

Ilm al-raml in islamic and arabic culture



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Distant as it may seem, synergizing mathematics with divination systems and religious practices that transcend the realm of rational thought is an almost impossible endeavor. To get a clear understanding of into the nature of amtehatmical knowelegdew Nonetheless, a careful and detailed examination of some

Historical Background

Ilm Al-raml constitutes an omnipresent divination system in the Arabic and Islamic culture. The literature attributes the Arabic term Ilm Al-raml or ilm Al-khutut to Geomancy. Historically, Geomancy constituted a family of divination systems, including such famous members as Ifa, Fa, 'Sixteen Cowries' (Nigeria and West Africa in general), Sikidy (Madagascar and Comoro Island), Ramalasastra (India), I Ching (China), Hakata (Southern Africa), ilm al-raml or khutut al-raml (North Africa). According to the most recent historical re-enactments, the Hellenic, Jewish, Persian, African, Indian and Chinese borrowings into the Arabic body of geomancy point to a drafting of the classic, strongly astrological geomantic system in Southern Mesopotamia in an Isma'ili context in the tenth century CE. Subsequently, the system's rapid and successful spread over the Islamic and Jewish intellectual world, and hence into Europe, Africa and the Indian Ocean region, was largely due to its being preserved in widely circulated treatises. Of these, perhaps the most famous and successful has been the Kitab al-fasl fi usul 'ilm al-raml) by the Berber sheikh Muhammad al-Zanati (c. 1200 CE) (Van Binsberg , 1996). A careful examination of the binary mathematical structure of both the Southern African four-tablet divination system, and the more directly Arabian-derived forms of geomancy found in the Indian Ocean

region led many historians and researchers to hypothesize a series of historical connections.

In Arabic Islamic culture, ilm al-raml or sand-science goes back to Idris, the Egyptian third Islamic prophet of Allah who came between the prophets Adam and Noah and resided in Egypt during which he undertaken the mission to show people how to write, to sew, to build cities and to use the Science of the Sand (Al-Tokhi, 1991).

The narrative tells that Idriss was taught this science by an angel sent by Allah and he taught it to his people who were practicing "astrology" (Tanjjim).

Description and interpretations

According to the principles of Idrisian facts, all living creatures are made up of four elements: fire, air, water, earth and four results heat, cold, moist, dry, and four directions east, west, south, and north. Also, looking at people's activities they found that they basically used four major practices: weighing, counting, planting, and farming (Van Binsberg, 1996). Then everything balances on four corners, four figures, four extremities (e. g. the human body), and four elements on which they have built unlimited configurations. Partly rooted in simple chance procedures and random processes (like hitting the earth, throwing tablets, beans, shells etc.), ilm al-raml is a binary system of 16 figures. Each figure is 4 rows high and each row consists of either one dot or two dots. The figures are determined through various methods both ancient and modern. The procedure is called darb al-raml or the forceful 'hitting of the sand' with a stick, in order to produce a random number of dot

traces or marks which can then be scored as either odd or even. Four figures are created, and a chart is depicted using simple binary multiplication, and is interpreted based on the meanings of each figure. The 4_(number)" four binary elements of each figure allow for 24 or 16 different combinations. As there are 4 root figures in each chart, the total number of possible charts equals $16 \times 16 \times 16 \times 16$ or 65536. The charts are also interpreted differently. Depending on the nature of the question, ilm al-raml can be considered as one of the most thorough kinds of divination based on only 16 figures which are extremely simple yet with deep connotations. The marks on the ground are interpreted through a process of " transformation and elimination", from one horizontal line, with one or two dots (one for odd, two for even), to a four-line symbol, of which there are sixteen 24 configurations (Van Binsberg , 1996, p. 5) :

With two dots making a line, the above configurations can be written as:

More complex procedures may raise this number to any higher power of 2. A written or memorized key (the catalogue) provides the interpretation of each generated symbol and of their combinations. (Van Binsberg , 1996)

The origin of this science is the dot and its secret is the odd number. Each of the four basic elements has a dot representation. Knowing that the element fire is lighter than the element air and that air is lighter than water and the water lighter than sand and knowing that the heavy element carries the lighter and not vice versa, so the elements in ilm al-raml follow this order: fire then air then water then sand (Al-Tokhi, 1991). Moreover, they assigned 4 letters from the alphabets to designate each one of the 4 elements.

Fire(naar)

Air (hawa')

Water (maa')

Sand (torab)

Ù† (noun)

Ù‡Ù€ (haa')

Ù... (meem)

Ø^a (taa')

Originally, the patterns were created when the munajjim or the geomancer traced dots with a "stylus" across a board of sand or dust. The geomancer then examines and construes the dots, deriving further patterns, and eventually gives an answer or forecast for his client. Ascribed to this pattern of dots are different meanings and interpretations, related to the colors, months, planets, the four elements, the signs of the zodiac and parts of the body.

Conditions when using Ilm al-raml

To hit the sand, the hitter or geomancer or Al-Darib should be facing AL Qubla (a place in Mecca where the Muslims do pilgrimage) and should be clean and wearing clean clothes. He should pray, read certain verses from the Qur'an and place an intention to hit the sand seeking an answer to a question in mind. In the Islamic culture, hitting the sand is not supposed to be done in the following times: during storms or rain, at sunset or sunrise. However, it is preferable to be done after sunset until dawn, the best time is during the night. Also, the hitter shouldn't speak to others while performing

the act. He should be joyful and content and should start with hitting the sand from left to right saying these words: Tash 4 torbash 4 shaqoor 4 tazan 4. (Al-Tokhi, 1992).

Procedure: How it is done

The procedure is administered inductively through a set of pre-determined and systematic series of steps that are embellished by the diviner's skill to intensify and epitomize the importance of the act. The series of steps constitutes a decision making algorithm that, upon execution, results in an outcome which is interpreted by the diviner as either good or bad.

The steps are illustrated in the following example:

Step 1: A customer comes to Al-Darib (the diviner or the person hitting the sand), seeking answers or advice on certain questions. The questions can be related to any type of day-to-day affairs such as marriage/divorce; life/death; finding a thief; pregnancy; happiness; profit/loss, etc..

Step 2: To find the answer, Al-Darib, after fulfilling the above mentioned conditions, makes 4 horizontal lines and on each line he designates 4 rows of random number of dots in such a way that each row has less number of dots than its precedent. Below is a demonstration:

Then Al-Darib eliminates the dots two by two, if the remaining is a single dot he puts a dot otherwise he puts a dash sign. This concept is what is known in arithmetic as counting modulo 2. (Ascher, 2002)

The above figure is called Al-takht (the board in Arabic) and the resulting 4 shapes or configurations are called the "mothers" from which the other

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twelve shapes (4 daughters; 4 granddaughters; 2 off springs; 1 arbitrator; 1 judge) are generated (Al-Tokhi, 1992). Each of the sixteen possible configurations is identified by a name, and for each a number of standard interpretations are given in a catalogue or some type of a written manual. These configurations are derived by a special form of juxtaposition, based on the following computational rules:

even x odd = odd, i. e. $x =$; odd x even = odd, i. e. $x =$

even x even = even, i. e. $x =$; odd x odd = even, i. e. $x =$

In any given shape, the four parts designate from top to bottom: Head; chest; waist; legs.

The above takhit produced the following four mothers' configurations:

Step 3: From the four shapes that constitute the "mothers'" configuration, four other shapes are generated by taking one shape from the mothers' heads, another from their chests, a third from their waists and a fourth from their legs. These four configurations constitute the "daughters". Juxtaposing the first two mothers then the second two mothers and the first two daughters and the second two daughters will generate the four "granddaughters". The same procedure is repeated with every two granddaughters to get the 2 configurations which are called "off springs". Juxtaposing the two off springs together will give one configuration and is called "arbitrator". To generate the sixteenth configuration, Al-Darib multiplies the last shape with the first mother shape to get the "judge". The sixteen configurations generated are shown below:

x

x

x

x

Interpretation:

Each of the sixteen configurations designates a "house" which holds the meanings on which interpretations are made. The houses are different from the configurations itself. While the configuration or shape is the piling up of 4 layers of dots and dashes, the houses are the locations in which these configurations fall (Al-Tokhi, 1992). The first house represents the life of the client, the second house is the house of capital, the third for the brothers, the fourth for the parents, the fifth for the children, the sixth for disease, the seventh for marriage, the eighth for death, the ninth for travel, the tenth for luxury and fame, the eleventh for hope, the twelfth for enemies, the thirteenth for the asker, the fourteenth for the sponsors, the fifteenth for balance and equilibrium and the last shape is for judgment . The shapes in the sand speak to Al_Darib: When he sees distressful or tragic configurations he pronounces bad news irrespective what the object of consultation is. When he sees a mixed configuration he pronounces middle results. When he sees happy configurations he pronounces good news and success.

Kinship relations:

A number of researches indicate that the mothers here do not primary stand for a kinship reference, but for fundamental cosmological entities such as planets or elements,

However, in hitting the sand, the client has to give the name of his mother and not the father. (Al-Tokhi, 1991). This in turn makes the descent series mothers/ daughters/ off springs distinctly " matrilateral". (Van Binsberg , 1996)

Calendar:

The sixteen shapes or configurations are divided among the days, weeks, months, and years. For the days of the week, the shapes are distributed as follows:

Sunday&

Thurs. night

Friday &

Tues. night

Wed &Sat. night

Wed &Fri. night

Sat. &Wed. night

Thurs.&Mon. night

Tues. & Sat. night

Sat. & rest of days

Adopted from Al-Tokhi (1992). Al-usul wa al-wosoul fi ilm al-raml. (Translated from Arabic)

Also, the first twelve of these sixteen configurations are identified with the twelve astrological houses and are interpreted accordingly, taking into account the usual correspondences and conventional meanings of the twelve houses, the planets and the zodiacal signs. The planetary and zodiacal associations of each of the sixteen names are listed in the following table:

Adopted from Van Binsberg, The Astrological Origin of Geomancy, 1996, p. 43.

Closure

Ilm al-raml in Islamic, Arabic culture is a complex cosmological tradition that is still practiced and is highly popular in most Arab countries today. Although it is highly contextual and mostly spread out among the more underprivileged, poverty stricken people, it is nonetheless highly sophisticated with a systematic set of procedures that underlies its implementation and interpretation. As a divination practice, Ilm al-raml encompasses a range of mathematical ideas that are embedded in the daily life of indigenous people and play an unprecedented role in impacting the decisions they undertake in their everyday encounters. Concomitantly, such an inductive, semiotic system is based on mathematical and probabilistic principles that are constantly proposed as vital in the mathematics school

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curricula. Introducing students to such cultural practices can help embed mathematics in meaningful and novel contexts and consequently build a more positive attitude toward mathematics.