairs" (xxxix.6) alluding to sheep, goats, cattle, and oxen. Creation actually includes two Easts, two Wests, two Gardens, "fruits of every kind, two and two" (lv.46-52), a rampant duality. "Messengers with wings"—the angels are granted "two, or three, or four Pairs . . . as He pleases" (xxxv.1). "We have made the Night and the Day as two" (xvii.12).

God has *divided* the year into twelve months (ix.36). He has similarly divided "the people of Moses" into twelve "tribes or nations" (vii.160).

In the parable of a "grain of corn," God points out that he *multiples* it to "seven ears, and each ear bath a hundred grains," a multiplication by 700. God *increases* the strength of those who fight in his cause a hundredfold:

If there are twenty amongst you, patient and
persevering,
They will vanquish two hundred: if a hundred, They
will vanquish a thousand.

(viii.65)

At a time when Muhammad's fighting force was weakened by internal dissension, God still promises a tenfold increase:

If there are a hundred of you, patient and perserving,
 They will vanquish two hundred, and if a thousand,
 They will vanquish two thousand, with the leave of
 God.

(viii.66)

Islam's early victories against very great odds made clear that these were not idle boasts. The almost magical disparity which sometimes appears between observable cause and obvious effect always resounds to God's credit—he multiplies by ten the credit for a good deed (vi.160)—and discourages interest in causation of the kind Aristotle taught the West.

The next most important number after two is seven. God has created "seven heavens, one above another" (lxvii.3; xvii.44; and lxxi.15), apparently alluding to the sun, moon, and planets. He has also provided Hell with "seven Gates" (xv.44). Pilgrims to Mecca still cast seven stones at the Devil and circumambulate the Ka'ba seven times. The kernel of corn mentioned above grows a stalk with seven ears. The wicked people of "Ad," whoever they were, were destroyed by a wind which raged against them "seven nights and eight days" (lxix. 7).

All the numbers from 1 to 12 are mentioned at least once. There are *three* classes of men (Ivi.7-56). "*Three* veils of darkness" cover an unborn child (xxxix.6); for the expiation of a futile oath, "fast for *three* days" (v.92). There are *our* "sacred months" during the year (ix.36); charges against a woman's chastity must be supported by *four* witnesses (xxiv.4); up to *four* wives are permitted; angels, as noted earlier, may have as many as *four* pairs of wings, and *four* pairs of cattle were provided at the Creation. One prayer begins with an allusion to "the Nights twice *five* (lxxxix.2). God "created the heavens and the earth" in *six* days (vii.54). *Eight* angels will "bear the Throne of thy Lord" on Judgment Day (lxix.17). God provided Moses with "*Nine* Clear Signs" of His power to show Pharaoh (xvii.101). For an alternative expiation of a futile oath, "feed *ten* indigent persons" (v.92). In retelling the Biblical story of the boy Joseph, we hear:

"O my father! I did see *eleven* stars
 and the sun and moon:
 I saw them prostrate themselves to me."

(xii. 4)

Months and Hebrew tribes are *twelve*, as noted.

From 12 to 100 only a few numbers are mentioned. There is an enigmatic reference to "Nineteen Guardians of the fire" (lxxiv.30). A child is carried and nursed for "thirty months" (xlvi.15); Moses communed with his Lord for thirty plus ten or "forty nights" (vii.142); a man reaches "the age of full strength" at forty years (xlvi.15). Moses chose "seventy elders" to accompany him on the mountain (vii.155); the damned carry a chain "seventy cubits" long (lxix.32). Punishment for making false charges against a woman's chastity is a flogging of "eighty stripes" (xxiv.4). If a man or woman commits adultery or fornication, "flog each of them with a *hundred* stripes" (xxiv.2).

Larger numbers are very scarce. The "parable of the Sleepers" is indifferent as to whether their actual numbers are 3, 4, 5, 6, 7, or 8; they sleep in their cave for 300, or as some say, 309 years (xviii.25). A "Night of Power" is described as "better than *a thousand* months" (xcii.3). Jews covet life so much they would live a *thousand* years if they could. "A Day in the sight of thy Lord is like a *thousand* years of your reckoning" (xxii.47). Angels ascend to God "in a Day the measure whereof is (as) *fifty thousand* years" (lxx.4). The veils of God's light alluded to in Sara xxiv.35 are numbered in one *Hadīth* as *seventy thousand*.¹² The largest number mentioned in the *Quran* is a casual reference to the biblical Jonah being sent on a mission to "a *hundred thousand* (men) or more" (xxxvii.147). (The *Book of Jonah* being alluded to actually gives the exact number as 120,000.)

The *Quran's* concern with number and proportion is impressive. Yet the only numerical mysticism evident in Muhammad is his affection for *duality*, a primary principle in virtually all ancient art, philosophy, and religion, and for the number 7, deeply embedded in the Semitic tradition. In

¹² A. Yusuf Ali, p. 923. (ref. 5, Chapter 1).

stressing the importance of number and proportion Muhammad has correctly identified the principles of ancient harmonic cabalas, but he seems to have done so in all innocence by echoing the *Bible*, where they do play a functional role. His own affection for number is of a more general kind: "If ye would count up the favours of God, never would ye be able to number them" (xvi.18). Even if illiterate, as a merchant-trader Muhammad would have been expert in counting. But the harmonical science we need here has not been documented in Arabia before the great revival of music and mathematics in the following century, after the conquests of Egypt and Persia.

I hasten to concede, however, that there may well be harmonic lessons encoded directly in the *Quran* and not visible to me. Letters of the alphabet had constituted a numerical notation at least as early as the 5th century B.C., and 29 Sūras have inexplicable groups of letters prefixed to them, perhaps a numerical code not yet deciphered, but one certainly accessible to Islam by the time the *Quran* was codified. The letters A.L.M., for instance, are prefixed to 6 Sūras (ii, iii, xxix, xxx, xxxi, and xxxii). Could they mean 1.30.40, in accordance with the numerical alphabet? I must assume that if there is a numerical cabala in the *Quran* itself, as some claim, that it should be credited to its editors and not to Muhammad, for such a code is not consonant with his heroic effort to speak plainly.¹³ My exposition is based upon new insights the modern world has attained into the Pythagorean symbolism of earlier cultures—knowledge that was probably as dormant in Muhammad's Arabia as music itself, whose instruments had remained virtually unchanged from those of Mesopotamia and Egypt three thousand years earlier, but whose songs were only those of the women greeting a visitor or mourning a loved one, or of a camel driver encouraging his steed. Muhammad was the instrument by which the ancient arts and sciences revived, and his love for the Ka'ba cemented past and future probably in more ways than he knew.

¹³ Seyyed Hossein Nasr, *An Introduction to Islamic Cosmological Doctrines* (Boulder: Shambhala, 1978), p. 50. According to Nasr, there are "actually thirteen different systems of numeral symbolism" employed within a few centuries of the appearance of the *Quran*. See also A. Yusuf Ali, p. 118.

Proportion as "Music"

We have noted how the Ka'ba's *measures* embody the *proportions* 3:4:5:6, with 3 and 6 coinciding. With this observation we are moving from the realm of visible appearances into the "reality" of a number theory probably first developed by priest-mathematicians. The principle of *duality* in ancient art, philosophy, and number theory requires that we investigate the opposite meanings of all numbers, that is, as multiples and as submultiples of some basic unit. Note the fractions involved:

Multiples 3 : 4 : 5 : 6 (i.e., *Increase*)

Submultiples 1/3 : 1/4 : 1/5 : 1/6 (i.e., *Decrease*)

To unify these opposites and bring them together in one perspective, we must clear fractions, a fundamental procedure in early Egyptian, Babylonian, and Greek mathematics. Fractions are cleared by finding the *least common multiple*. In this case it proves to be 60, written simply as a large "One" in Babylonian cuneiform, and representing Anu-An, head of the pantheon. Notice the resulting integer set:

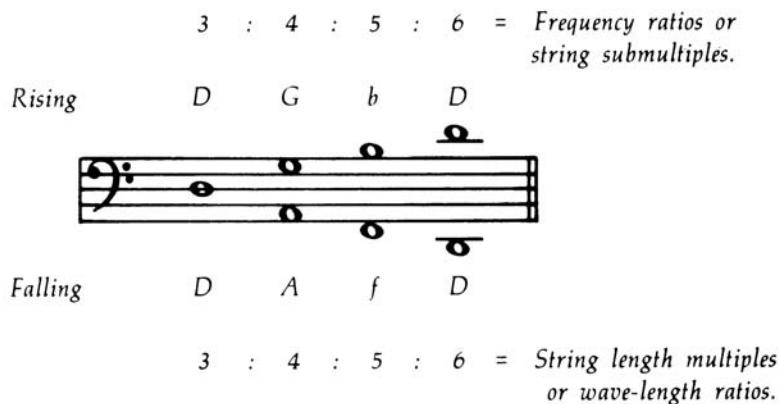
Multiples	3	4	5	6		
	3 0	: 3 6	: 4 0	: 4 5	: 5 0	: 6 0 = I n t e g e r
Submultiples	1/6	1/5	1/4	1/3	set	

Why the ancients called such a "theory of proportions" simply "music" can be understood best from the Greek monochord or the early Sumerian-Egyptian harps where its elegance and simplicity was probably first discovered, in a context which revealed to the ear a symmetry not actually visible to the eye. As *multiples* of string length, increasing integers define a falling tonal progression whose vibration rates decrease reciprocally. Conversely, *submultiples* of string length correlate with *multiples* of frequency rates. Division and multiplication are the procedures relevant both to God and to "music" theorists. The most important principle is the "polarity of opposites," which must be respected to keep the resulting

world "in Balance." The most important number is the "female number" 2 which splits the primal unity, creating for the musician the octave matrix, ratio 1:2 (now expanded in our example to 30:60), within which "space" all new tones come to birth.

Tonally, 3:4:5:6 defines the frequency ratios of a rising major triad and the string length ratios of a reciprocal falling minor triad, the numbers 3 and 6 proving to be merely the "octave identity" 1:2.

Chart 1. The Musical Ratios 3 : 4 : 5 : 6



Numbers can be conceived as both multiples and submultiples of string length, in the ancient manner, or as ratios of frequency or wave length, in the modern manner. The rising sequence is a major triad; the falling sequence is its reciprocal minor triad. Ancient harmonical theory respects this fundamental duality; Plato's harmonical constructions require opposites to be considered simultaneously. Note that I employ capital letters for tones linked to each other by fifths 2:3 and fourths 3:4, and small letters for tones linked to them by major thirds 4:5 and minor thirds 5:6.

In the Semitic tradition God creates the world in 6 days and then rests on the 7th. The numbers from 1 to 6, in the ratios 1:2:3:4:5:6, determine the musical models for Plato's *Republic*, models relevant to the numerology of the *Bible*.¹⁴ These ratios are present in the Ka'ba. The reciprocity of "opposites" always involved makes 60 the logical base from

¹⁴ See my book, *The Myth of Invariance: the Origin of the Gods, Mathematics and Music from the Rg Veda to Plato* (New York: Nicolas Hays Ltd., 1976), pp. 107-128.

which to proceed. Babylonian sexagesimal arithmetic on base 60, used by astronomers in the time of and in the land of Abraham, legendary builder of the Ka'ba, is designed precisely for the "musical" development of the Ka'ba's ratios. (In more formal language, reciprocals generated by the ratios of the first six integers will be "regular numbers," meaning that they can always be expressed as finite sexagesimal fractions.) If the Ka'ba was deliberately proportioned to embody the ratios 3:4:5:6, the same intelligence would have read these numbers as an allusion to 60, least common multiple, the "deity" which makes these numbers functional. Notice that $3 \times 4 \times 5 = 60$. The ratios 8:9:10 belong to subsequent operations with the first 6 numbers, but the prime number 7, holiest of all numbers in the Semitic tradition, is excluded from this basic sexagesimal development and reserved for a special role.

The Ka'ba's Proportions in Lattice Array

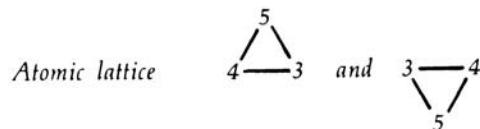
From Nicomachus of Gerasa, a Syrian Semitic mathematician of the first century A.D., we learn how to graph the numbers used in ancient ratio theory in abstract "pebble" arrays, far more convenient than the alphabetical number notation then available to him. Pebble notation is perhaps older than the development of written languages.¹⁵ These pebble patterns of early calculators can be read directly as Arabic lattice designs, and may explain why stones play so prominent a role in the sacred symbolism of both Vedic and Semitic peoples. One principle stands supreme over tones, numbers, and lattices: SYMMETRY! The reader who cannot follow my exposition of number theory can grasp the *patterns* involved merely by studying the *visual* symmetries—rotational, translational, and enantiomorph (right-left inversion)—in the lattices. In a sense, we are studying the "deification" of 60, which is translated into the letter *D* in my tonal notation (because *D*

¹⁵ *Ibid.*, pp. 45-48, and *The Pythagorean Plato*, pp. 62-63.

happens to be the center of symmetry in our modern tonal language). What is confusing to the uninitiated is that numbers have no fixed value at all. It is *ratios* which remain invariant while numbers are freely multiplied and divided, always with the purpose of avoiding fractions, and always with the understanding that multiplication or division by 2 merely produces "octave replications" of the reference tone. The basic lattice for the whole sexagesimal development (shown in Chart 2) can be reduced to Socrates' formula, "4:3 mated with the 5."¹⁶

Chart 2: Tonal lattice for the formula, "4:3 mated with the 5."

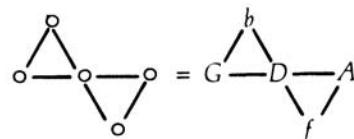
Proportions:	3	:	4	:	5	:	6
Tones: rising	D		G		b		D'
falling	D		A		f		D'



The 6 Directions: 3:4; 4:5; 5:6 or 5:3



Summary:	30	36	40	45	50	60
rising	D	f	G	A	b	D
falling	D	b	A	G	f	D
formula	3	:	4	:	5	:
	5	:	6		3	:
			4		5	4



Numbers possess no absolute value; they are assigned according to the rule of "smallest integers for each context, hence only ratios remain invariant. This particular graphic layout is chosen for convenience later.

¹⁶ Republic 546.

The chief gods of the old Semitic pantheon, anathematized by Israel and banned from Mecca, are sufficient in themselves to define all of this tonal material:

Anu-An $60 = D$ and D'

Enlil $50 = b$ and f

Ea-Enki $40 = A$ and G

Anu-An = 60 is merely an "octave replication" of the moon-god Sin = 30, which in turn is merely the octave of Ishtar = 15, the female goddess of love, the real center of affection. But Anu-An = 60 is written simply as a large "1" in cuneiform, and represents *any positive or negative power of 60* because of the "place-value" characteristic of Babylonian notation. In our base-10 notation, "1" never suffers these sexagesimal transformations which ancient astronomers and geometers found useful, and no other number is really deified, hence God truly stands alone in his primal unity = 1. The high gods of the old Semitic pantheon are vanquished by the "One" God in our Hindu-Arabic fractional notation:

30	40	50	60
1/2	2/3	5/6	1

(This example is incomplete, for the Babylonian numerals represent multiples and submultiples of any power of 60, according to place-value, so that an endless number of digits and fractions would be required to show equivalences between the two systems.)

The "Cube" Number in Ratio Theory

The proportions of the Ka'ba have led us to the ancient deity associated with the number 60. The conception of the building as a cube, I suggest, means that we are to think of it as

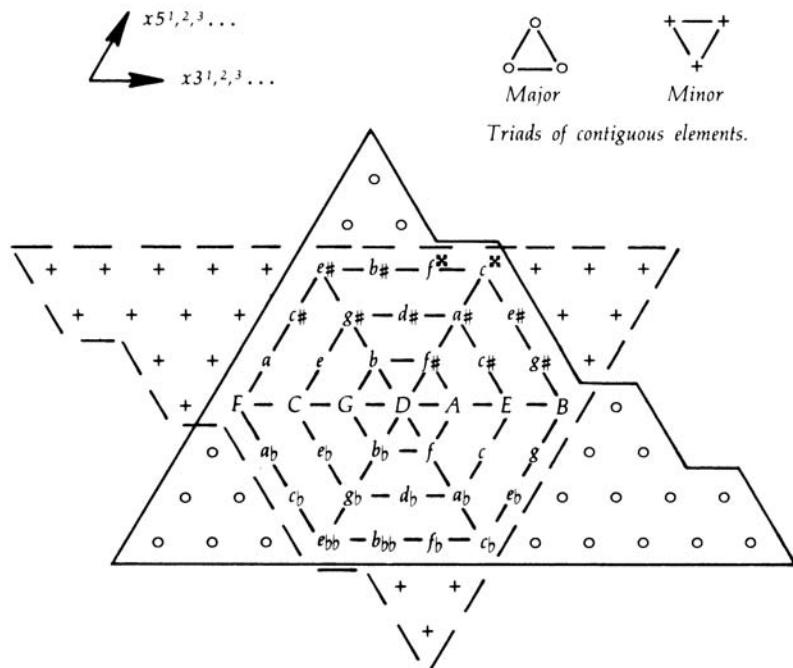
the cube of 60, meaning $60^3 = 216,000$. In sexagesimal notation it would have been written simply as a large "one," for the actual value of any digit, like those in our own base 10 arithmetic, depends upon its *place*; *context* determines meaning.¹⁷ Anu-An = 60 always represented unity, and was so written. Now we can always conceive of any number as constituted by a "multiplicity of 1's" and thus find the One God of monotheism everywhere, but why should Unity be equated with 216,000? This number is the measure of the Sumerian ark. It defines the cycle of Prajāpati, "Lord of Creatures" in Hindu mythology. It defines the unit radius in Ptolemy's great circles when its sexagesimal unity is further subdivided into minutes and seconds. It is the number of integral divisions within the octave 1:2 expanded to 216,000 : 432,000 on the monochord on which Ptolemy recorded, in the 2nd c. A.D., all of the ancient tunings known to him. (The octave 1:2 corresponds to the ratio of radius : diameter in his great circles, and is similarly subdivided.) The cube of 60 happens to be one of the most important numbers in history. Its "double," 432,000, the limit of a musical octave containing $60^3 = 216,000$ subdivisions, is the Kali Yuga number from which all Hindu time periods are calculated. To discover why the cube of 60 and its "double" = 432,000 are important to the ancients we shall adopt their methods and develop an appropriate lattice.

The Cubic Lattice

The lattice relevant to the octave-double $2 \times 60^3 = 432,000$ units is the "Holy Mountain" of Chart 3. Notice that its envelope is basically triangular, but with a jagged third side reminiscent of the thunderbolts of mountain deities. Notice that of the 58 elements graphed in this array, 37 elements, which are given modern tone names, are shared in common

¹⁷ *Science Awakening*, 37-45.

Chart 3: The Cubic Lattice as "Holy Mountain"



This lattice can be reduced to the multiplication table for 3×5 because powers of the female number 2 can only produce cyclic "octave-equivalences." Tones sharing the same letter names never have quite the same pitch.

with the "inverted mountain" which charts our reciprocals. Every triad of neighboring elements possesses the ratios of the atomic lattice in figure 2. Across the central axis are the seven tones *F C G D A E B* belonging in common to the ancient Pythagoreans, Babylonians, and Chinese. These are the basic tones of Gregorian chant in Christian Europe, and their seven modal permutations were known to the Arabian musicologist Ibn Misjah (died c. 715 A.D.) as they had been known in Greece a thousand years earlier, and in Babylon still earlier.¹⁸ Tones in higher or lower rows of our array are simply transpositions of this basic set. Notice also that the 37 tones belonging to both

¹⁸ Henry George Farmer, "The Music of Islam," *The New Oxford History of Music*, vol. I (London: Oxford University Press, 1957), p. 448.

Chart 4. Scriptural Geometry



**LA ILAHA ILL-ALLAH
MUHAMMAD RASUL ALLAH**

**There is no god but Allah
Muhammad is a Messenger of Allah**

Arabic script has become a beloved art. The horizontal, vertical, and diagonal alignments of the "Holy Mountain" in the preceding illustration are found here in this fanciful scriptural design.

envelopes constitute a nest of hexagons, or "wheels within wheels," like those in Ezekiel's vision. This construction is unique; within the whole realm of "music"—meaning *ratio theory* as it was practised by the ancients only the Kali Yuga number, 432,000, can produce this nest of hexagons. Multiplication or division by 2, 3, or 5 will change the shape of the lattice sufficiently to destroy the hexagon, and no other primes are relevant to our tuning. The 37 elements in the hexagonal wheels have a surprising relevance to trigonometry, and hence to ancient astronomy.

Before developing trigonometric implications, I owe the reader who wants to verify this lattice array for himself a few words of explanation.

- The Holy Mountain of Chart 3 is simply the multiplication table for 3×5 , with the factors of 3 graphed along the base → and factors of 5 graphed along the diagonal ↗. The

third side is abruptly terminated by the limit of 432,000, which produces the jagged "lightning." From this perspective, the "pebble" counter in the lower left corner is both $3^0 = 1$ and $5^0 = 1$. There are 12 elements along the base because $3^{11} = 177,147$ is the largest power of 3 within our limit; there are 9 rows because $5^8 = 390,625$ (at the apex) is the largest power of 5 within our limit. Powers of 2 are ignored because they produce only octave equivalences. Our table, then, is restricted to the "male" odd numbers, 3 being "divine" and 5 "human" in the ancient mathematical metaphors and their products are "male" children.

- The center of symmetry on D is the fourth counter in the fourth row because $60^3 = 216,000$ and its "double" 432,000 both contain 3 powers each of 3 and 5, thus we count three places to the right and three rows upward from the reference unit in the lower left corner.
- The model is complicated by "octave equivalence," meaning that powers of the female number 2 are either used or ignored, depending upon our point of view and particular purpose.
- The same diagram can also be produced, far more laboriously, by starting from its center of symmetry on D and then charting the generative ratios in the relevant "six directions," according to the atomic lattice in Chart 2. Remember that the upper limit of the octave is 432,000, and the lower limit is 216,000, and that they are cyclic identities. Multiply by 3/4 or 3/2 (as required in order to remain within the bounding limits) to move to the right within the lattice, and by 2/3 or 4/3 to move to the left. Multiply by 4/5 or 8/5 to move downward along the diagonal \swarrow , and by 5/8 or 5/4 to move upward \nearrow . (Alternately, multiply by 6/5 or 3/5 to move downward along the other diagonal \searrow , and by 5/6 or 5/3 to move upward \nwarrow .) The envelope indicates *integer limits*. This is a poor way to construct the table, but it may prove to be a useful exercise in Pythagorean thinking. The numbers which result from these operations function as ratios of frequency for the tones indicated. Reciprocals are ratios of string length (or, in modern concepts, wave lengths).

- Every element in the table possesses a reciprocal along an axis drawn directly through D, the center of symmetry, and extending an equal distance on the other side. For instance, G and A are reciprocals; so are g and a, which actually lie slightly closer to D. The tonal notation given here is mainly of algebraic significance in expanding the atomic lattice; it is not sufficiently subtle to indicate the precise pitches of the numbers. When the same letters occur in consecutive rows, the tuning actually varies by the so-called "syntonic comma" of ratio 80:81. Such complexities, which I have treated in full elsewhere, do not belong in a book on the *Quran*.

Trigonometric Functions of the Lattice

From some unknown early period in history, the "Pythagorean theorem" provided for the definition of certain angles by its insight that the square on the hypotenuse of a right triangle equals the sum of the squares of the other two sides. By the time of Abraham, the Babylonians appear to have known the general formula for developing "Pythagorean triples," meaning sets of three *integers* which define the sides of right triangles.¹⁹ In the example given below notice how the octave ratio 1:2 is transformed into the Pythagorean triple 3:4:5, the "first" musical interval thus producing the "first" right triangle—and the Ka'ba formula. The formula assumes a pair of integers p, q , with p larger than q :

Opposite side $L = 2pq$	Adjacent side $M = p^2 - q^2$	Hypotenuse $N = p^2 + q^2$
----------------------------	----------------------------------	-------------------------------

Example: If $p = 2$ and $q = 1$, then
 $L = 2 \times 2 \times 1 = 4$ $M = 2^2 - 1^2 = 3$ $N = 2^2 + 1^2 = 5$

¹⁹ See *The Pythagorean Plato*, Ch. 10, for a fuller exposition.

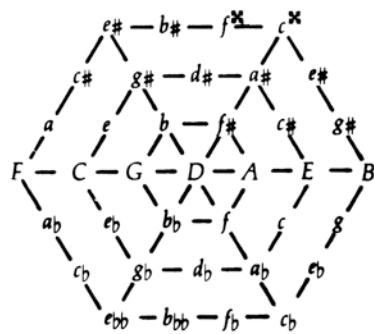
Chart 5. Symmetric Trigonometric Functions within 432,000*

	Tones	Ratio p/q	L = 2pq	M = $p^2 - q^2$	N = $p^2 + q^2$	Degrees
1	D	432,000	1/1	—	—	0
2	c \times	421,875	128/125	32000	759	32009
3	d \flat	414,720	25/24	1200	49	1201
4	c \sharp	405,000	16/15	480	31	481
5	c	400,000	27/25	1350	104	1354
6	C	388,800	10/9	180	19	181
7	b \sharp	384,000	9/8	144	17	145
8	b	375,000	144/125	36000	5111	36361
9	c \flat	373,248	125/108	27000	3961	27289
10	c \flat	368,640	75/64	9600	1529	9721
11	B	364,500	32/27	1728	295	1753
12	b	360,000	6/5	60	11	61
13	b \flat	345,600	5/4	40	9	41
14	a \sharp	337,500	32/25	1600	399	1649
15	a \flat	331,776	125/96	24000	6409	24841
16	A	324,000	4/3	24	7	25
17	a	320,000	27/20	1080	329	1129
18	a \flat	311,040	25/18	900	301	949
19	a \flat	307,200	45/32	2880	1001	3049
20	g \sharp	303,750	64/45	5760	2071	6121
21	g \sharp	300,000	36/25	1800	671	1921
22	g	291,600	40/27	2160	871	2329
23	G	288,000	3/2	12	5	13
24	f \times	281,250	192/125	48000	21239	52489
25	g \flat	276,480	25/16	800	369	881
26	f \sharp	270,000	8/5	80	39	89
27	f	259,200	5/3	30	16	34
28	F	256,000	27/16	864	473	985
29	e \sharp	253,125	128/75	19200	10759	22009
30	e \sharp	250,000	216/125	54000	31031	62281
31	e \flat	248,832	125/72	18000	10441	20809
32	E	243,000	16/9	288	175	337
33	e	240,000	9/5	90	56	106
34	e \flat	233,280	50/27	2700	1771	3229
35	e \flat	230,400	15/8	240	161	289
36	d \sharp	225,000	48/25	2400	1679	2929
37	d \flat	221,184	125/64	16000	11529	19721
	D	216,000	2/1	4	3	5

*From The Pythagorean Plato, pp. 120121

Chart 5. Symmetric Trigonometric Functions within 432,000* (cont.)

		Tones	Ratio p/q	L = 2pq	M = $p^2 - q^2$	N = $p^2 + q^2$	Degrees
38	d_b	207,360	25/12	600	481	769	38.72
39	$c\#$	202,500	32/15	960	799	1249	39.77
40	$c\#$	200,000	54/25	2700	2291	3541	40.32
41	c	194,400	20/9	360	319	481	41.54
42	C	192,000	9/4	72	65	97	42.08
43	$b\#$	187,500	288/125	72000	67319	98569	43.08
44	c_b	186,624	125/54	13500	12709	18541	43.27
45	c_b	184,320	75/32	4800	4601	6649	43.79
46	B	182,250	64/27	3456	3367	4825	44.25
47	b	180,000	12/5	120	119	169	44.76



Since one angle of the 3:4:5 triangle is approximately 37° (consult any table of trigonometric functions) we need 36 smaller tone-ratios to carry the correlation back to 1° . The remarkable fact about the 37 tones of our hexagonal lattice is that their ratios, taken in order through one octave and part way through the second octave, generate Pythagorean triples in which angular values vary by an average of 1° all the way to 45° . Since complementary angles complete the correlation to 90° , our musical hexagon establishes the approximate arithmetic tools for correlation with a nascent astronomy of 360 degrees.

The 37 tones of our lattice are defined in Chart 5 in their base 10 numerical notation. The ratio between the reference $D = 432,000$, always represented by p and symbolizing the Unity

of the whole string, and each succeeding tone is reduced here to numbers p/q which are relatively prime. (Without such reduction the computation of "triples" would become grotesque.) Our "Abrahamic validation" for such a construction is an Old Babylonian (1900-1600 B.C.) cuneiform tablet known as *Plimpton 322*, whose formulas for 15 such triples, summarized in Chart 6, include 14 of those in our set. Notice how Plimpton lines 3 to 17 match our elements 32 to 47.²⁰ Correlation between successive tones and successive degrees begins to fall off in the second octave; if elements 44 and 46 were omitted (they are the octaves of elements 8 and 10, which are essential), then the 45th tone would generate a triangle of approximately 45°, the limit of interest since complements would guarantee comparable success up to 90°.

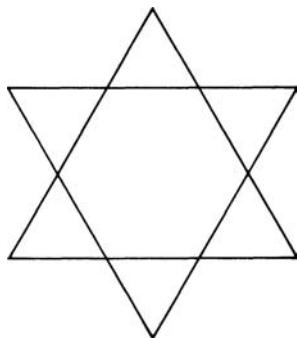
CHART 6. *Correlations with Plimpton*

Tone number	Generative ratio	Plimpton line
32	9/5	17
33	50/27	16
34	15/8	15
35	48/25	14
37	2/1	13
38	25/12	11
39	32/15	10
40	54/25	9
41	20/9	8
42	9/4	7
44	125/54	6
45	75/32	5
46	64/27	4
47	12/5	3

This correlation is imperfect, but is highly suggestive. (Plimpton 322 omits ratio 36, and inserts the value 81/40 on its line 12.) The tablet was translated by Otto Neugebauer and A. Sachs into a modern sexagesimal notation, from which this further reduction was extracted.

²⁰ . The one element which does not belong to the nested hexagons, Plimpton line 12, developed from the ratio 81/40, does belong to the enclosing envelope, but does not possess a reciprocal *within* the hexagon (see Chart 5).

Plimpton 322 is one of the most exciting tablets ever recovered for historians of mathematics to ponder. Whoever constructed those 15 Pythagorean triples, Derek de Solla Price has suggested, probably knew how to carry the correlations on down to 1° , and the tablet seems to have provided space for them.²¹ The harmonical star-hexagon presented here is not likely to be my own original discovery. In *The Pythagorean Plato* I have shown how Socrates states this formula in the form of a "Muses' jest," and how Plato's myth of Atlantis can be read as a mathematician's analytical game with this construction. In *The Myth of Invariance* I have tried to show how the Marduk symbolism in the Babylonian creation myth, *Enuma Elish*, can be read as a commentary on this diagram—which I further suggest is the abstract model for the concrete form of the ziggurat. My work there is speculative, as it is here.



The whole of Plato's mathematical imagery was never investigated systematically until Robert Brumbaugh accomplished it in 1954—and Biblical numerical and geometrical imagery has still not been studied exhaustively and systematically. Scores of generations of mathematicians had a chance to discover this hidden symbolism in the star-hexagon before it was taken into the Semitic tradition. I believe that in graphing tonal ratios in the Pythagorean manner I have merely

²¹ Derek de Solla Price, "The Babylonian 'Pythagorean Triangle' Tablet," *Centaurus* 1964, vol. 10, pp. 219-231.

stumbled onto a construction which once was very widely known.²²

That the Ka'ba was associated with the number 360 and the geometric celestial circle is suggested by the 360 idols which encircled it until Muhammad smashed them. This number could have become sacred at Mecca only by inheritance from an older, mathematically minded civilization. Mesopotamia, Greece and Egypt merely happen to be the countries where significant mathematical records have survived. All were polytheistic. A purified cube like the Islamic Ka'ba is an ancient symbol whose context has disappeared—partly by a deliberate reductionism to a simpler mythology. In ancient Egypt, by contrast, religious symbolism proliferated continuously until all origins were forgotten—and the country gratefully converted to monotheism to rescue itself from the accumulations of millenia. Simplicity is a very human need.

Musical Origins

Our polytheistic parents—Vedic, Greek, Babylonian, and Egyptian—were intensely musicalized. Historians who have studied their mathematics and noted their fascination with the number 360 have overlooked the *essential* role this number plays in "Pythagorean" musical theory. Notice that the "regular" sexagesimal numbers (factorable by 2, 3, and 5) lying within the 30:60 octave-double can actually define all seven tones of the standard diatonic scale (the ancient Greek Dorian mode) or of its reciprocal (our major mode), in a tuning Ptolemy knew as the "diatonic syntomon" and considered perceptually equivalent to "Pythagorean tuning".

²² My "mathematical yantra" for the "Kali Yugo" number 432,000 was drawn for *Avatāra* (see p. 294) only because de Nicolás was convinced the method would teach us something. The hexagon was immediately intriguing, but not until Robert Lawlor questioned me about Pythagorean triples some years later did I explore the ratios from that point of view. The tonal-numerical-geometrical-graphical coincidences in this construction, I suggest, would have been intoxicating indeed to the people who first discovered them. I cannot believe they were overlooked.

	30	32	36	40	45	48	54	60
Rising	<i>D</i>	<i>e_b</i>	<i>f</i>	<i>G</i>	<i>A</i>	<i>b_b</i>	<i>c</i>	<i>D'(Greek Dorian)</i>
Falling	<i>D</i>	<i>c_#</i>	<i>b</i>	<i>A</i>	<i>G</i>	<i>f_#</i>	<i>e</i>	<i>D'(modern major)</i>

The eleven different tones in these two historic 7-tone sets can be coalesced into one "chromatic" scale *only* within the octave-double 360:720, containing 360 subdivisions.

	360	384	400	432	450	480	540	576	600	648	675	720
Rising	<i>D</i>	<i>e_b</i>	<i>e</i>	<i>f</i>	<i>f_#</i>	<i>G</i>	<i>A</i>	<i>b_b</i>	<i>b</i>	<i>c</i>	<i>c_#</i>	<i>D</i>
Falling	<i>D</i>	<i>c_#</i>	<i>c</i>	<i>b</i>	<i>b_b</i>	<i>A</i>	<i>G</i>	<i>f_#</i>	<i>f</i>	<i>e</i>	<i>e_b</i>	<i>D</i>

The missing twelfth tone, *A_b = G_#*, which could complete this inverse symmetry, is the *irrational* square root of 2, and it lies outside the scope of ancient number theory.

It is the ratio theory which the ancients called "music" which links the Ka'ba's *proportions* to the number 60 and to the number 360 lying beyond in a perfectly logical order, and which makes 60^3 and its octave double the natural summation of this development. Music, arithmetic, geometry, and astronomy formed a unity in the ancient world. The correlations shown here suggest why tones and stones and numbers and cubes were linked together in a sacred symbolism. If the Ka'ba is not a cube by accident, if its proportions approximate those given by Burckhardt by *intention*, then it may symbolize the primordial Sumerian ark and the science of the Abrahamic era. In this case we might go further and say that if the Ka'ba does not really mean what I suggest—then it should! These meanings are essential, I suggest, to a modern conception of the Ka'ba as the proper center for a religion which deems itself to be man's oldest one.

The *Book of Revelation*, as I have demonstrated in *The Myth of Invariance*, preserves this ancient musical cabala plus a more complex development of it. It is hidden there partly by the simple device of reversing the order of tones in the scale so

that the old octave double 60:30 must be replaced by the Biblical double 144:72 in order to keep ratios invariant.

Babylonian:	30	32	36	40	45	48	54	60
	15:16	8:9	9:10	8:9	15:16	8:9	9:10	
Biblical:	144	135	120	108	96	90	80	72

Thus what seems to be numerical whimsy turns out to be, on analysis, model-building on a quite strict Pythagorean logic.

Neoplatonists of the centuries immediately preceding Muhammad frankly labelled 7 the "virgin" number, 5 the "human male" number, and 3 the "divine male" number. This metaphor gives a ratio like 7/5, the simplest and most common approximation to the $\sqrt{2}$, the further metaphorical role "divine son" who, being an approximation to the irrational $\sqrt{2}$, must obviously shoulder a great many of the "sins" of mathematicians. Christianity obviously suppressed what it could of such pagan metaphors and Muhammad completed the task, purifying Islam of every trace of Christian trinitarianism in the process. Within the octave 60:30, the ratio 7/5 means $7/5 \times 30 = 42$, and Christ is the 42nd generation from Abraham (*Mathew 1:1-17*). The oldest Mesopotamian tablet dealing with the ratio 7/5 does so in a context where 1 = 30 so that $7/5 = 42$.²³ Thus both numbers, ratios, and metaphors can be traced from Old Babylon through Greece and into the Greek *New Testament*—to re-emerge in the cabala of the Middle Ages with their original tonal-arithmetical implications lost.

Our "unlearned Prophet" knew none of this, but he understood himself to be—rather than a mere Ego—an *instrument* of a higher power whom man had always known. It remains to be shown how very beautifully his *Quran* preserves allusions to the ancient imagery while transforming its meaning into a lesson anyone can understand.

²³ O. Neugebauer and A. Sachs, *Mathematical Cuneiform Texts* (New Haven: American Oriental Society, 1945), pp. 42-43.

The Mythopoeic Transformation

Mathematical harmonics so deeply conditioned the imagery of ancient philosophy and religion that an untutored poet, knowing no science but in love with words, could not avoid preserving some of the original symbolism, however unconsciously. Quranic metaphors—and the Ka'ba—constitute Islam's indelible link with the past. We need not suppose that Muhammad intended any of his words to be read in the context we now give them—but neither would he have been surprised to learn that they meant much more than he knew. We cannot prove that a single Arab ever understood the Ka'ba in the way presented here, but we can look into the *Quran* for evidence that our speculation harmonizes with its own images.

The harmonical content of our model and the imagery of the ancient world are both profoundly *dualistic*; they involve a "symmetry of opposites." Islam shares some of this general dualism in its tension between God and Satan, in its paths to Heaven and Hell, in its alternation of threats with promises, and in its very great concern with "Balance."

The primal splitting of an initial unity, like the division of a string to produce a second tone, is God's own first act:

Do not the Unbelievers see that the heavens and
the earth

Were joined together as one Unit of Creation,
Before We clove them asunder?

(xxxi.30)

In ratio theory numbers always have double meanings, as multiples and submultiples; in the related tonal theory the same intervals can either rise or fall. Creation itself proceeds through pairs: "And fruit of every kind He made in pairs, two and two" (xiii.3).

Our harmonical lattice shows a world created by the first six integers, correlating with God's creation of "the heavens and the earth in six days," and its center of symmetry shows an

earlier God as Unity, "firmly established on the Throne" (vii.54). I have suggested elsewhere that, in Vedic metaphor, this throne is the "Mitra-Varuna lynchpin" of the universe.²⁴

The basic division of number is into *odd* and *even*. In harmonic theory odd numbers are "male" and always define *new* tones; even numbers are "female" and merely replicate, as "octave-doubles," the tones defined first (i.e., in numerical order) by the male numbers. The *Quran* actually appeals to our feeling for the importance of these two categories:

By the Break of Day;

By the Nights twice five;
 By the Even and Odd contrasted;
 And by the Night when it passeth away;—
 Is there not in these an adjuration or evidence
 For those who understand?

(lxxxix.1-5)

Remembering how we built our lattice from the products of the male odd numbers 3 and 5—eliminating female even numbers, as later religions have generally excluded women from hierarchical roles—the scorn which God heaps on pagan critics who think that "thy Lord has only daughters, and they have sons," gains new light. Female even numbers are less useful than male odd numbers in harmonical science as it was once studied. The male odd numbers give more insight into harmonical invariances. Arab denigration of women, like that of other cultures, possibly owes something to the long-forgotten harmonical diagrams of ancient priest-mathematicians. When Anu-An, for instance, was 1 = 60, Ishtar = 15 was the far-more-beloved mother-goddess of Mesopotamia, and many numbers were deified, but when *prime* numbers were clearly understood and defined, and it was seen that all primes are indivisible except by Unity, then only, I suggest, was it possible for priest-mathematicians to propose a plausible, apodictically certain model which eliminated the female principle altogether and reduced Deity to One.

²⁴ *The Myth of Invariance*, pp. 8586.

The *Quran* still echoes the ancient mystical fascination with 7's, long deified in Semitic cultures. In the cultures with which we are concerned here, musical scales have been essentially heptatonic (7-tone) since the time of Abraham, and perhaps earlier. *Order* was first known through number and tone. How early in history the planets were also recognized as being 7 in number we are uncertain, but the very name planet ("wanderer") betrays how *disorderly* the Sun, Moon, Mercury, Venus, Mars, Jupiter and Saturn appeared to early observers. Their apparently willful motions against the background of "fixed" stars probably contributed to their early deification. It was Plato who denied absolutely that the planets wandered. He set astronomy the task of conceiving a celestial mechanism attuned to the predictable patterns of number and tone.²⁵ Deity, he affirmed, belonged only to *Invariance* and never to "Wanderers." By the time of Ptolemy, 2nd c. A.D., astronomy had perfected a model which seemed to meet Plato's requirements. Planetary "appearances" were "saved" by epicycles (circles within circles). How much monotheism, the idea of One God, owes to astronomy's ability to conceive of One System in the heavens we may never know. What is certain is that Muhammad belongs to an age which viewed the "seven Firmaments" in the heavens as a sign of God's handiwork, as one system, while the legendary builders of the Ka'ba, Abraham and Ishmael, belonged to an age which viewed them as independent deities, an age in which 60 , and $6 \times 60 = 360$, and $60^3 = 216,000$ played roles of great formal importance.

The Ka'ba is traditionally covered each year by a beautifully embroidered *kiswah*, thus being clothed, as Titus Burckhardt notes, "as a living body or as an ark bearing spiritual influence."²⁶ I have suggested how the Ka'ba may represent the earliest, Sumerian ark. But what is the allegorical meaning embedded in notions of "ark," "flood," and "saving a remnant of mankind?" Mathematical harmonics can suggest some answers.

Across the base of our "ark," the "enclosing" envelope of Chart 3, we see 12 counters representing 12 numbers. Could

²⁵ *Timaeus*, 33-34; *Laws*, 821-822.

²⁶ Burckhardt, *op. cit.*, p. 4.

they also symbolize the 12 tribes of the Old Testament? Or the 12 springs which flowed from a rock which Moses struck (ii.60)? Is the rock which he "struck" actually the counter in the lower left corner, the primal unity $1 = 3^0 = 5^0$, from which the whole diagram evolves? A curious correlation with two other arks encourages such speculation. The Hebraic ark is described as measuring $300 \times 50 \times 30 = 450,000$ cubic units,²⁷ and the envelope for the multiplication table for 3×5 when arbitrarily terminated at that limit proves identical with ours for $2 \times 60^3 = 432,000$, hence it also has 12 "tribes" or "springs" across the base. Both numbers are factorable by 2, 3, and 5 only. So also is the Babylonian ark, $120^3 = 1,728,000$, whose envelope contains 14 elements along the base (3^{13} being the largest power of 3 which is less than the limiting number). These 14 elements thus correlate with the 14 human beings surviving the deluge of the *Gilgamesh* epic, rescued for the "speedy repopulation of the earth."²⁸ The dimensions of all three arks thus show correspondences with their related flood mythology. The old Sumerian ark was $60^3 = 216,000$, precisely the number of units into which the octave unity 1:2 has been subdivided in our ark for 432,000.

What, then is the primordial flood? I suggest that allegorically it is the infinite tide of numbers, threatening all sense and computing skill until men learned that prime numbers like 2, 3, and 5 are a class by themselves, and can be organized in the schematic ways shown here. The ark, then, is the *enclosure* of what was *essential* into a lattice. In *The Pythagorean Plato* I have shown how Plato, a millennium before Muhammad, employed this same imagery and related lattices in the tone-models for his political theory.

When were such models invented? Joseph Campbell has suggested that the Sumerian civilization developed from a dramatic intellectual synthesis which occurred about the middle of the 4th millennium B.C.²⁹ Semites appear to have constituted a significant element in that population. The Hebrew calendar count projects a beginning at approximately

²⁷ *Genesis*, 6:15.

²⁸ Alexander Heidel, *The Gilgamesh Epic and Old Testament Parallels* (Chicago: The University of Chicago Press, 1947 and 1973), p. 107.

²⁹ Joseph Campbell, *The Masks of God: Primitive Mythology* (New York: The Viking Press, 1970), pp. 141-147.

that time, circa 3700 B.C. (the present year is 5741). Is it possible that arithmetical insight was organized into the patterns shown here—that the "word" of God created the heavens and the earth in "true proportions" (vi.73) and man in "due proportion" (xxxii.9) in the projected Hebraic year "One"? The Gilgamesh epic, still only partially reassembled but full of suggestive allusions to numbers, may someday lend weight to that now apparently fanciful dating. The Jewish historian Philo, at the beginning of the Christian era, an important source of neo-Pythagorean imagery, interprets Abraham to mean "great father of sound," and Ishmael to mean "God hears."³⁰ Such clues are tantalizing, but the modern reconstruction of ancient modes of thought is still in its infancy. We possess more questions than answers.

The Islamic version of Pythagorean number theory—an improved version of the *Arithmetic* of Nicomachus—was composed by the *Ikhwān al-Safā* ca. 960 A.D. as the first treatise of an encyclopedic set of 51 or 52. They announce at the outset that everything in the world has one cause, one origin, one Creator, and that they intend to rely in demonstrating this "on numerical analogies and geometric proofs, similar to what the Pythagoreans used to do."³¹ They bluntly say that "the relation of the Creator to the universe is analogous to the relation of the number one to the numbers," plurality being merely "an aggregate of ones." An intriguing detail of the *Ikhwān* treatise is its classification of prime numbers from eleven onwards as "deaf numbers," on the excuse that Arabic lacked words for fractional parts beyond tenths. The limit of Pythagorean generative numbers—and the limit of Plato's "form numbers"

had always been 10, reducible to operations with the primes 2, 3, 5 and 7. Numbers generated from the larger primes commencing with eleven *had always been deaf* in the sense that they never generated tones until an experimental tuning by Ptolemy in the 2nd century A.D.,³² probably never used.

³⁰ Philo, "On Abraham," *The Essential Philo*, Nahum N. Glatzer, ed. (New York: Schocken Books, 1971), p. 99 (section XVIII).

³¹ Bernard R. Goldstein, trans., "A Treatise on Number Theory from a Tenth Century Arabic Source," *Centaurus* 1964, vol. 10, pp. 129-160.

³² Nasr, *op. cit.*, pp. 25-104 contain an extensive exposition of the cosmological theories of the *Ikhwān*, who consciously grounded their notions on ancient Pythagorean models of numbers and the Ptolemaic model of the heavens.

My treatise on the harmonical proportions of the Ka'ba should have been written by the *Ikhwān al-Safā*, who were 1000 years closer to its origin and better attuned to this ancient Pythagorean way of thinking. What may they have known about the Ka'ba? How did they explain to themselves a holy cube which is far from cubical? I am merely trying to point out that the methods I use could have held few surprises for them.

The *Ikhwān* ("Brotherhood") belong to Islam's greatest age of achievement in the arts and sciences. The European inheritance from this development is considerable. To take the example of the single field of music, Arabia began to influence European musical development via popular music as early as the 8th century A.D., in the opinion of Henry George Farmer, and then greatly affected artistic music, via literary and intellectual content in the 10th and 11th centuries.³³ Many of the instruments of wandering minstrels were borrowed from the Arabs: lute, guitar, cymbals, tambourines, drums, trumpet, double reeds, and also probably both pneumatic and hydraulic organs. European *discant* is probably derived from the Arabic "gloss," an ornament performed simultaneously with the melody. Farmer argues also for a possible Arabian influence—following its absorption of Greek practice—of a form of "organizing" which we know as *organum* (doubling of the melody at the fourth or fifth). He gives philological reasons for believing that *solfeggio* may be an Arab invention, and likewise a system of notation in instrumental *tablature*, and part of our system of *mensural* notation.

But I must tell my story with no appeal to later Islamic history. There was little music in Muhammad's day. What is interesting is that Islam and the *Quran* originally set free a musical impulse which rapidly overshadowed anything Europe had achieved. Let no one blame the *Quran* for the last 700 years of musical atrophy. The Ka'ba is as mysterious in its origins as are music and mathematics in Arabia in that uncertain time when its first foundations were laid.

For Titus Burckhardt the Ka'ba and its associated rites are "like an anchor cast in a timeless deep."³⁴ Our effort at

³³ Henry George Farmer, *The Arabian Influence on Musical Theory* (London: Reeves, 1925), 22 pp.

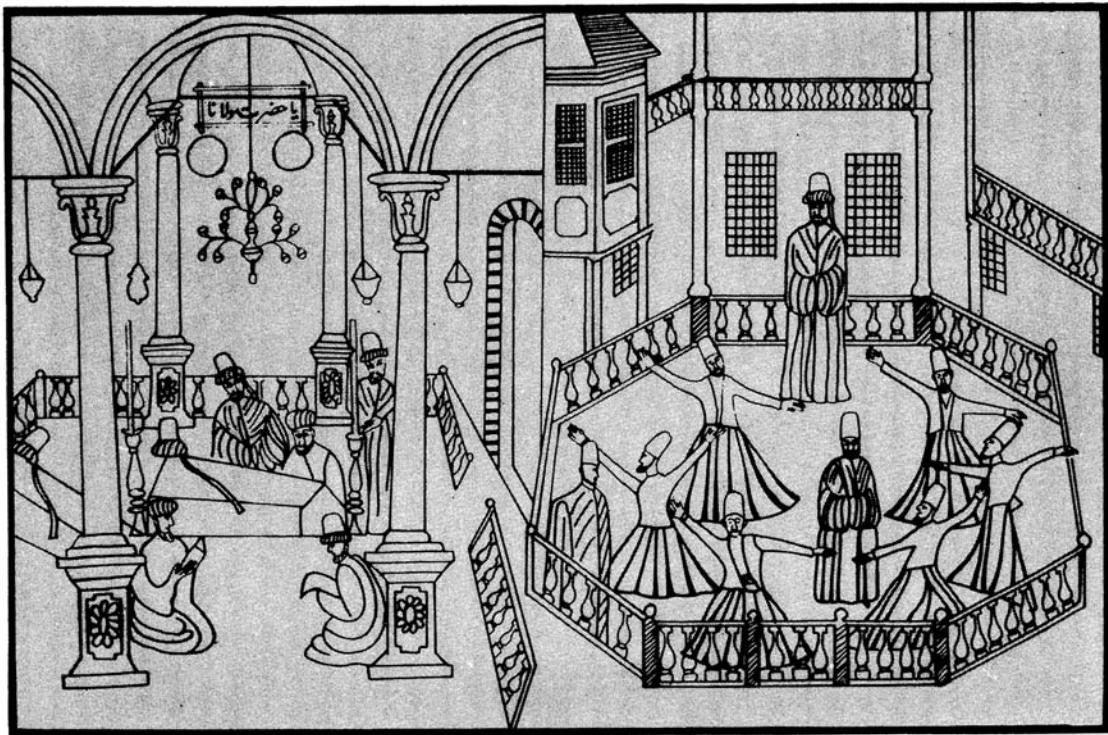
³⁴ Burckhardt, *op. cit.*, p. 5 (ref. 9, Chapter 3).

harmonical analysis has merely supplied several layers of possible implication for his words. That the Ka'ba of pagan Arabia is still the living heart of Islam illustrates how the pace of change and transformation is slowed in a land where tradition is profoundly respected. The Ka'ba, understood in the ways suggested here, supports the Islamic claim to be "the renewal of the primordial religion of humanity," shorn of nearly all mythological accretion.³⁵ The most beautiful summary of its cosmological role is not, however, in my esoteric imagery of tones, numbers, and triangles but in the Quranic metaphor which a philosopher can share with a child—and each understand in his own way:

God made the Ka'ba,
 The Sacred House, an asylum
 Of security for men, as
 Also the Sacred Months,
 The animals for offerings,
 And the garlands that mark them:
 That ye may know
 That God hash knowledge
 Of what is in the heavens
 And on earth and that God
 Is well acquainted
 With all things.

(v.100)

³⁵ Titus Burckhardt, *Sacred Art in East And West* (London: Perennial Books, 1967), p. 111.



The Mevlevi dervishes. From a nineteenth century woodcut. Courtesy of the International Rumi Society, photo by Dr. James Dickie.

Chapter 4

The Dance of Life

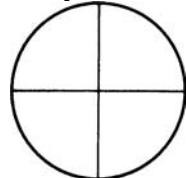
Geometry in the Quran

With music now banned from the mosque and human likenesses banned from painting and sculpture, it is not surprising that Islamic art has developed a luxuriant geometry with an expressiveness, sensuousness, and daring all its own. Since Muhammad is by no means a geometer one wonders whether anything in his book encourages a particular interest in the subject. A study of geometric metaphor in the *Quran* reveals only the most rudimentary notions of *direction* and *design*. The simplicity of these notions is the clue to their importance.

We have already noted the great importance given to the notion of *balance*, and we have traced the moral commitment to this principle as far as Ancient Egypt, where the heart of the deceased was symbolically weighed in the balance against "the feather of the law." The balance is a universal *visual* and *kinetic* appeal to our sense of equilibrium. It differentiates vertical and horizontal as excess and defect—which notions are readily generalized to apply to human moral qualities. The organ of balance, let us note in passing, is the ear.

"Weigh with scales true and upright," the *Quran* commands (xxvi.182). For those who pass the test on God's own balance, the way to heaven is "a Way that is straight" (ii.142; iii.101; vi.126; xv.41). "Show us the straight way" is a verse repeated in every prayer (i.6). The *Quran* is a book in which God "hath allowed therein no Crookedness" (xviii.1). Order is power. "Those who range themselves in ranks . . . are strong in repelling (evil)" (xxxvii.1-2). Straightness applies not only to the vertical directions up and down, "a tunnel in the ground or a ladder to the skies" (vi.35), but to the horizontal directions also: "To God belong the East and the West" (ii.115). On Judgment Day He will scatter the mountains and "leave them as plains smooth and level" (xx.106).

These references to vertical and horizontal directions which organize the plane visually are outweighed in importance by the *Quran's* emphasis on circles and circular motion. "Thy Lord doth encompass mankind round about" (xvii.60). Unbelievers are no threat to the Faithful, for God "compasseth round about all that they do" (iii.120). These rudimentary notions can be symbolized by a cross in a circle.¹



¹ Keith Critchlow calls attention to this fundamental symbolism in two very beautiful books: *Order in Space* (New York: The Viking Press, 1970), pp. 57, and *Islamic Patterns* (New York, Schocken Books, 1976), pp. 10-15.

This simplicity is exploded by the *Quran's* fascination with the planetary system, "seven Firmaments," "seven Heavens, one above another." God's greatest geometrical achievement is the three-dimensional *moving* universe itself, moving in ways too intricate for our finite imaginations to comprehend. "All the celestial bodies swim along, each in its rounded course" (xxi.33). The greatest moving circle of all is that of the zodiac. "It is We Who have set out the Zodiacal Signs in the heavens" (xv.16).

What could be more appropriate, more in keeping with the spirit of the *Quran*, than to set the body moving in "the Straight Way" and the "encircling" patterns of its geometric imagery?

Whirling Dervishes

The 12th century A.D. witnessed the emergence of the mystical Safi sects, which have since multiplied and flourished. Safi (from *suf*, wool) was a nickname derived originally from their ascetic garments of undyed wool.² Novices, *darwishes*, emulated their particular masters in seeking an ecstatic union with God. One path was through a dance by which the Mawlawis, founded by Jalāl ud-Dīn ar-Rūmī, have become identified popularly as "Whirling Dervishes." Witnesses to their dances report a variety of movements, varying from one locale to another.³ One rudimentary movement consists of a rapid and repetitive alternation of prostration, as in prayer, with standing erectly—acting out symbolically the notion of *submission* to God and the *straight Way* to Him. More spectacular are group dances in rotating circles, sometimes spinning with outstretched arms as if in imitation of the celestial world itself. Such movements obviously embody the simple geometry of the *Quran*. But there is deeper implication.

² Guillaume, *op. cit.*, p. 144 (ref. 2, Chapter 2).

³ *Ibid.*, pp. 152-154 contains some descriptions of dervish rites.

One continuous theme of the *Quran* is its own simplicity, its effort to "make things clear." Its allusion to "a Way that is straight" is hopeless illusion for most of us caught in the turmoil of life. Life is motion, and motion is a threat to equilibrium, to the emotional balance we yearn for and the moral balance we are fated to be judged by. Muhammad never knew the Olympian calm of a "seat in the Mean" in an idealized Platonic universe, except perhaps in prayer, and neither did Plato. Nor does the *Quran* actually guarantee such ease for the faithful in this present life; in that respect, it is true to life. Muhammad's book teems with vital, throbbing energy, with images of motion and change, and with allusions to the turmoil he experienced in establishing his new-old faith. The *activity* of the *Quran* is in tension with the simplicity of its advertised "straight Way." The dervish dance is not so much a release of this tension as, rather, the intensified embodiment of it. One must know the *Quran* to appreciate the depth of feeling aroused by the dance.

In the 1920's Turkey, then in the trauma of modernization, officially banned the dervish sects, whose dances could send the silent onlookers into a frenzy. It is easy to understand why a Muslim audience, living within a tradition ruled by custom but exposed daily in the mosque to the fluid, moving images of the *Quran*, could respond with a fervor unnerving to any kind of political regime. The *Quran* reverberates with the revolutionary fervor of a new vision for a man to live by and not with the mere static harmony later imposed by the teachers. Dance is the dancers' disciplined embodiment of an idea which has no patience at all with 20th-century ideas of progress, least of all progress via technology. The whirling dancer is a human gyroscope whose own motion—in the context of the world—is itself the source of a mysterious stabilizing and orienting force.

If the dance of the dervishes is a fair symbol of the Quranic message, as some mystics claim and as it seems reasonable to agree, then we have gained a useful link between Islamic geometry and the message of the *Quran*. Islamic geometric constructions are not static, visual images but *flowing* forms which involve us *bodily* in their intricacy. An Arab

mosque, or an Arab garden like the gardens of the Alhambra, lures the eye, and the feet follow a path which never ends, which curves in and around and back on itself as we try always unsuccessfully—to find one vantage point, one simple perspective, from which the whole can be understood. It is the genius of Islamic architecture in general, of Arabic lattices and ornament in particular, and also of the visually delightful variants of Arabic script itself that they lure us ever onwards into their mazes, filling us with an ecstatic, flowing harmony the untrained eye can never quite analyze.⁴

Dynamism in Sound

Dynamism in the dance is akin to dynamism in sound. Energy is displaying itself—and purposefully. But sound, Dewey reminds us, "agitates directly, as a commotion of the organism itself."⁵ There can be no mere observers. Islamic communal prayer harnesses the raw energy of sheer sound with the directed energy contributed by the intellectual power of the word. Prayer is a moving and centrally focussed acoustical experience. The powerfully resonant Gothic cathedrals and monastic abbeys, which began to appear in Europe in the 11th and 12th centuries, gave a new dimension to the gospel and also greatly affected the course of musical history. But it is in Islam, Robert Lawlor suggests, that the unifying effect of sound on the human psyche may have reached its most explicit development, becoming a constant presence in every life.

The Citadel, Egypt's great 13th century mosque, stands on a steep outcropping of rock emerging out of

⁴ See the intricate analysis in *Islamic Patterns* by Keith Critchlow, and the very beautiful general discussion by Titus Burckhardt in chapter 4 of *Sacred Art in East and West*.

⁵ John Dewey, *Art As Experience* (New York: Capricorn Books, 1958), pp. 236-239.

the wide, flat space of Cairo. Outside its looming dome is a garden edged with small balconies overlooking the churning, crowded confusions of this ancient city in its trauma of modernization. Standing on this precipice at noon on Friday, the Islamic holy day, one hears a somber, virile chant rise from the mosque's loud-speaker system. This sound slices the deluge of urban noise with the call to prayer. The first call is answered in succession and in overlapping simultaneity from hundreds of mosques scattered through the city and surrounding countryside. The swell of chanting transforms the noise of mundane and mechanical life into a unified collective experience. No matter to what distance one extends his listening, space in every direction is structured by layers of sound. This almost visible field, rising upward from the city like a mist but apprehended solely by audition, hovers like the vibratory body of a collective being, materialized by the unseeable, chanted river of communion.

To a highly individualized western mind this sonar magic which actively binds together the Muslim community can be both awe-inspiring and threatening. Here is a collective power for good if directed toward purification and the sharing of a common harmony, and for ill if wrongly manipulated into a coercive force.⁶

The call to prayer is intended to stop the world in its tracks for an interlude of meditation. The caller's art, now electrified, was founded by Muhammad's freedman, Zaid, who enjoyed a prestigious career long after the Prophet's death. It is an acoustical summons to meditate on words already familiar to the ear and to bow in submission—never to an external authority—to a truth one recognizes *within*.

⁶ Personal communication, June 1979.

Who plays with words plays with fire in the souls of men. Muhammad knew that from direct experience. Poets always know that. In ordinary discourse, in prose, in legal documents, in catalogs, words tend to lose by a process of attrition the condensed, explosive energy poets know how to give them. They become mere counters in a game of symbols, each word the sign of something which is absent. The poetic word—like the tone—is absolute presence. Victory for the prosaic and literal tends to become incarceration in matter-of-fact; there is an abstraction from the self into the purely formal community of those who have agreed on some public language. "Poetry is the true subversion; it always works against the institutional mechanism in favor of freedom," John Rouse has observed.⁷ An institutionalized poetry like the *Quran*, then, is a dynamic whose inspiriting power constantly threatens disintegration. Universal Muslim affection for the poetry of the *Quran*, however, is the counterbalancing centripetal force which allows Believers to live the fundamental tensions of their lives "within its controlling form." The *Quran* is thus one of poetic visions greatest victories.

Who is this man Muhammad through whom words carry so much power? What are we to make of his book? And what is Islam to those of us who have been taught to regard it as a foreign religion? The more seriously I have tried to bring my critical faculties to bear on these matters the more reasons I uncover, so it seems, for accepting the Prophet, his book, and Islam on their own terms.

The Prophet, the Book and Islam

Muhammad is beyond explanation. His success is clearly an offense to our western intellectual tradition. "I am but a Warner, open and clear," he said of himself, and so he seems to be. "I am no bringer of newfangled doctrines," God taught

⁷ John Rouse, *The Completed Gesture* (New Jersey: Skyline Books, 1978), p. 141.

him to say, and our forays into ancient Greece, Egypt, India, and Mesopotamia verify it. Islam is not a religion, it now tells the world, but a return to man's primordial religion—before our attempts to define God split us asunder and we closed our temple doors to each other. In its pure Quranic form, in so far as this is disclosed to our reading, *submission* (Islam) is indeed not *a* religion but rather the Way of all men who submit in awe to a Unity which glows within themselves, binding them to the world and to others not by fiat but by feeling. The apodictic certainty of an intuited Unicity rests not on argument but on feeling. It needs no Aristotelian "first principle." It can smile at a Descartes who thinks he has discovered the first proper proof for the existence of God. It frowns when a philosopher like Husserl, for instance, asserts that philosophy must start anew, with himself like so many before him—as the first apostle of the only true reason. He is continuing the western effort to make philosophy itself purely scientific, and to elevate this effort to the center of intellectual life.⁸ Western philosophy would establish a unity none but the initiated could comprehend—in the hope of achieving certainty for a single viewpoint. The whole power of Islam is arrayed against this. Faith, certainty, and humility are starting points for everyone, young or old in Islam—and no initiation whatever is required to enter the community of believers. It is not founded on reason—but on a deeper reasonableness.

The western effort to enthrone reason begins in ancient Greece, but even Plato who had much to say on the superiority of intellect, twits us for excessive pride in it:

All the wise agree, thereby glorifying themselves in earnest, that in reason we have the king of heaven and earth (*Philebus* 28c).

⁸ Edmund Husserl, *Phenomenology and the Crisis of Philosophy*, trans. by Quentin Lauer (New York: Harper and Row, 1965). Pp. 1-68 are a valuable introduction by the translator; pp. 71-147 are Husserl's early (1911) essay, "Philosophy as Rigorous Science"; pp. 149-192 are his late (1935) and famous essay, "Philosophy and the Crisis of European Man."

Plato's own effort to *musicalize* philosophy has been overshadowed by our greater effort to make philosophy purely logical. Music and its sister arts exhibit the kind of rationality proper to themselves: it is a rationality guided by intuition, that is, feeling. And what is characteristic of artistic feeling at its highest levels is the *variety* of feelings any artifact can evoke. There is no ultimate truth about the performance of a Chopin prelude or a Mozart sonata; they can no more be defined for all eternity than can the God Islam worships. Thus the western effort to reduce philosophy to scientific reason is a continuing effort to divorce philosophy from art and thus to restrict its relevance to life.

The *Quran* embraces the whole of life. In that respect its universality is what Husserl classifies properly as "mythical-religious."⁹ It denies our right to divorce reason from feeling and it scoffs at any effort to limit God by defining Him. By grounding everything on human feeling the *Quran* is obviously trusting mankind to live by an unarticulated "embodied vision" inherited via culture. Such *wisdom* is "no mere accomplishment of the isolated personality" but rather, as Husserl aptly observes, "belongs to the cultural community and to the time."¹⁰

Embodied vision as used here means that a Way of life suffuses all actions with qualities appropriate to the circumstances. De Nicolás has called it "a-perspectival vision" to emphasize its readiness to change viewpoints.¹¹ It is the richest fruition of cultural resources, and it is acquired by a reverent mastery of one's own cultural possibilities. It is not, strictly speaking, the vision of wise elders, although it may be, for children can be wise beyond their years in successfully embodying layers of wisdom which are never articulated, but remain implicit within the traditions of a culture. We all know precocious prodigies and old fools. The continuous challenge is the continuity of change itself. An extreme case is the whirling dancer who seeks, and in successful cases finds, an ecstatic union with God. His dance summarizes the whole human adventure, for man himself is "Time," or "the cultural field in

⁹ *Ibid.*, p. 168.

¹⁰ *Ibid.*, p. 132.

¹¹ *Avatāra*, p. 280.

motion." Sensual feeling is time-bound. The poetic word captures some new thought or feeling to gain value for itself, but it can do so only in a context of change—and against the resistance of habit. The human problem—and Muhammad solved it in a way which guaranteed his spontaneity—is that man must learn to trust something within himself so that he can whirl unafraid through all the "spaces" of his cultural field. The problem reduces to one of faith, to facing life joyously and unafraid.

What is the foundation of Muhammad's faith? To reply "faith in God" is merely to beg the question. Let us turn again to the *Quran* to seek its clearest answer, given I believe in its own dramatization of "the Other."

Quranic Model of "The Other"

We can identify the source of Muhammad's faith by the *Quran's* counter-example, *Bilks*, Satan, its own model of the damned. What was his crime?

In one word, disobedience. *Disobedience* to God is the antithesis to *submission (Islam)*. The *Quran* would fail in its whole effort to make things clear if it had omitted dramatizing the particular occasion of Satan's disobedience. It happened at the creation of the world. When God created man and ordered the angels to worship him as vice-regent, the devil, not yet a fallen angel, refused:

When We said to the angels,
 "Prostrate yourselves to Adam,"
 They prostrated themselves, But
 not *Iblīs*: he refused.

(xx.116)

Later Satan tempted Adam and his wife to eat of the forbidden fruit of "The Tree of Eternity," so readily at hand (ii.34-36 and

xx.120). In our English Bibles this translates as "the tree of life," or "the tree of the knowledge of good and evil." Satan thus functions partly as the Hebraic personification of pure reason as an absolute curse. Reason and vanity are hard to disentangle. Satan corrupts even God's prophets with a touch of vanity:

Never did We send an apostle or a prophet
 Before thee, but, when he framed a desire, Satan
 Threw some vanity into his desire: but God
 Will cancel anything vain that Satan throws in.
 (xxii.52)

Satan's own first and unforgiveable sin, however, is his refusal to bow down at God's command and worship man, at the sacrifice of his own vanity. God quotes the devil's argument:

"What prevented thee from bowing down
 When I commanded thee?" He said: "I am better
 Than he: Thou didst create Me from fire,
 And him from clay."
 (vii.12)

Thus Satan's fall from grace can be traced directly to his own inability to appreciate the divinity in man.

"Whoso knoweth himself knoweth his Lord." Balance we discover in ourselves only by learning how to lose it and recover it. Order we can know only by rescuing it from disorder. Unity we understand only by succeeding in the effort to impose it on variety. That the attributes of God are truly His we know from having suffered estrangement from them in our own flesh. Satan is the instrument by which Semitic poets dramatize their profound respect for *humanity*. Love of God is the objectification of respect for self. It is an inversion which preserves sanity, and makes man humane. Muhammad, in all humility, declares the creation of the heavens and the earth "a

greater matter than the creation of men" (x1.57), but he is proud to be a creature before whom even the angels must prostrate themselves. *Submission* to God, the creative, unifying power which we must discover subjectively and intuitively, is the psychological instrument for containing arrogance by clothing it in humility. No lighter garment could counter-balance the awesome awareness of the possibilities in man. Pride must be humbled—and it always is humbled when we find ourselves in the presence of a creative spirit more intense than our own, be it poetic, musical, philosophical, or whatever.

The myth of Satan dramatizes for the believer the self-respect he is obligated to maintain toward himself as a child of the Ultimate Creator. The iron requirement of submission (*Islam*) which Muhammad refused to waive for his proud Arab kinsmen is submission to an aesthetic vision essential to balance. Satan as the model of the damned who "respects not man" and submits not even to God clarifies the saved. We can now ask, with a better hope of understanding, what is actually meant by *faith*?

The Meaning of Faith

In the words of de Nicolás, faith is not in any god, person or institution, but in human life. It is "the love of life's own body."¹² It is simple joy in the dance of life. We continually need the Otherness of the stranger to awaken us to new possibilities within ourselves; other selves are the essential agents of our self-liberation. To "make reason" through other peoples' reason, as I have tried here with the *Quran*, involves the sacrifice of ideas, models, presuppositions, and perspectives with which one begins. This journey could not begin for me until my "radical sacrifice" of a dehumanizing demand that Muhammad's rationality conform to mine. It is not true, as

¹² *Ibid.*, p. 334.

Husserl so typically affirms, that "philosophy has constantly to exercise through European man its role of leadership for the whole of mankind,"¹³ nor surprising that Fascism soon followed this pronouncement. By defining "scientific philosophy" as "an accumulation of completely verified assumptions" Husserl means to eliminate most Europeans and all others from anything he is willing to call philosophy. But Husserl has achieved an insight which can help "European man" as he so narrowly defines him to learn to respect the *Quran*. A science built up by the accumulation of intuitively obvious truths would result in a much-diminished world of "simple, completely clear, lucid order." This "genuine science" of conceptual distinctness and clarity would be an affair of rigorous theory, but it could hardly be called "profound." "Profundity is a mark of . . . chaos," of life with its endless complexity when faith and morals and politics and aesthetic feeling refuse to be abstracted from each other. "Profundity is an affair of wisdom." Husserlian definitions clarify the holistic comprehensiveness of Quranic thought; faith, morals, politics, and feeling are bound to each other. Even a European chauvinist should learn to concede the book's profundity, and to appreciate the Way of Islam as one of the ways of wisdom.

Would western civilization come to an end, I wonder, if once a week the call to prayer could slice through the thunder of my city's subways, roadways, and skyways and for a few seconds we indulged in a mystical communion on the magical gift of life? Our polyglot tongues leave us no common language in which to say "We believe" or to describe what we believe, but for a God who recognizes "the intention of-the heart" our gesture of submission should suffice.

The Way of Islam in so far as it is the Way of disciplined meditation is the way of all humans who make time in their lives and space in their hearts for intuition to speak. Husserl would have philosophy begin all over again as the science of spirit: "Only the spirit is a being in itself and for itself." For him, "nature belongs to the sphere of spirit." Philosophy must be grounded on intuition as to the "essence" of things, and one must have the courage *not* to "explain away under the pressure

¹³ Husserl, *op. cit.*, p. 178.

of prejudice what has been seen." Muhammad refused to "explain away" Gabriel, and Husserl's new philosophy refuses to follow established scientific tradition and explain away, *a priori*, anything which spirit recognizes directly by an act of intuition, including even angels.

The "crisis of European man" about which Husserl spoke so eloquently in 1935 was followed by a holocaust the likes of which the world has never seen. Reason suffered an aching loss, yet compassionate feeling, I think, has gained a new courage to make itself count in human affairs. Recent advances in science can explain many things about the workings of mind and body, but *why* they work it cannot explain at all. Sentience and spirit remain wholly miraculous. Words retain their primal poetic power. Spirits still speak to those who make the silence they require—as Socrates' private daemon did to him. Life remains a dance in which borrowed wisdom won by others helps us recover balance. Man's faith remains "one space beyond any god."¹⁴ And all who live by submission to aesthetic value and intuited truth could be said to live "in *Islam* (submission)," if it is fair to interpret the religion by the deepest implications of the *Quran*.

If language is "the empirical evidence of a culture" then the *Quran* is evidence of a culture whose depth and breadth we have never understood, partly because Islam cared more about its role as a new beginning than it cared about documenting its debts to the immediate past. Meditations through the *Quran*, however they begin, become adventures in imagination—historical and philosophical—and adventures in feeling. Philosophy as the way of meditation through the paths of others requires that one "loves his own culture enough not to settle for imitations of life."¹⁵ The adventure must be an authentic one.

Adventure entails risk. That human compassion and shared feeling have limits and cannot be coerced, the Prophet knew: "Let there be no compulsion in religion" (ii.256). Where

¹⁴ *Avatāra*, p. 228.

¹⁵ *Ibid.*, p. 47.

feeling fails, where men discover that their private intuitions cannot confirm that of others, or gain confirmation by others, Gabriel taught Muhammad the last loving words which can be said:

To you be your Way,
And to me mine.

(cix.6)

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

"In the name of God, Most Gracious, Most Merciful."

Appendix

The Holy Mountain

After completing this manuscript on the *Quran* I turned again to the *Bible*, searching for references to an even larger "holy mountain" than the one described in Chapter 3, one also found first in Indian cosmology. Here is the result.

Introduction

Numerical elements in the mythology of Hebrew, Egyptian, Babylonian, Sumerian, Hindu, Buddhist, Islamic and Christian religions, and perhaps many others, can be correlated by one large spiritual "holy mountain," a matrix of pebble counters like the "Kali Yuga Mountain" of Chapter 3, but extending far beyond it. This extended matrix embodies new layers of acoustical and arithmetical insight and leads to a wholly new penetration of Old Testament mythology. The *Quran* preserves interesting clues to the reconstruction of this greater matrix and to its correct interpretation.

Where this extended pattern was first developed is unknown. It cannot be dated; but Babylonian, Sumerian and Egyptian mythology suggest that it was known in the third millennium B.C. and perhaps earlier—in any case, prior to the invention of writing. The colorful imagery of the associated mythology is a device for impressing the structure indelibly into the tribal memory of aural cultures, and our problem is to learn to read that mythology with the ancient intentionality, that is, as mathematical allegory. No other harmonic matrix, I believe, can compete with the elegance of this one in dramatizing the extended field of "tone-numbers." The temptation to borrow this easily-memorized pebble matrix seems to have been irresistible, but each culture necessarily described the encoded mathematical relations in its own language and its own metaphors. These cross-cultural harmonic metaphors constitute an important part of the primordial unity of ancient religions.

The difficulties in constructing the holy mountain matrix make it probable that considerable expertise in manipulating harmonic ratios was developed from smaller models before this remarkable overview was reached. The mountain was probably discovered by a musician animated by a profound commitment to the principle of perfect symmetry. Every number has a *physical* double meaning as *multiple* and *submultiple* of string length, and no harmonic matrix is understood until it can be read simultaneously with this kind of "double-vision." The holy mountain matrix turns out to be a veritable symphony of 7's; it is probably not mere coincidence that 7 is endlessly paeaned by "the people of the book."

To make clear the layers of arithmetical and tonal meanings symbolized in this one pattern of 166 counters, I present the mountain in four different notations, and in sufficient detail for anyone with a pocket calculator to verify the whole construction within a few minutes. In general, we are studying "Ten-ness," meaning the integers from 1 to 10, in their aspects as multiples of the Divine Unity, 1. In the Pythagoreanism of Plato and Archytas this reduces to a clear understanding of the generative functions of the prime numbers 2, 3, 5, 7. Such hard-won Greek rationality is

prefigured in the mythology, but it can be abstracted from the mythology only by an imaginative effort on our part. The mythic mind is concrete; it synthesizes and unifies its objects of contemplation, and thus moves in a contrary direction to our habit. "Ten-ness" was as sacred to the Hebrews as it was to the Pythagoreans; all of the sacred geometric measures of Hebraic holy cities, tabernacles, temples, altars, arks, and offerings can be reduced to a study of the generative functions of primes smaller than 10, or of the integers from 1 to 10. Larger primes occur only in sets which are counted, not measured, as in the census figures, and in the days, months, and years of various time-spans. (The single Biblical exception is a temple gate which *Ezekiel* 40:11 describes as 13 cubits wide.)

Readers concerned only with meaning may skim some of the details of the ancient musicalized number theory explained here, but it would be unfair to withhold any of the data required for testing the claims which are made. The unity of the sounding string—which can be subdivided according to any schema desired—guarantees the unity of the system which we are studying. The study of *ratio* in very ancient times may have been inspired in part by the fact that musical intervals when examined as comparisons of string length, prove to be invariant ratios (octave 1:2, fifth 2:3, etc.), and Invariance is the primal aspect of Deity. The development of tuning theory, and also the correlation between tonal and calendrical cycles, ensure an early confrontation between the *rational* numbers available to the ancients and the *real* numbers (i.e., including irrationals) required for solving problems of central interest. The ratio of side/diameter in a square, for instance, is the ratio required to preserve tonal symmetry by splitting the octave in half, and this "unsayable" square root of 2, important to music, geometry and number theory alike, is the motivation for our holy mountain. Much has been written about "the crisis of the irrational" in Pythagorean Greece. The biblical mythology being studied here shows how Hebraic monotheism met that crisis and successfully rationalized its way around it.

In the exposition which follows, it is important to distinguish two kinds of statements. 1) Where relations between numbers are involved, or between numbers and

tones, there is no room for argument; everything is a consequence of the initial identification of intervals by integers. Few readers, however, will be acquainted with the details of acoustical arithmetic in its ancient form, and many alternative explanations are possible. 2) The linking of arithmetical-tonal fact to ancient mythology is an act of creative imagination, aiming at what Plato called a "likely story." Evidence is always circumstantial. At some point, circumstantial evidence becomes powerful enough to induce belief. My aim here is to present the evidence that biblical authors were conscious of the harmonic implications of the holy mountain, and to do so in a way which encourages further study of ancient musical rationality.

A First View of the Mountain

The bare mountain is shown in Chart 7, with the hexagons of Chapter 3 outlined to make clear the correlation. Arrows on the vertical axis point to two values which converge symmetrically on the square root of 2 only when the matrix of counters reaches the "peak" of 15. The mountain is 15 counters high and 21 counters broad at the base. Along the jagged "lightning" edge are 6 indentations, or "steps," or "shoulders." Along the central horizontal axis in the eighth row, 7 counters have been given the tone-names *F C G D A E B*. These are the central invariances in Chart 3 of Chapter 3. These 7 tones belong to the same sequence of rising musical fifths 2:3 or falling musical fourths 3:4. When rearranged in *scale* order within the octave 1:2 beginning and ending on *D*, the center of symmetry, they produce our modern Dorian scale (*Tonus primus* in medieval musical theory). Only the Dorian scale rises and falls through the same sequence of wholetones (t) and semitones (\$), hence only this scale can be defined by numbers which function simultaneously as ratios of frequency

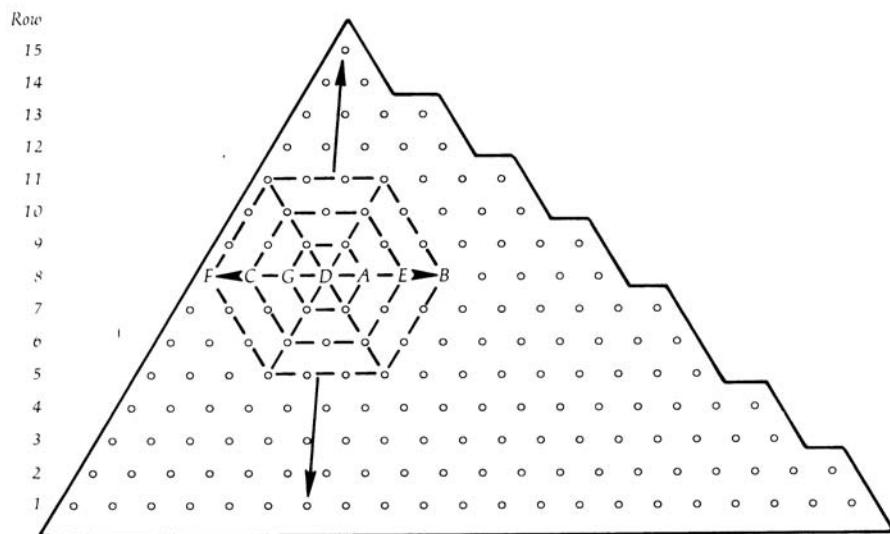
for the rising scale and as ratios of string-length for the falling scale.

Numbers	432	486	512	576	648	729	768	864	
Frequency	D	E	F	G	A	B	C	D	(Rising)
String-length	D	C	B	A	G	F	E	D	(Falling)
Intervals	t	s	t	t	t	s	t		

In *The Sacred Bridge*, Eric Werner has noted the antiquity of this tuning in Hebraic liturgy and summarized its survival in variant forms after the Diaspora.¹ Our holy mountain is the limit of the tone-field when these numbers are multiplied by

Chart 7.

The Holy Mountain as an Arithmetical Matrix



Pebble counters for numbers 3⁵ less than 8,640,000,000. The 7 invariances of the modern Dorian scale, D E F G A B C D, are shown here in tuning order: F C G D A E B. This expansion is motivated by the search for a product of 2, 3, and 5, which can subdivide the octave precisely. Arrows in the cross pair near-approximations to the square root of 2.

¹ Eric Werner, *The Sacred Bridge* (New York: Columbia University Press, 1959), pp. 466, 488-9.

10,000,000; the 166 counters shown here lie between the "octave" limits of 4,320,000,000 and 8,640,000,000. This extravagant numerosity is required by the effort to define a tone which is exactly in the middle of the octave, corresponding to our equal-tempered $G\sharp = A\flat$: the vertical arrows in rows 1 and 15 point to the nearest equivalences within this numerical limit. Later we shall note how the Hebraic altar and circumcision formulas produce a much better result with numbers of only 3 digits.

The Holy Mountain as a Multiplication Table

Acoustical arithmetic of the kind being described here is limited to structures generated by the first six integers, or "days" of creation: 1:2:3:4:5:6. Now since 1:2:4 are merely octave doubles, and 3:6 likewise, tuning theory can be reduced to a study of the generative powers of the prime numbers 3 and 5 within numerical doubles generated by 2. We proceed in two steps: 1) we first construct a multiplication table for 3×5 up to the limit of interest, in this case 8,640,000,000; and then, 2) we double all products as many times as necessary to bring them within an octave of this limit, that is, to make them larger than 4,320,000,000. The repeated doubling of any number never changes its tonal meaning; such doubling is merely a numerical convenience to avoid fractions. To borrow a modern expression, tone-values are always "cyclic residues" in a "modular" kind of "circular logarithmic scale"—a set of concepts and terms the ancients never possessed, but whose results they easily achieved by *thinking tonally*.²

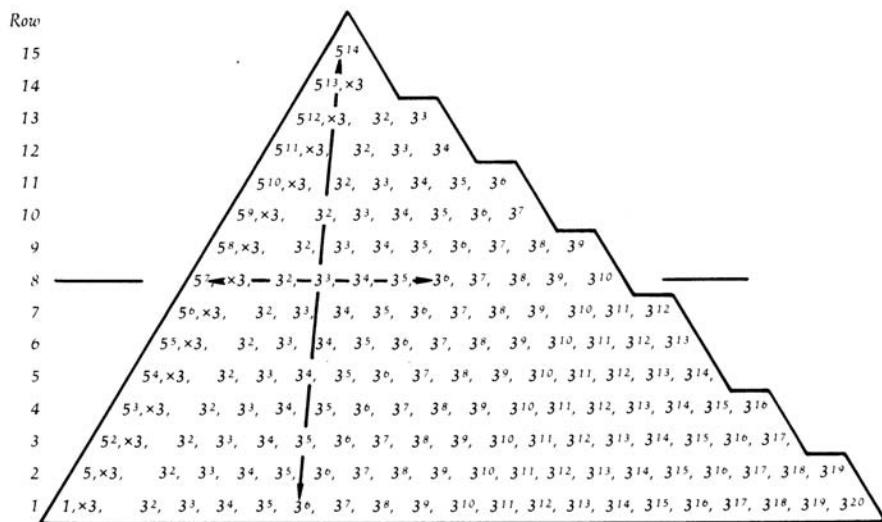
In Chart 8 we see the same holy mountain in exponential notation as the multiplication table for 3×5 . Successive powers of 3 are plotted along the base and successive powers of 5 along the straight ascent, /; their products fill the table. The

² See *The Pythagorean Plato* for many examples of "circular logarithmic scales" gleaned from Plato's musical allegories

"cross" is centered on the 4th counter in the 8th row because the terminating limit of $8,640,000,000 = 2^{12}3^55^7$ contains three factors of 3 and seven factors of 5. We ascend one row for each factor of 5; we move one place to the right among the diagonals / / for each factor of 3. This completes the first stage of construction.

The second constructional activity is now to double all numbers as many times as necessary for them to fit within the octave double 1:2 between 4,320,000,000 and 8,640,000,000. Some numbers 3^55^9 are large enough to require no doubling at all. The counter in the lower left corner which represents $3^0 = 5^0 = 1$ must be doubled no less than 33 consecutive times in order to make it commensurable with all of the other tone-values in the table. Such doubling may have been tedious in ancient times, but it posed no difficulties. The biblical formulas to be studied later are far simpler arithmetically and require only the straight ascent along the left to be computed

Chart 8. The Holy Mountain as a Multiplication Table for 3×5

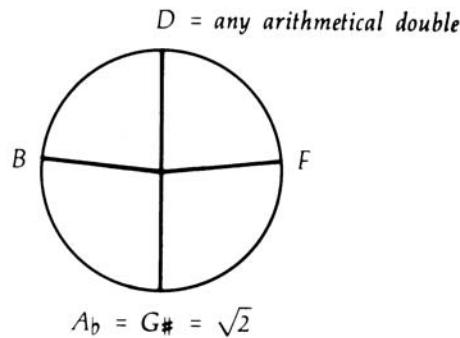


Factors of the "divine male number 3 increase from left to right; factors of the "human male number 5 increase along the ascent. These male numbers must be doubled and redoubled (i.e., multiplied by the "female number 2) as many times as necessary to fit within the matrix 1:2 multiplied to $4,320,000,000 : 8,640,000,000$.

in the way I have shown. My description here is intended to speed verification for those with access to a simple calculator.

There is a lovely biblical metaphor for this kind of Pythagorean table, if we allow imagination a little license. Remember that 5 is the "human" number and that the multiplication table for 3×5 thus consists entirely of Pythagorean "men," meaning male odd numbers; we complete the table by "marrying" them with appropriate powers of the "female" number 2 without changing the appearance of the table at all. "A man leaves his father and mother and cleaves to his wife, and they become one flesh" (*Genesis 2:24*). To what extent Hebraic metaphors are intentionally parallel to the Greek remains to be discovered. The biblical numbers to be analyzed here owe more to an intimate acquaintance with the arithmetic of the holy mountain than to borrowed Greek metaphors.

The limits of the central cross embody two pairs of symmetrical convergences on the elusive square root of 2. Note first that $F = 512$ and $B = 729$ in the scale given above, first and seventh tones respectively in the eighth row, give the ratio $729/512 = 1.423$, somewhat larger than $\sqrt{2} = 1.4142$. In the octave tone-circle beginning and ending on D , these two tones lie very nearly on the horizontal diameter, while the counters on the vertical axis in the first and fifteenth rows lie very close to $A_b = G\#$ on the vertical diameter. We have two "monsters" here: Leviathon in the "deep," or the Great Serpent, and, on the "land" of the axis, Behemoth, almost equally dangerous. Their power can be contained but never broken until a new world is born under the reign of the Messiah.



The counter at the peak of the mountain represents $5^{14} = 6,103,515,625$. Its symmetric opposite, the seventh counter in the first row, represents $3^6 \times 2^{23}$, for $3^6 = 729$ must be doubled and redoubled 23 times to make it directly commensurable with the value at the peak. At the end of these monumental doublings $2^{23} \times 3^6 = 6,115,295,232$. We can check the near coincidence of these values on our calculators with simple division:

$$6,103,515,625 \div 6,115,295,232 = .998,$$

a discrepancy of less than 2 parts in a thousand. Our ancestors had to subtract:

$$\begin{array}{r} 6,115,295,232 \\ - \underline{6,103,515,625} \\ 11,779,607 \end{array}$$

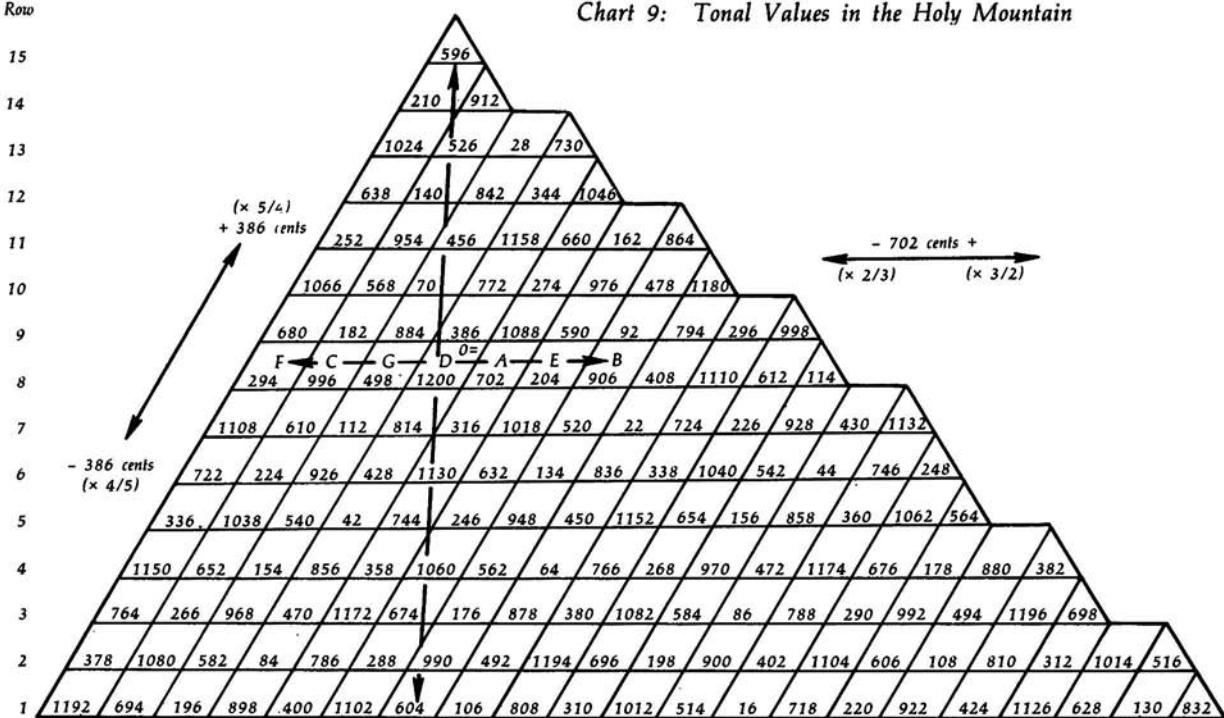
We do not know how they actually read this result, but they could plainly see that the discrepancy was about 12 parts in 6,100, or about 1 in 500. The pitch difference is subliminal; it is approximately the amount by which piano and organ tuners temper musical fifths today so that 12 of them fit exactly into the octave. Note the approximation to $\sqrt{2} = 1.4142$:

$$\frac{6,103,515,625}{4,320,000,000} = \frac{8,640,000,000}{6,115,295,232} = 1.4128.$$

Tonal Meanings in the Holy Mountain

Any ancient acoustical theorist would have known the tuning for the Dorian mode to begin with, the 7 axis tones $F\ C\ G\ D\ A\ E\ B$ rearranged in scale order $D\ E\ F\ G\ A\ B\ C\ D$, and would

Chart 9: Tonal Values in the Holy Mountain



The male odd numbers in Chart 8 must be doubled and redoubled as necessary to make them all larger than 4,320,000,000 but smaller than 8,640,000,000. These two numbers, beginning and end of the octave progression, are tonally identical, and must be interpreted according to a cyclic logarithmic scale. All tonal values are converted here to musical logarithmic cents, 1200 to the octave; 0 and 1200 coincide. Arrows point to the values in rows 1 and 15 which most closely approximate the square root of 2 = 600 cents. (Cents values are approximations.)

have needed to calculate only the square root values of our two counters in rows 1 and 15 to know everything of interest. Expertise is acquired studying smaller models, and the altar formula to be studied later is a perfect place to begin. To help the uninitiated appreciate the complexities of the holy mountain, Chart 9 translates all of its values into modern logarithmic cents, 1200 to the octave, each equal-tempered semitone being worth exactly 100 cents.³

The upper and lower bounds at $1200 = 0$ cents is at the center of the cross. To progress from left to right in every row merely add 702 cents for ascending musical fifths 2:3 (or subtract 498 cents for descending musical fourths 3:4), adding or subtracting 1200 cents wherever necessary to keep all values between 0 and 1200. (Remember: we plot only modular residues.) To ascend from any row to the next above along the diagonal, /, merely add 386 cents for a major third of 4:5, making similar reductions by 1200 cents wherever necessary. The approximations of interest at the peak of mountain (596 cents) and in the first row (604 cents) contain cumulative errors because of the rounded cents values being employed. (A better value for, 2:3 is 701.955, not 702, and for 4:5 is 386.3137, not 386.) The true value at the peak is 598+ cents, and its symmetric opposite in the first row is 601+ cents, both excess and deficiency being less than 2 cents away from the desired value of $\sqrt{2} = 600$ cents.

Now glance in any direction—up, down, across, backwards or forwards—and what do you see in the mountain? Numbers cyclically "wax and wane" and *never coincide*. The realm of pure numbers is riddled with an inescapable "original sin" from any perspective which values *cyclic* repetitions. In modern language, our generators 2, 3, and 5 generate an infinite "group" of rational numbers; what "Pythagorean" musicians require, and ancient cosmology assumed, is that cycles repeat exactly. For the benefit of non-musicians, let me summarize briefly the various "sins" or "musical commas" which can be read directly from the cents values in Chart 9. Reading from left to right in any row, the thirteenth counter differs from the first by the "Pythagorean comma" of 24 cents. Since this a logarithmic table, every 12th "disciple" is thus a threat to its "leader," for

³ To convert ratios to cents, multiply the log of the ratio by $1200/\log 2$.

24 cents is too small an interval to be useful musically, yet it is just wide enough to be an annoyance and must somehow be eliminated. Notice also that the fifth counter in each row differs from the first in the row above by the "syntonic comma" of only 22 cents, an equally useless and disturbing microinterval. Along the left ascent, /, the fourth counter disagrees with the first by 42 cents, the musical *diesis* which discourages progressions by pure thirds 4:5. Notice also that the first counter in each row differs from the ninth in the row above by the *schisma* of 2 cents, so near an agreement that only an unmusical number theorist could fault it. These discrepancies are repeated all over the table, to whatever limit these patterns can be "translated."

In stressing the "sinfulness" of the mountain I am speaking from more than a tonal point of view. "Music" in the ancient world meant something far broader. In the Pythagorean sense, it includes all ratio theory. The geometrical formulas in the hexagonal arrays, discussed in Chapter 3, are a good example of the larger meaning music once had. But geometrical attention was squarely on problems which required irrationals for solutions, thus geometers no less than musicians were experts with original sin. The Hebrew altar formula leads us not only to a musical scale but to square root of $\sqrt{2}$ and pi. The Hebrew word for sin, *chef*, always carried the connotation of "missing the mark."

Each culture rationalized the "sins" shown above in its own way. Here we are concerned only with Semitic metaphors. The *Quran* lays special emphasis on God's *graciousness* and *mercy*. In his monumental seven volume study, *The Legends of the Jews*, Louis Ginzberg retells the story of God being pleased with none of the several worlds he created until he created ours:

But even this last world would have no permanence if God had executed His original plan of ruling it according to the principle of strict justice. It was only when He saw that justice by itself would undermine the world that He associated mercy with justice, and made them to rule jointly (I.4).⁴

⁴ Louis Ginzberg, *The Legends of the Jews*, trans. by Henrietta Szold (Philadelphia: The Jewish Publication Society of America, 1909 1967).

Jerusalem was destroyed, in the opinion of some, because "the people dispensed justice according to the 'strict law' " (VI.388). Plato's *Republic* is a great musical allegory on the subject of justice; his musical model, analogous to our holy mountain, illustrates his conviction that no city can endure on the principle of perfect justice. Citizens (symbolized by tone numbers) must be willing to forego something of their *exact* rights in the interest of "what is best for the city." The Hebrew God emphasizes His own complementary aspects of justice and love:

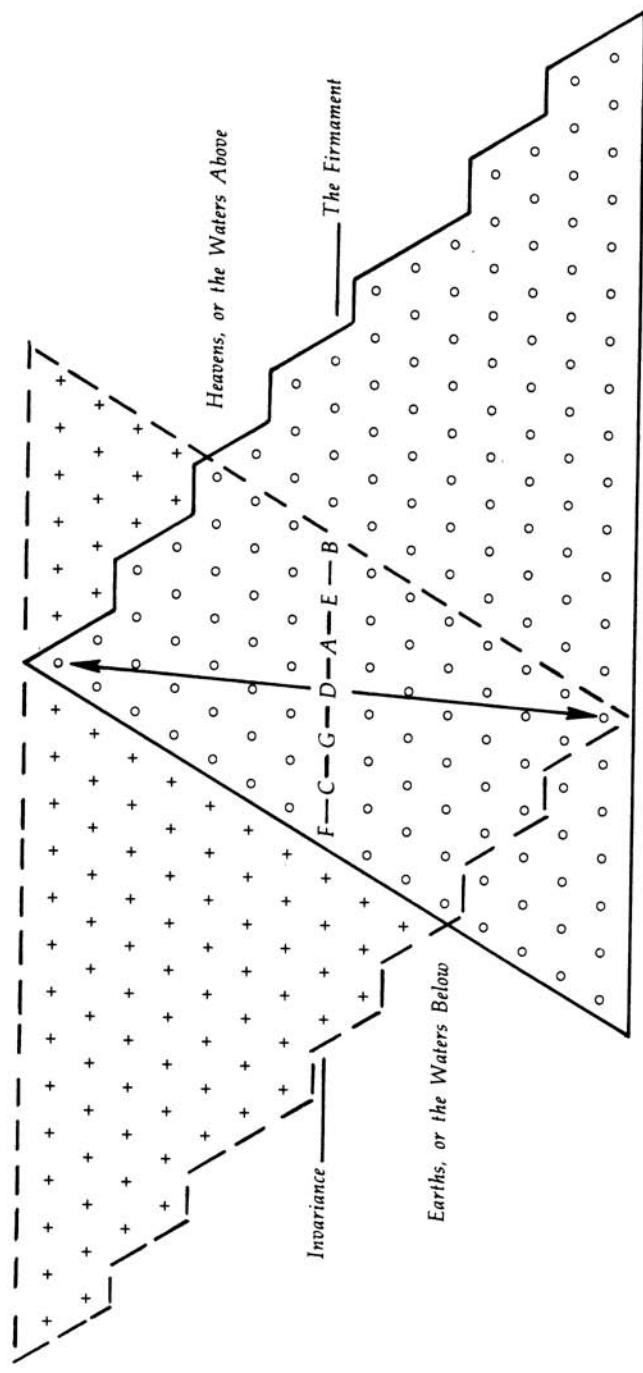
I the Lord your God am a jealous God, visiting the iniquity of the fathers upon the children to the third and fourth generation of those who hate me, but showing steadfast love to thousands of those who love me and keep my commandments (*Exodus* 20:5-6).

In our holy mountain, three "generations" by 4:5 along the left ascent, /, fall short of an octave, and four "generations" by 5:6 in the opposite direction, \, exceed the octave—the limit at which tonal sins must be rectified.

The Holy Mountain as Yahweh (10-5-6-5)

"Lo, I am coming to you in a thick cloud," Yahweh informs Moses (*Exodus* 19:9). The "thick cloud" which descends upon our mountain in Chart 10 is merely the *inversion* of the mountain itself, that is, its rotation by 180° around the pivotal fourth element in the eighth row. This rotation discloses immediately all of the tone numbers which are symmetrically paired within the octave. All such pairs of numbers are locked together tonally as each others' reciprocal frequency/string-length partners. They also function as the intermediate *means*

Chart 10. *The Holy Mountain and its Reciprocal: "Lo, I am coming to you in a thick cloud."*



The mountain is rotated on its axis by 180° to show the "pillar of cloud" in which the Holy Spirit appears. This rotation immediately exposes all of the internal symmetries of the construction. Arithmetical reciprocals are multiples and submultiples. Tonal reciprocals are the rising-falling intervals associated with numbers taken 1) as ratios of frequency, and 2) as ratios of string length. There are 7 heavens above the firmament—the invariances—and 7 earths below. Levitation, 7th element in the first row, is the symmetric reciprocal of the Deity in the fifteenth row; both are near-approximations to the square root of two.

within a proportion: $D : x : : y : 2D$, where D is taken as the lower limit of the octave at 4,320,000,000 and $2D$ is its double at 8,640,000,000. Such pairs lie equidistant from the central crossing on D on any axis through D , hence they can be located by eye from the graph with no arithmetical computation whatever. It is at this stage of analysis that we comprehend the enormous power in the method. When the "thick cloud" of the Holy Spirit (Shekinah) descends upon the mountain, nothing new is added except *insight* into the meaning of things already present. No wonder a man is "joyously excited" when the Shekinah rests upon him.⁵ The Hebraic God is neither a number, like his Babylonian predecessors, nor is He the mountain itself, like the Sumerian deity Enlil, known also as *E-kur* "house mountain," and as *Kur-gal*, "great mountain."⁶ The Hebraic God is pure spiritual illumination. But Isaiah speaks of "the Lord of hosts, who dwells on Mount Zion" (8:18), and he declares also that "the mountain of the house of the Lord shall be established as the highest of the mountains" (2:2).

Our triangular matrices are probably descended from the ancient Sumerian pictograms for woman, , and for mountain, . The interlocked triangles, metaphorically, are "arithmetical copulation." The Sumerians describe the Great Mountain copulating with "the foothills" to engender the seasons, a metaphor both astronomical and arithmetical.⁷ I stumbled on this holy mountain in 1974 while studying Hindu imagery with Antonio de Nicolás. It was he who insisted that I apply the Pythagorean methods developed from my studies of Plato's mathematical allegories to Hindu time cycles. The hexagonal "wheels within wheels" of the Kali Yuga number 432,000, shown in Chapter 3, came to light immediately, and the patterns of the holy mountain soon afterwards. But I could not read the biblical metaphors at that time, and so I missed the relevance of this diagram—8,640,000,000 years is the cycle of Brahma, "Immense Being"—to *Old Testament* imagery and numerology. Perhaps my detour through the *Quran* was

⁵ *Ibid.*, I. p. 334.

⁶ Thorkild Jacobsen, *The Treasures of Darkness* (New Haven: Yale University Press, 1976), p. 17.

⁷ *Ibid.*, p. 104.

necessary to understand how Brahma became YHWH. How very ancient the diagram is, and how wide its dispersion, is suggested by Egyptian mythology in the *Book of the Dead*, portions of which are at least as old as the third millennium. In Chapter 125, a deceased Egyptian is provided with 42 "negative affirmations" ("I have not . . .," followed by some specific sin) which his soul must be prepared to affirm before the throne of Osiris to qualify him for admission to the Egyptian heaven. The scene in the great "Hall of Double Truth" is painted in graphic detail: the heart of the deceased is weighed in the Great Balance against *Maat* (the "feather of the law"), while 42 judges—a row of 21 along each side of the hall—witness the ceremony.⁸ In Chart 10 there are 21 elements along the top, reciprocals of the 21 along the bottom, for a total of 42, and the "Great Balance" is the central crossing. Buddhist metaphor and graphic designs boldly give its holy mountain, Meru, or Sumeru, an "hourglass" shape which no physical mountain ever had, and the hourglass drum plays a central role in Hindu and Babylonian temple rites.

But what is the evidence that biblical authors knew this specific diagram? The strongest evidence is a Mosaic law decreed by God Himself, but before examining it let us look carefully at His name to see exactly Who is speaking. His unspeakable name is YHWH, converted to LORD in our Revised Standard English Bibles, and meaning 10 5 6 5 in the later "gemetric" values of the Hebrew alphabet, which serves also as a numerical notation. We see immediately that the mountain is $10 + 5 = 15$ levels high, and that the straight descent from there along a right diagonal \ (or along any of its parallels) consists exclusively of 65 ratios. His name, then, could function very well as a code by which the pattern is easily memorized. There is a curious variant of His name, YHW = 10 5 6, which drops the last letter (sometimes written as Yahwe instead of Yahweh) and the reduced gemetric value is $10 + 5 + 6 = 21$, the number of elements along the base. It is YHWH (or YHW) who decrees the following law; notice how he uses the numbers 7 and 14, 33 and, 66, and the octave number 8, and

⁸ Thomas George Allen, trans., *The Book of the Dead or Going Forth by Day* (Chicago: The Oriental Institute of the University of Chicago, 1974), pp. 97-102.

notice that the context concerns male and female births and the need for purification. Our mountain is a genetic record of male and female births, and a testament to the need for purification.

The LORD (YHWH) said to Moses, "Say to the people of Israel, If a woman conceives, and bears a male child, then she shall be unclean seven days; as at the time of her menstruation, she shall be unclean. And on the eighth day the flesh of his foreskin shall be circumcised. Then she shall continue for thirty-three days in the blood of her purifying; she shall not touch any hollowed thing, nor come into the sanctuary, until the days of her purifying are completed. But if she bears a female child, then she shall be unclean for two weeks, as in her menstruation; and she shall continue in the blood of her purifying for sixty-six days (*Leviticus 12:1-5*).

Note first the double period of uncleanliness for female births as compared with male—two weeks, or 14 days versus 7, and the double period for purification-66 days versus 33, and the circumcision on the 8th day, at the octave. Now observe that the square root approximations in the 1st and 15th rows of the mountain -in Chart 10, with the "great cloud" of the Holy Spirit upon it, divide their 21 elements into a male "Passover" set of 7 and a female "preparation" set of 14; 7 are essential to the arithmetic, the remaining 14 are incidental. Next observe that there are 33 reciprocals both above and below the central axis of the diagram, or a total of 66 outside the invariant central axis. The male offspring who accompany Jacob to Egypt number 66 (Gen. 46:26). Most curious of all, note that the counter in the lower left corner, originally conceived by us as $3^\circ \times 5^\circ 1$, must be doubled 33 times to become $2^{33} = 8,589,934,592$ before the mountain is completed. Finally notice that circumcision at the octave, 8, is precisely what our musical arithmetic requires—and what the law stipulates. This intimate

and total correspondence between the law and the diagram seems very impressive. Let us study the mountain even more carefully.

The first task in building our holy mountain is to generate the consecutive powers of 5 which constitute the ascent. Today we can rapidly multiply to $5^{14} = 6,103,515,625$ and arrive at the peak with no effort. Our ancestors had to count symbols, adding five units to reach 5, and then five of the results to reach 5^2 , and so on up the mountain, reaching 5^{14} at the culmination of $5 \times 14 = 70$ consecutive additions. The biblical association of 70 with the holy mountain is impressive. YHWH, when giving the laws to Moses, invited him to ascend the holy mountain with "seventy of the elders of Israel" (*Exodus* 24:1). Later YHWH said to Moses:

"Gather for me seventy men of the elders of Israel, whom you know to be elders of the people and officers over them; and bring them to the tent of meeting, and let them take their stand there with you" (*Numbers* 11:16).

Moses did as he was commanded and placed seventy elders about the tabernacle:

Then YHWH came down in the cloud and spoke to him, and took some of the spirit that was upon him and put it upon the seventy elders; and when the spirit rested upon them, they prophesized" (*Numbers* 1:24-25).

Abraham was born when his father, Terah, was 70. The next biblical mention of 70 concerns Jacob: "All persons of the house of Jacob, that came into Egypt, were seventy" (*Genesis* 46:27). "All the offspring of Jacob were seventy persons" (*Exodus* 1:5). We must not let our own easy computation hide from us the 70

operations originally required to construct the ascent. If YHWH traditionally appears on the top of the mountain it may be because the Mosaic formulas to be studied later allow all of the other computations to proceed very easily and simply from this highest power of 5. Reaching 5^{14} was the only difficult part of the computation, and it was more tedious than difficult.

By now the reader should understand that the upper and lower halves of the cloud-mountain matrix in Chart 10 are mathematically equivalent. The 7 tone-numbers in the central axis together with the 33 reciprocals *either* above *or* below (within the common boundaries of the mountain and its inverse) can generate as much tonal material as the whole set taken together. Thus $7 + 33 = 40$ are the only essential elements in the construction, although we understand that only in retrospect. Forty days and nights are thus the appropriate number for Hebrew prophets to meditate on holy mountains, for 40 alternations teach all that is of interest. When Moses climbed Mount Sinai to receive the laws from YHWH, he remained on the mountain "forty days and forty nights" (*Exodus* 24:18). When he later ascended Mount Horeb to receive the Ten Commandments he remained there for a similar period (*Deuteronomy* 9:9 and 10:10).

The flood data also points to the same holy mountain. The flood was caused by YHWH sending "rain upon the earth forty days and forty nights" (*Genesis* 7:4). The Hebraic flood covered the peaks of the mountains "fifteen cubits" deep (*Genesis* 7:20). And the flood "continued forty days upon the earth" (*Genesis* 7:17).

Wandering in the Sinai desert triangle, the twelve tribes led by Moses subsisted for 40 years on "manna" from heaven (*Exodus* 16:35). Our holy mountain makes structural sense out of this data.

Now notice how $2 \times 36 = 72$ elements are paired around the center of our cross in Chart 10; three elements in row 8 on either side of the crossing, plus 33 in the rows above or below, are reciprocals of the remaining 36; hence there is a very important set of 72 elements before our eyes. This number occurs more frequently in the Jewish legends than in the *Bible*, and in suggestive ways. There are 72 nations in the time of Noah, "each with a language of its own" (1.173). Adam masters

"all of the seventy-two kinds of wisdom" (V.118). The number of diseases which man suffers because of the "fall" is sometimes given as 72 (V.123). According to Aristeads, 72 elders translated the Hebrew *Bible* into Greek (VI.88). Work on Solomon's temple stopped only after its 72 towers had been completed (VI.457). Alternate vision sees 72.

Now look at all of the 7's which are embodied in Chart 10. There are $7 + 14$ elements in the top and bottom rows. The seven invariances in the central axis, originally the Dorian scale in the 432:864 octave, have all been multiplied by $10,000,000 = 2^7 \times 5^7$. The field of reciprocals contains 7 rows with 7 elements each (rows 5, 6, 7, 8, 9, 10, and 11). The best square root approximations for the central octave are found in the seventh counters in the seventh rows above and below the axis. We never used 7 as a tone-generator (YHWH rested on the 7th day) but we have reaped an abundance of meaningful 7-element sets. The 7 rows of 7 reciprocals (rows 5 through 11) remind us that Joshua's army circled Jericho for 7 days, and 7 times on the 7th day, opening Canaan to the entry of the Jews, just as today the Muslim pilgrim encircles the Ka'ba 7 times in remembrance of Muhammad's doing so. Perhaps only musicians are capable of believing that 7-tone (*heptatonic*) scales are among the most felicitous artifacts of human culture. Siegmund Levarie and Ernst Levy have called the octave, the matrix for such scales, the "basic miracle of music."⁹ The human ear is the only organ of sense which carries within itself the basis of a metric system, for the ear alone recognizes cyclic repetitions within the phenomena it perceives specifically at every doubling or halving of frequency. The musical octave is the basic matrix in the harmonical cosmology of all ancient societies; ratio theory in particular and human rationality in general owe vast debts to the very special character of our pitch perception.

Our holy mountain is, resonating in rather remarkable ways with biblical numerology and Jewish legends. I propose to study it now even more intensely—but by way of a simplifying digression on the ark of the tabernacle and the sacrificial altar.

⁹ Siegmund Levarie and Ernst Levy, *Tone: A Study in Musical Acoustics* (Kent: The Kent State University Press, 1968), p. 212.

Their greatly reduced numerosity provides much simpler lessons in harmonical arithmetic.

The Ark and the Altar of the Tent Tabernacle

The Ark (Hebrew "chest" or "box") of the tabernacle, presumably containing the two tablets of commandments given to Moses, is assigned dimensions by YHWH which connect it directly with our holy mountain:

Two cubits and a half shall be its length, a cubit and a half its breadth, and a cubit and a half its height.
(*Exodus* 25:10).

The cubit was conceived as the length of the forearm from the elbow to the tip of the middle finger. The three dimensions assigned by YHWH translate into our terms:

$$5/2 \times 3/2 \times 3/2.$$

The holy mountain, in its first stage of construction, is the multiplication table for 5×3 ; the second stage is the doubling which brings all values within the range 1:2. The ark has a "mercy seat": "two cubits and a half shall be its length, and a cubit and a half its breadth" (*Exodus* 25:17). This again translates into $5/2 \times 3/2$, values commensurable with our mountain. With one exception, all of the other tabernacle measures are multiples of 2, 3, and 5, our mountain generators. Ten curtains, however, measure 4×28 cubits each, hence the prime number 7 is skillfully embedded in the

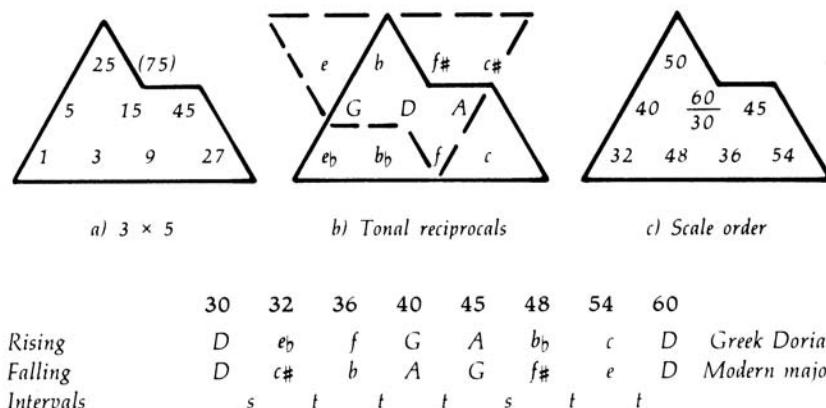
tabernacle imagery, and we must eventually explore its harmonic implications.

All action is centered on the sacrificial altar, hence we dare not overlook the slightest detail:

You shall make the altar of acacia wood, five cubits long and five cubits broad; the altar shall be square, and its height shall be three cubits. And you shall make horns for it on its four corners; its horns shall be of one piece with it, and you shall overlay it with bronze" (*Exodus 27:1-2*).

The altar is thus $5 \times 5 \times 3 = 75$, one of our mountain numbers, conceived here as a "solid" number (i.e., the product of three dimensions), so that our tone-values have a direct link to the tangible, physical world. Now many elements of *Old Testament* numerology can be linked together if we interpret 75 as the

Chart 11: Babylonian-Platonic Matrix



The 'foundation stone' for the Hebrew altar is the number 75, rejected here.

The diatonic scale in smallest integers is the ancient Greek Dorian scale in the 30:60 octave double, defined by the regular numbers of the sexagesimal system (products of 2, 3, and 5) up to 60. The reciprocal falling scale is our modern major mode. The 'leader,' 50, is not required for the scale.

"altar stone" of an harmonic matrix. This value seems to have been chosen to deliberately separate Judaism from its Babylonian Semitic ancestry. The smallest octave matrix known to Plato, and probably brought home to Greece from Babylon by Pythagoras, is generated by the prime numbers 2, 3, and 5 within the double 30:60. The Jewish altar value lies outside this matrix—and in a most interesting way: it is the first product of 3^p x 5^q which is larger than 60. The Platonic-Babylonian foreign matrix is shown in Chart 11; notice the shoulder of the mountain where 75 belongs (to the right of 25). A Psalm of David seems to allude specifically to this number: "The stone which the builders rejected has become the chief cornerstone" (*Psalm 118:22*). This becomes one of the most powerful metaphors of the *New Testament*. It is quoted by Jesus (*Matthew 21:42*), and He Himself is identified as the cornerstone (*Acts 4:11* and *Ephesians 2:20*). In *New Testament* rhetoric, of course, He is the "rejected stone" (*Peter I 2:6-8*).

I suggest that the harmonic matrix in Chart 11 may be the inspiration for both the original "tent tabernacle" of the *Bible* and for Babylonian ziggurats conceived as a home for the gods. The three great gods of the Babylonian pantheon are deified numbers—Enki 40, Enlil 50, and Anu 60—which by themselves can generate harmonic mountains of any size. Notice their positions in the diagram, with Enlil 50, the "Mountain God," at the peak. When the Babylonian pantheon was reorganized to win a victory under the leadership of Marduk (Baal), the greatful gods built him a splendid temple with "a throne dais, a seat with a back support," and Enlil granted him his own "50 names."¹⁰ The number 75, Judaism's "chief cornerstone," is planted squarely in Marduk's seat, and he is firmly ejected as YHWH's chief enemy. The number 75 plays two other significant roles in Biblical numerology. Abraham departed from Haran to take up YHWH's cause at the age of 75 (*Genesis 12:4*). And Solomon, when he had completed the splendid new temple in the City of David, built for himself a platform in the court of the temple exactly the size of the original altar — $5 \times 5 \times 3$ cubits (*Chronicles II, 6:13*).

¹⁰ Alexander Heidel, *The Babylonian Genesis* (Chicago: The University of Chicago Press, 1942, 1951), p. 48.

But if $5 \times 5 \times 3 = 75$ is really "chief cornerstone" and "the stone the builders rejected" in Babylon, where is the rest of the Hebrew altar, with its four horns "of one piece with it?"

The Hebrew Altar

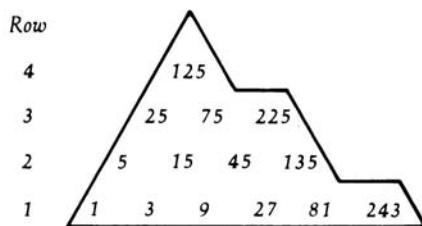
If the "chief cornerstone" is 75, then the Hebrew altar harmonical limit is $4 \times 75 = 300$, for reasons which should become clear in a moment. The *Bible* makes no secret of the power in the number 300. YHWH Himself, to make certain that the credit for victory would go to Him, tested the 32,000 soldiers who volunteered for Gideon's army and reduced their numbers to 300 (*Judges 7:1-8*). Chart 12 develops the Hebrew altar matrix on the model of Chart 11, first setting forth the multiplication table for 3×5 up to the limit of 300, and then doubling the products as many times as necessary to bring them within the octave limits 150:300. Multiplications such as $2 \times 75 = 150$ and $4 \times 75 = 300$ ensure that our "cornerstone" is both the center of symmetry in the matrix and beginning and end in the octave progression. When the "pillar of cloud" or "Holy Spirit" descends on the altar (i.e., when the matrix is rotated 180° on its cornerstone), we see that the invariances are precisely the same as in the Babylonian matrix of Chart 11. Our cornerstone *D* is joined with four other tones, *G-A* and *b-f*, "horns" of one piece with it. Even this metaphor is ancient: Enlil (50) was also described as inventing a "pickax . . . whose tooth is a one-horned ox ascending a large wall."¹¹ The "four horns" can be visualized as rotations of Enlil's "tooth." The altar scale—*D e, f G A b, c*—is identified by Eric Werner with the traditional synagogue songs of Yemenite, Moroccan, and Persian Jews.¹² It is the basic Greek Dorian scale of Plato's *Republic*.

¹¹ Samuel Noah Kramer, *Sumerian Mythology* (Philadelphia: University of Pennsylvania Press, 1961), p. 52.

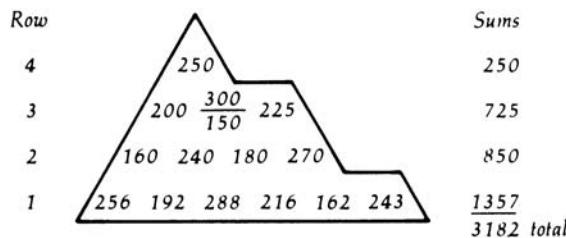
¹² *The Sacred Bridge*, pp. 4415.

The greater numerosity of the Hebrew altar *proves* there is a flaw in the arithmetic—the *diesis* 125:128 (at 250:256). The human number 5—and the Sumerian-Babylonian Enlil = 50—do not produce perfect cycles. By comparison with the Hebrew altar, the Platonic-Babylonian matrix belongs to an age of innocence; no problems whatever are apparent.

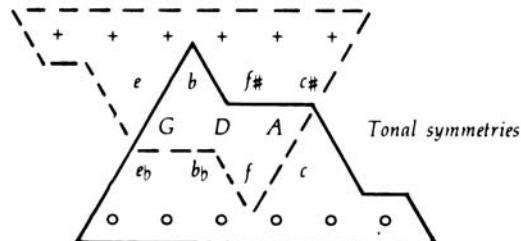
Chart 12. The Hebrew Altar



a) "The stone which the builders rejected," $5 \times 5 \times 3 = 75$, has become the "chief cornerstone."



b) The altar limit is 300 warriors "chosen by God." Its "covering" is forged from the censers of 250 men. This "doubling" is required for the scale order.



c) The Shekinah, "Holy Spirit," is present when God's "thick cloud" descends on the tent tabernacle.

The Hebrew altar is a variation of the Babylonian-Platonic altar in Chart 11. It contains all of the same tonal possibilities, but in a new context.

The Altar Cover

Confirmation of our altar comes from the biblical story concerning its "covering" number of 250 (peak of the altar triangle in Chart 12) and from some of the census data.

An insurrection breaks out against Moses' leadership. Its 250 leaders are commanded to stand before the tent tabernacle, censers in hand, while YHWH demonstrates how he treats those who despise Him. The earth opens its mouth and swallows them, and they descend alive into Sheol where fire comes forth from YHWH to consume them. At this moment, Moses commands the 250 censers they were holding to be salvaged from the fire and to be made "into hammered plates as a covering for the altar" (*Numbers 16:1-40*). Chart 12b shows how 250 "covers" the altar.

A sequel to this story may also contain an interesting lesson in biblical arithmetic. On the next day the people murmured again against Moses and Aaron for having caused the death of their 250 leaders. YHWH appeared in a cloud over the tabernacle and commanded Moses and Aaron to stand aside while he vented his wrath on the assembly. To divert this Holy Anger, and save his people from YHWH's wrath, Moses sent Aaron to fetch fire from the altar, lay incense on it, and then run among the people, making atonement. This quick action succeeded in its purpose, but not before 14,700 people had lost their lives. Now 14,700 is exactly 300×49 . Hebraic arithmetic requires the prime number 7, as we shall see in a moment, and we have already noted $7 \times 7 = 49$ elements in our holy mountain, but acoustical theory in so far as I understand it has absolutely no use for $7^2 = 49$ as a multiplier (or tone-generator). This allegory may stand early in the *Bible* as a warning against superfluous multiplications. Jewish legend lends an interesting support for this hypothesis: Hell has 7 divisions, each with 7 subdivisions, each with 7 rivers of fire and 7 of hail, each subdivision having 7,000 caves, and 7,000 crevices in every cave, etc. (1.16). The rule must always be: *smallest integers* for the immediate purpose. Superfluous numerosity is an arithmetician's hell.

The "covering" number 250 is hidden in an even more curious context. Temple services are conducted by three families of Levites who own no "land" themselves but are supported by the tithes of the 12 tribes. Now the prime number 11 has no "land" in our harmonical mountains, but $11 \times 250 = 2,750$ is the number of adult male Levites among the descendants of Kohath, Aaron's second son (*Numbers* 4:36). These men are designated by YHWH to carry the "holy things" on their shoulders (*Numbers* 7:9)—walking barefoot and backwards, according to legend, because they were forbidden to turn their backs on the ark (111.229). The presence of the prime number eleven among the Kohathites is highly suggestive, and I will return to it later. They were forbidden to actually touch the ark on pain of instant death (*Numbers* 4:15).

First-Born Sons

Supporting evidence for our altar construction can be found in the first census of the wandering tribes in the Sinai desert. First-born sons in the 12 tribes totaled exactly 22,273 (*Numbers* 3:43). Now the *sum* of all the numbers within the altar matrix is 3182. In Chart 12 add:

$$\begin{aligned} 250 + 200 + 300 + 225 + 160 + 240 + 180 + 270 \\ + 256 + 192 + 288 + 216 + 162 + 243 = 3182. \end{aligned}$$

We have already met the "landless" factor of eleven among the Kohathite Levites. The "landless" 7 taken as 7 times 3182 (i.e., the sum of an altar constructed with numbers 7 times as large) is 22,274, a total of which exceeds the 22,273 first-born by only 1. Who could be the missing man? The High Priest Aaron, so the *Babylonian Talmud* twice affirms (in *Bekeroth* 4a). Aaron is

first-born in the tribe of Levi, but is not counted apparently because he himself is conducting the census. And the census figures themselves lead us right back to our "cornerstone" The total Levite men one month or older is 22,300 (Gershon 7,500 + Kohath 8,600 + Merari 6,200 = 22,300), of which only 22,000 are available to "ransom" the first-born sons of the other tribes (all first-borns belong to YHWH) because 300, as the legends tell us, are themselves first-born in their own Levite families (*Numbers* 3:21-39). Our altar cornerstone needs exactly 300 servants just as its cover needs 250. To rectify the discrepancy between 22,000 eligible Levites and 22,273 first-borns, 273 men are chosen by lot to pay a redemption tax of 5 shekels each; $5 \times 273 = 1365$ shekels are then collected and turned over to Aaron (*Numbers* 3:44-51). Note the concern with precision.

Computation with 7 and 11

We have encountered the prime numbers 7 and 11 repeatedly in our Levite arithmetic, although they are nowhere to be found on the holy mountain itself. These landless servants are supported by the tithes and forbidden even to touch the holy things entrusted to them: Kohathites carry the ark by two wooden poles inserted through the rings on its feet (*Exodus* 25:10-16).

The prime number 7 in the ratio 7/5 gives the simplest approximation to the square root of 2, and it was still as useful to Plato as it had been to the Babylonians a thousand years earlier in computing the diagonal of a square. All of the numbers in the holy mountain *except those in the bottom row* contain at least one factor of 5, hence they can generate 7/5 ratios in integer form. When Moses ascended the holy mountain the first time, YHWH warned him to "set bounds for the people round about, saying,

'Take heed that you do not go up into the mountain or touch the border of it; whoever touches the mountain shall be put to death' " (*Exodus* 19:12).

Later YHWH warns his people:

"When you reap the harvest of your land, you shall not reap your field to its very border" (*Leviticus* 19:9).

The lower borders of any of our harmonical diagrams do not permit the application of the most useful ratio for diagonals of squares, $7/5$, because their numbers are never divisible by 5.

For all of its convenience, $7/5$ is really not very accurate, and YHWH's sense of justice is rather precise. If we dare to allow imagination to play a role, the story of Abraham leads to a far better formula.

Biblical arithmetic has a powerful emphasis on decimal transformations, and Abraham, eponymous ancestor of the Jews, performs an interesting surgery on himself just before reaching 100. Abraham circumcises himself at the age of 99, just before fathering Isaac, and on the same day that he circumcises Ishmael at 13 (*Genesis* 17:24-25). We have noted earlier the significant role of 70 in the holy mountain and the Hebrew *Bible*; note now that the ratio $99/70 = 1.41428$ is a square root approximation correct to *four decimal places*, significantly more accurate than the ratios in the holy mountain itself.

Question: Could biblical authors be unaware of this formula? The ratio $10/7$ is the complement of $7/5$, and is as much too large as it is too small. But the subtraction of 11100th part—performable only on a number which is a multiple of 100—leads to this very remarkable correction. The ratio $99/70$ can be applied, of course, only to "first-born sons" who have a

factor of 7 in their genes. The beauty of 99/70 is in the simplicity of its application. There is a related complementary formula for 140/99, but the first slight improvement is given by 239/169, and the inconvenience of these 3-digit numbers is obvious.

The circumcision story in *Genesis* links the numbers 8, 13 and 99 together. In the oldest tuning known, it is the 13th tone in the cycle of fifths which must be eliminated, for the generative ratio of 2:3 is slightly oversized for an octave frame 1:2. The square root approximation of 10/7 is also slightly oversized for the geometer's square. These formulas must be rectified at the octave, 8, where both apply. Such circumcision is arithmetically essential to compensate for the "original sin" in the holy mountain of integers $2^p 3^q 5^r$ used in ancient harmonic theory. This elaborate mythology exhibits a fluent mastery of Diophantine approximation—a subject which is still difficult today. Circumcision is a central theme in Jewish mythology. It seems remarkable that Adam, Seth, Melchizedek, Noah, Jacob, Gad, Joseph, Jeremiah, Moses, Obed, and David are all reputed to have been born circumcised, and that circumcision was considered an "improvement" of the natural condition.

The prime number 11, lying beyond the "Ten-ness" deified in holy mountains, is important to Hebraic mythology also, for $2 \times 11 = 22$ letters of the alphabet all but deifies it. This number, excluded from the tone-field in the diameter/circumference ratio of 22/7, was as convenient as it was essential to accurate computation. Like the ratios 3:2 and 10:7, 22:7 is also slightly oversized and could profit from a bit of "circumcision." The 22,000 Levites seem to ensure the arithmetical conditions under which this ratio could be employed. Could biblical authors have been ignorant of this pi value? The implied pi value for the circular "sea" in Solomon's temple, holding the "baths" in which the priests washed away the blood from the sacrifices, is the Old Babylonian value of 3, for the diameter is stated as 10 cubits and the circumference as 30 (*Kings I* 7:23). This deplorable inaccuracy has provoked much discussion. I suggest that the *Bible* writers were certain enough of their abilities to have the courage to record not the better formula

they knew but the traditional formula they had inherited. Further study is required to discover if 22 is embedded deeply in biblical arithmetic.

The Sacrificial Offerings

The most frequently repeated formulas in the Old Testament are those for the "burnt" offerings—lamb, ram, and bull—and their accompanying cereal offerings of "fine flour mixed with oil," followed by a libation (*Numbers 15:4-10*).

Offerings	Cereal	Wine
Lamb	1/10 ephah	1/4 hin
Ram	2/10 ephah	1/3 hin
Bull	3/10 ephah	1/2 hin

The lamb and ram formulas structure the holy mountain by the simplest arithmetic possible. The bull formula leads directly to our square-root value.

I shall apply the offering formulas to the altar construction in Chart 12; the reader who practices on the altar should then be ready to apply the same formulas to the 10-digit numbers of the holy mountain.

A "lamb offering" of 1110 when subtracted from any number lets us *descend* to the "shoulder" below. Test by noting how $250 - 250/10 = 225$, and $270 - 270/10 = 243$. Alternately, using the wine formula, a subtraction of 114 will lead us to the next counter to the right. Test by noting that $200 - 200/4 = 150$, and $300 - 300/4 = 225$, doubling being occasionally required to stay within the matrix. Additions of 114 lead straight up any of the ascents // / by 4:5.

A "ram offering" of $2/10$ added to any number will bring us straight down the mountain along any right diagonal, \, which is always a succession of 5:6 progressions. Note that $250 + 250/5 = 300$, and $150 + 150/5 = 180$, and $180 + 180/5 = 216$, occasional halving being required to stay within the matrix. The "redemption" formula is the same: anything pledged to YHWH can be redeemed by paying the Levites its full value plus one-fifth (*Leviticus* 27:30-31). Such straight descents, however, would eliminate all of the "shoulders" from the mountain and leave us with an equilateral array with 15 pebbles on a side, or a total of 120 counters, a number also associated with Adam and prominent both in the *Bible* and the related legends. The associated wine formula of $1/3$ lets us traverse any row of the matrix *from right to left* merely by adding or subtracting one-third from successive values, choosing whichever operation keeps results within the matrix. Let us test the second row: $270 - 270/3 = 180$; $180 + 180/3 = 240$; $240 - 240/3 = 160$, etc. Since all of our harmonic arrays are similar to *logarithmic* graphs, these operations can be carried out anywhere within their borders, but not necessarily on their borders.

We now know how to climb the holy mountain, to descend along any desired path, and to move freely back and forth upon it, using either decimal operations which require no computation, or related operations which can be done mentally via multiplication or division by 2 and by 3. Modern computers merely speed up calculations which were always easy for those who understood. It is the tonal assumptions, "octave equivalence" in particular, which make easy what would otherwise have been an unthinkable achievement for ancient mathematicians. Perhaps someday we shall be able to identify the particular mountain "slope" or "shoulder" which Jacob bequeathed to Joseph on his deathbed:

"I have given to you rather than to your brothers one mountain slope [alternatively, "shoulder"] which I took from the hand of the Amorites with my sword and with my bow" (*Genesis* 48:22).

That slope should be the one containing 75, the altar stone, the age when Abraham received his call from YHWH.

The "bull offering" of 3/10 leaves a remainder of 7/10, and the associated libation of 1/2 (= 5/10) leads us directly to 7:5 and 10:7 and to the square root formulas discussed earlier; and, by extension, to the 22/7 pi value, if biblical authors were alert to arithmetical possibilities. The important "Jubilee" cycle of 50 years—nothing could be sown or reaped in the 50th year, and all debts were automatically cancelled (*Leviticus* 25:8-12)—seems an obvious reference to the use of 7/5 as a square root approximation, for $5^2 \times 2 = 50$ and $7^2 = 49$, so there is an obvious gap in the arithmetic between 49 and 50 where "nothing can be sown or reaped." Need we have the slightest doubt why a Messiah was needed? Or on what cross he was intended to be crucified? The center of all of our crosses is "One" in the sense that, under reciprocation, the center is the geometrical mean in the field of rational numbers, and One is always God. These computations are summarized below.

Chart 13: Ascent and Descent of the Holy Mountain

Row	The Ascent			The Descent		
			(doubled)			
15	5^{14}	=	6,103,515,635	6,103,515,625	-----	1.2 =
14	5^{13}	=	1,220,703,125	4,882,812,500	7,324,218,750	x .9 =
13	5^{12}	=	244,140,625	7,812,500,000	6,591,796,875	x 1.2 =
12	5^{11}	=	48,828,125	6,250,000,000	7,910,156,250	x .9 =
11	5^{10}	=	9,765,625	5,000,000,000	7,119,140,625	x 1.2 =
10	5^9	=	1,953,125	8,000,000,000	8,542,968,750	x .9 =
9	5^8	=	390,625	6,400,000,000	7,688,671,875	x .6 =
8	5^7	=	78,125	5,120,000,000	4,613,203,125	x 1.8 =
7	5^6	=	15,625	8,192,000,000	8,303,765,626	x .6 =
6	5^5	=	3,125	6,553,600,000	4,982,259,375	x 1.2 =
5	5^4	=	625	5,242,880,000	5,978,711,250	x .9 =
4	5^3	=	125	8,388,608,000	5,380,840,125	x 1.2 =
3	5^2	=	25	6,710,886,400	6,457,008,150	x .9 =
2	5^1	=	5	5,368,709,120	5,811,307,335	x 1.2 =
1	5^0	=	1	8,589,934,592	6,973,568,802	--

The mountain is ascended via successive powers of 5—which are then doubled as many times as necessary to bring them within the octave module 1:2 expanded to 4,320,000,000: 8,640,000,000. The mountain is descended either by adding 2/10 for the straight descent, \, or by subtracting 1/10 for the shoulder on the right, doubling or halving as necessary to remain within the module.

Related Imagery

If it were possible to trust our holy mountain in Chart 10 we could read in it how the "firmament" of 7 invariances along the central axis separated the "waters above" from the "waters below" on the first day of Creation, and why YHWH rested on the seventh day. And if the creation drama was played out on the sounding string, we could see how Eve was born from "Adam's rib," for the whole acoustical drama takes place between the middle and the end of the string. And when we reflect that ancient geometers took the same string measures as the diameters of the "great circles" in which they plotted the movements of the heavens, we can imagine why God's promise to Noah was symbolized by a rainbow in the sky.



When we notice that powers of the "divine male number 3" are found only in their purest form along the lower border of the mountain, it is easier to imagine such "souls" being stored in heaven for a future rebirth. Looking at the square root approximations in the first and fifteenth rows we can guess who the fallen angel Rahab is, and where he came from, and to whom he was inimical. We can easily imagine him also being called the "Leviathon of the deep," and being granted a throne on a stone at the bottom of the sea. And remembering how our pebble at the lower left corner grows from $3^0 \times 5^0 = 1$ via 33 doublings into $2^{33} = 8,589,934,592$ when the mountain is completed, we can smile with knowing pleasure at the Hebrew legend which tells that Creation really began when God threw a pebble in the sea, and we can recognize the 21 angels Enoch names. Our diagrams suggest why the Hebraic creation also began with a stone in the Holy of Holies, why the heavenly fire was concealed under a stone, why the name of the Messiah

was engraved on a stone, how precious stones can rain down from Heaven, and how Israelitish infants can suckle milk and honey from stones. The *Legends of the Jews* (consult merely the index, Volume 7, to prove the point) resounds with overtones of an harmonical creation mythology—commingled with other strata of concerns which forbid us to try to harvest them uncritically. Only imagination could reap such a harvest—but harmonic imagination must be disciplined by the cold realities of arithmetic, coupled with a scrupulous concern for both literal and figurative meanings in the texts. Jewish legends are both endless and unevaluated by the criteria we need here. They are a potentially priceless supplement to the cryptic text of the *Bible*. The legends help us understand the imagery which was still very much alive among the Jews in Muhammad's time—and help us to appreciate the vigorous effort the *Quran* makes to suppress the old myths. Its own "seven heavens" and "seven gates to Hell" may preserve a vestigial reminder of our holy mountain, but Jewish legends preserve a far-more detailed commentary. But even the *New Testament* tells us twice: "God is able from these stones to raise up children to Abraham" (*Mathew 3:9, Luke 3:8*).

Conclusions

"Like an eagle that stirs up its nest, that flutters over its young, spreading out its wings," so YHWH led his people to the promised land—Moses sang (*Deuteronomy 32:11*). Look once again on the holy mountain in Chart 10 at how like an "eagle's wings" the "great cloud" of the Holy Spirit appears. "I bore you on eagles' wings," YHWH Himself tells the children of Israel (*Exodus 19:4*). The same imagery recurs at the end of the *Bible* in the book of *Revelation* where the woman destined to bear the savior is given "the two wings of the great eagle that she might fly from the serpent into the wilderness" while the Holy Child safely completes his gestation period (*Revelation 12:9-14*). *New*

Testament numerology is far easier to interpret harmonically, for it is later in time and closer in spirit to the Pythagorean imagery Plato employs, and I have examined it closely in *The Myth of Invariance*. The harmonical interpretations offered here suggest not only that *Old Testament* numerology is far more rational, far more unified than *Bible* scholars have been able to understand, but also that the numerology and related imagery of *Old* and *New Testaments* have a deeper unity than we have hitherto seen. Who has read the *Bible* with an ear for these ancient metaphors?

Modern bible scholars trace the *Old Testament* to four main earlier documents. Nearly all of the numbers analyzed here, and indeed most of the numerical data in the Pentateuch, belong to the so-called *P-document*, thought to be the work of a priest in Jerusalem about 450 B.C., that is, soon after the Babylonian captivity. It is interesting that *Old Testament* numbers come mainly from one source, and that that particular source is likely to have been familiar with the arts and sciences of Babylon.

The *Bible* is obviously far too important to permit hasty conclusions as to what may have inspired its incomprehensible numerology. If the harmonical methods demonstrated here are really appropriate to the *Old Testament*, then these discoveries should lead to further ones. What is interesting about this first effort at harmonical interpretation is its synthesizing power. It links together imagery and data which ought to be unified, but which has not been successfully unified by other methods. God is ONE, the *Quran* affirms, and mathematical harmonics is a powerful instrument for uncovering unity. But the internal unity of the Hebrew Holy Book remains problematical. I claim nothing more than that the harmonical methods exhibited here seem worth pursuing further. That task requires an expertise in Semitic lore and languages which I do not possess. The few results reported here are the fruits of friendship with some remarkable men.

Even if harmonical analysis of the *Old Testament* proves to be justified, it will raise more questions than it can answer. I shall limit myself to just one observation about the possible implications of the analysis presented here: the "moral absolutism" which fanatical monotheists practice on both

friends and enemies—and history is surfeited with Jewish, Christian, and Muslim examples—is in absolute contradiction to the intent of the *Bible*. Justice by itself is inimical to life. The world cannot endure without mercy. In ancient times the proof was harmonical. If the details of *Old Testament* harmonics seem buried rather deeply under the surface of the mythology, it is because biblical authors never intended to teach anything so trivial as a lesson in arithmetic. They were trying to inspirit a people who had been enslaved. They were trying to save a world.

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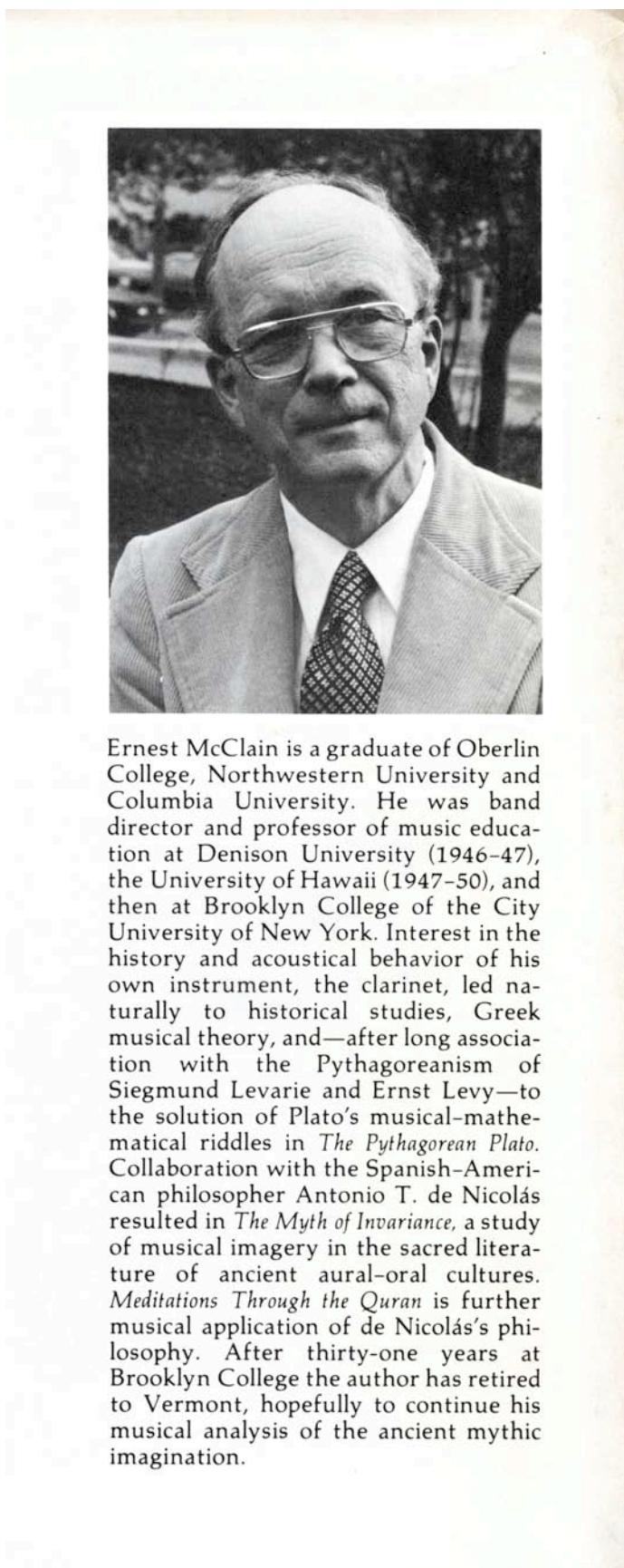
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Ernest McClain is a graduate of Oberlin College, Northwestern University and Columbia University. He was band director and professor of music education at Denison University (1946-47), the University of Hawaii (1947-50), and then at Brooklyn College of the City University of New York. Interest in the history and acoustical behavior of his own instrument, the clarinet, led naturally to historical studies, Greek musical theory, and—after long association with the Pythagoreanism of Siegmund Levarie and Ernst Levy—to the solution of Plato's musical-mathematical riddles in *The Pythagorean Plato*. Collaboration with the Spanish-American philosopher Antonio T. de Nicolás resulted in *The Myth of Invariance*, a study of musical imagery in the sacred literature of ancient aural-oral cultures. *Meditations Through the Quran* is further musical application of de Nicolás's philosophy. After thirty-one years at Brooklyn College the author has retired to Vermont, hopefully to continue his musical analysis of the ancient mythic imagination.

Meditations through the Quran

Applying his vast knowledge of harmonics to the study of the Ka'ba, Ernest McClain reveals how this central symbol of Islam is related to the harmonic proportions of the Sumerian ark, the Prajapati cycle, the Platonic myth of Atlantis, and in fact, to the interior dimension of all known traditions of antiquity—in accordance with the nature of Islam—and as a final revelation and synthesis of all his previous harmonic revelations.

Before being the source of Islamic ethics, jurisprudence, cosmology and sacred history, the *Quran* is a world of sacred sound, the Word of God, whose chanting fills space and transforms the matrix of ordinary life into vibrations of the Divine Presence. It is this immediate and primordial experience of the *Quran*—as aural revelation—as a message from Heaven, to be *heard* before being read or analyzed, that is dealt with in this work of exceptional value. The fact that a scholar who is not a philologist of Arabic (or other Semitic languages) but a musician and expert on Pythagorean harmony should be able to write this book—which reveals a great deal more of the meaning and inner reality of the *Quran* than most Western "scholarly" analyses of its language and content—is itself proof of the primacy of the aural experience related to this final revelation of the present human cycle.

Altogether, *Meditations through the Quran* is one of the most surprisingly valuable and worthwhile works in Islamic studies to appear in recent years. It is certainly one of the most significant works on the *Quran* in English, and it addresses itself not only to scholars of Islam, but to all human beings attracted to matters of the spirit. The last section of the book is devoted to the "Holy Mountain" and summarizes Biblical number symbolism and harmonics, and is a *tour de force* worthy of long periods of meditation and study.

I recommend this book to all those interested in Islam, as well as to those interested in traditional harmonics. This is one of the few works in a European language that can provide a bridge for an understanding of the significance of the *Quran* as the central theophany of Islam as well as being a Sacred Book which speaks to contemporary men and women everywhere.

From a review by Seyyed Hossein Nasr

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