

Facing the City: The Influence of Qibla on Street-line Orientation in Islamic Cities

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Abstract: Every mosque in the world is a segment of a circle whose center is the Kaaba. The most significant characteristic of the mosque is the direction that it faces. Hence it is the building's abstract orientation and not its most visible elements (Dome, Minaret, Mihrab etc.) that determines its identity.

But it is that very Qibla orientation that, in many parts of the world, is more often than not at odd with the street-line; itself the outcome of the city's existing grid. Hence the prayer-row ('saf') is not parallel to any of the plot sides and the resultant building sits uncomfortably askew on its site, respecting Qibla but disrespecting the street-line. This is true of many new community mosques that are being constructed in different parts of the world.

The paper argues that it is this very incompatibility of the secular and sacred grids that provides the precious opportunity to re-orient the worshipper. The angular displacement also provides an opportunity to evolve the Qibla's Influence on Mosque Architecture, which the paper elucidates. The paper is followed by footprints of 18 mosques of Mumbai as a first step to document two centuries of mosque building in the city.

Introduction

The mosques in the world share several temporal characteristics. Every mosque is a segment of a circle whose center is the Ka'aba. The most significant characteristic of the mosque is the direction that it faces. Hence it is the building's abstract orientation and not its most visible elements (Dome, Minaret, Mihrab etc.) that determines its identity.^[1-8]

The research has twin-fold objectives: Firstly, it proposes a scientific basis for classifying Mosques. At this stage the hypothesis relies upon its very algorithm for its validity. It can be proved or disproved conclusively, only after examining a statistically significant database of international mosque-plans. Secondly, it attempts to survey the mosques of Mumbai (erstwhile Bombay). It is to be noted that although Mumbai has two centuries of Mosque building activity (the Jami Masjid dates from 1802), no systematic survey and study of them has been undertaken to date. While the task to eventually document it all appears daunting, a beginning has been made with this paper. The process is started on a reconnaissance-survey basis: measure drawings of the mosques have generated layouts, which have been supplanted with photography. This pragmatic strategy has yielded 18 mosques in the enclosed sheets (15 of them have been specially measured to generate drawings for this paper). They are situated in the traditional Muslim-settlements in the central to south zones of the city, except Bandra Jami Masjid included from a northern suburb for taxonomic

reasons. A list of the total mosques documented is given at the end of the paper. The mosques, being very limited in their number, do not constitute a comprehensive database. Their purpose is merely to illustrate the Influence of Qibla on Mosque Architecture manner of classifying and labeling mosques.

The Influence of Qibla on Mosque Architecture has the potential of encouraging research wherever mosques are to be found. It is presently in a primitive state of possessing a single hierarchical level (the genus: angular displacement of prayer hall with respect to the entrance) but requires the introduction of the next level (the specie: angular-orientation / lateral displacement of prayer hall with respect to the entrance / etc.) and further levels to fine-tune it to an instrument as elegant as that of Linneus and Mendeleev (Table 1& Fig.1).

Table 1: List of Documented Mosques of Mumbai

Sr. #	Genus- Angle	Name of the Mosque	Pg. #
01	0°-180°	The Qibla's Classification of Mosques	1
02	0°	Sunni Khoja Masjid	2
03	2°	Gol Masjid	2
04	5°	Ismail Habib Masjid	2
05	8°	Rasool Masjid	2
06	14°	Minara Masjid	2
07	17°	Hamidya Masjid	2
08	23°	Zakariya Masjid	3
09	28°	Kazi Masjid	3
10	30°	Khoja Ishnari Masjid	3
11	39°	Shafee Masjid	3
12	64°	Jami Masjid	3
13	90°	Masjid-e-Majidiya	3
14	90°	Noori Masjid	4
15	90°	Sat-tad Masjid	4
16	109°	Dauni Masjid	4
17	113°	Mogul Masjid	4
18	114°	Khatri Masjid	4
19	180°	Bandra Jami Masjid	4

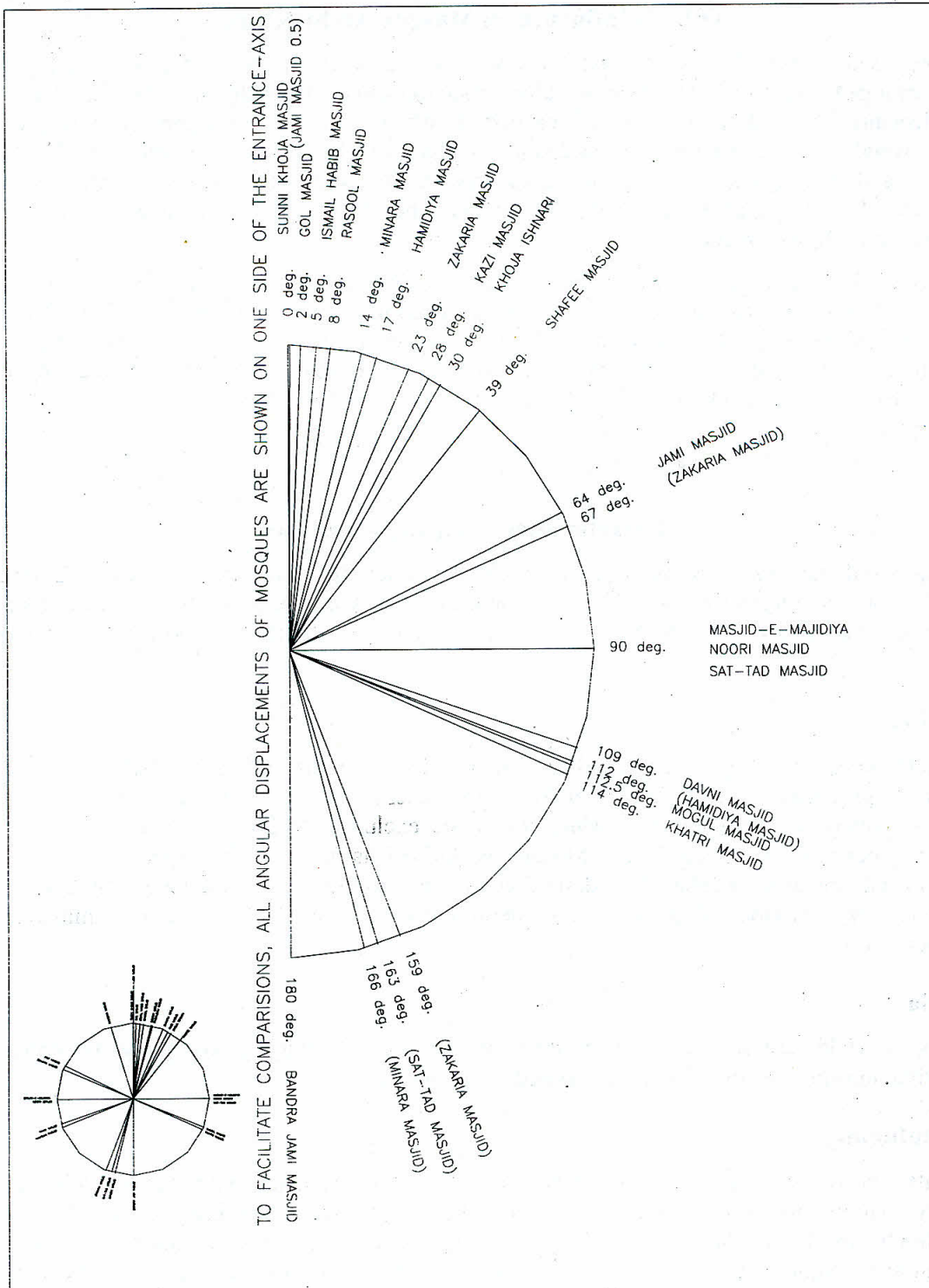


Fig. 1: Angular Displacements of Mosques

Qibla's Influence on Mosque Architecture

The proposed *Qibla Law* states that Mosques show a regular pattern of layout configurations when arranged according to their angular displacements. (Mendeleyev's Periodic Law states that elements show a periodicity of properties when they are arranged according to their atomic weights). The angular displacement is that which occurs between the direction of entrance and the Qibla direction. It varies between 0° (when the direction of entrance is the same as the Qibla direction) and 180° (when the direction of entrance is diametrically opposite the Qibla direction).

Identifying the significant angular displacement delinks the system from both the actual city grid as well as the actual angle of Qibla. What is identified is the resultant relationship of the two. The variables and particulars of the geographical site are subsumed under the abstraction of the ratio - Qibla:Entrance. Hence the universal import and applicability of the system. Hence too its simplicity.

Characteristics of scientific systems

The proposed taxonomy is in keeping with the scientific tradition of Carlos Linnaeus's Classification of Organisms and Dmitry Mendeleyev's Classification of Chemical Elements, sharing characteristics with both. All scientific systems exhibit the following characteristics: (Figs 2-4)

Definition

The field under scrutiny must yield a precise definition that forms the basis on which the taxonomy proceeds. Definitions address the question of identity and determine which elements belong to the field and which are to be excluded. Definitions reveal the essence of the thing defined. Accordingly the Mosque is defined as a demarcated space of worship that is orientated towards Kaaba. Any definition of the mosque that is not based on the Qibla is erroneous; any stylistic addition to the definition (e.g. that which has domes, minarets etc.) is superfluous.

Criteria

Definitions yield criteria that are intrinsic to the field of study. Accordingly the criteria for classifying mosques is the Qibla Law stated in item # 2.1

Non-ambiguity

Elements classified under one category cannot be interchanged with those under another category within the same system. (systems that permit such interchanges are self-negating). Accordingly mosques classified under a certain angle (eg genus- 45°) cannot be interchanged with another angular category (eg. genus- 90°) as their layout- incompatibility prevent such interchange. Hence mosques with multiple-entrances are problematic Perhaps a reductive maneuver from Linneus' classification could provide the solution: a prophyletic (i.e., members converging from different ancestors but possessing common traits) taxon is subdivided and redefined until a monophyletic (members evolving from a common ancestor) taxa results. Accordingly the dominant gateway is identified and its direction is taken to be the datum.

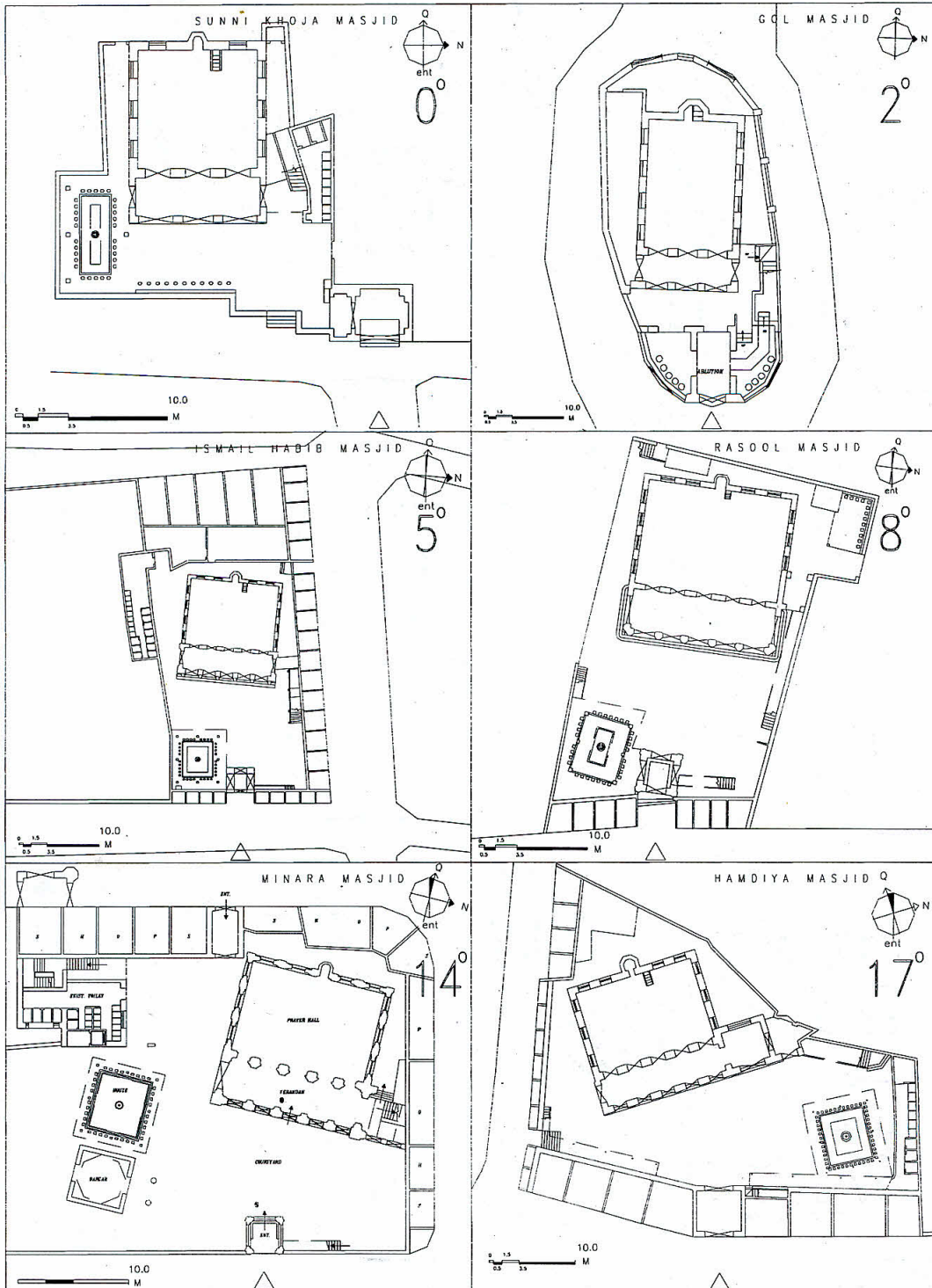
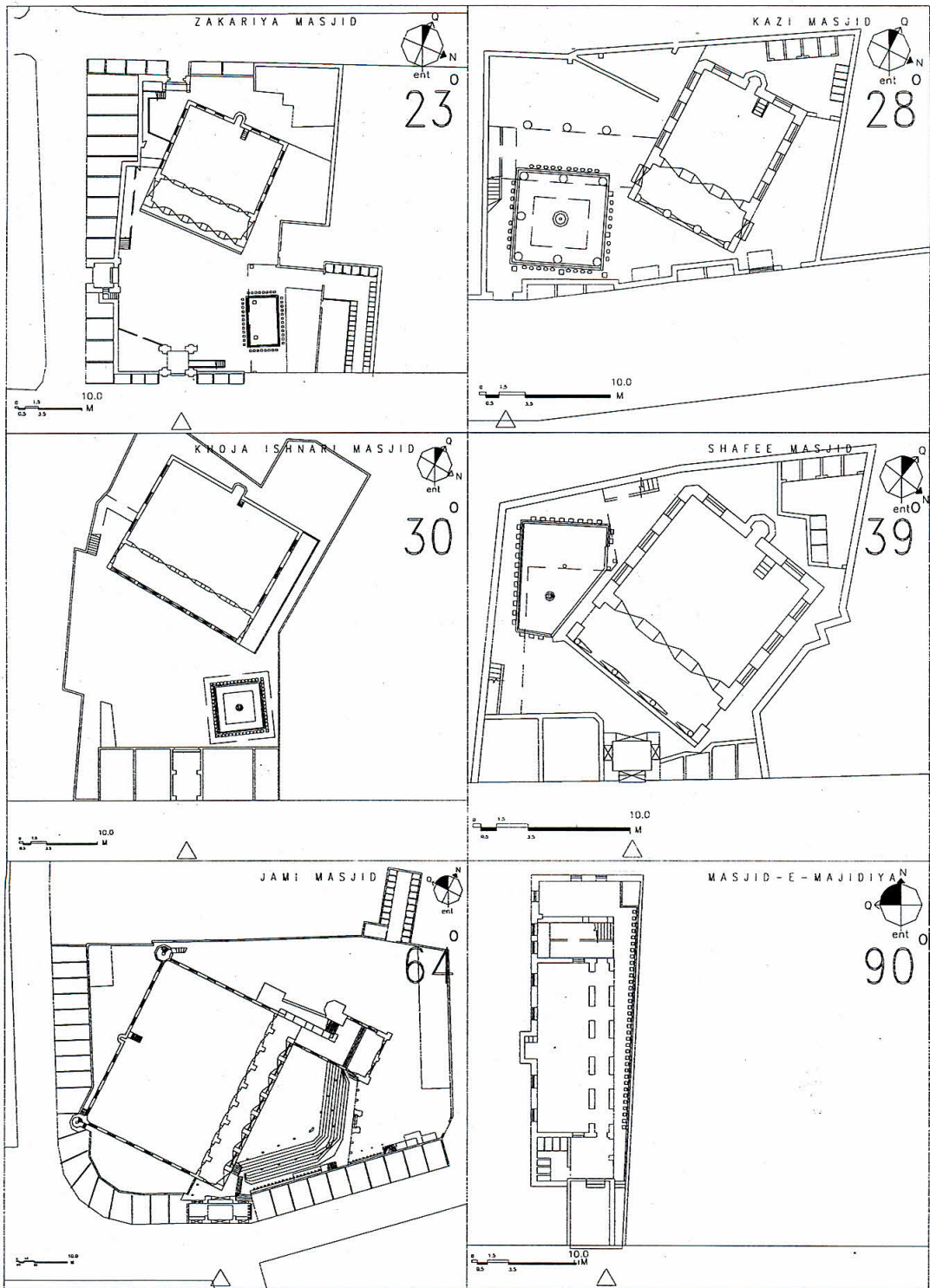
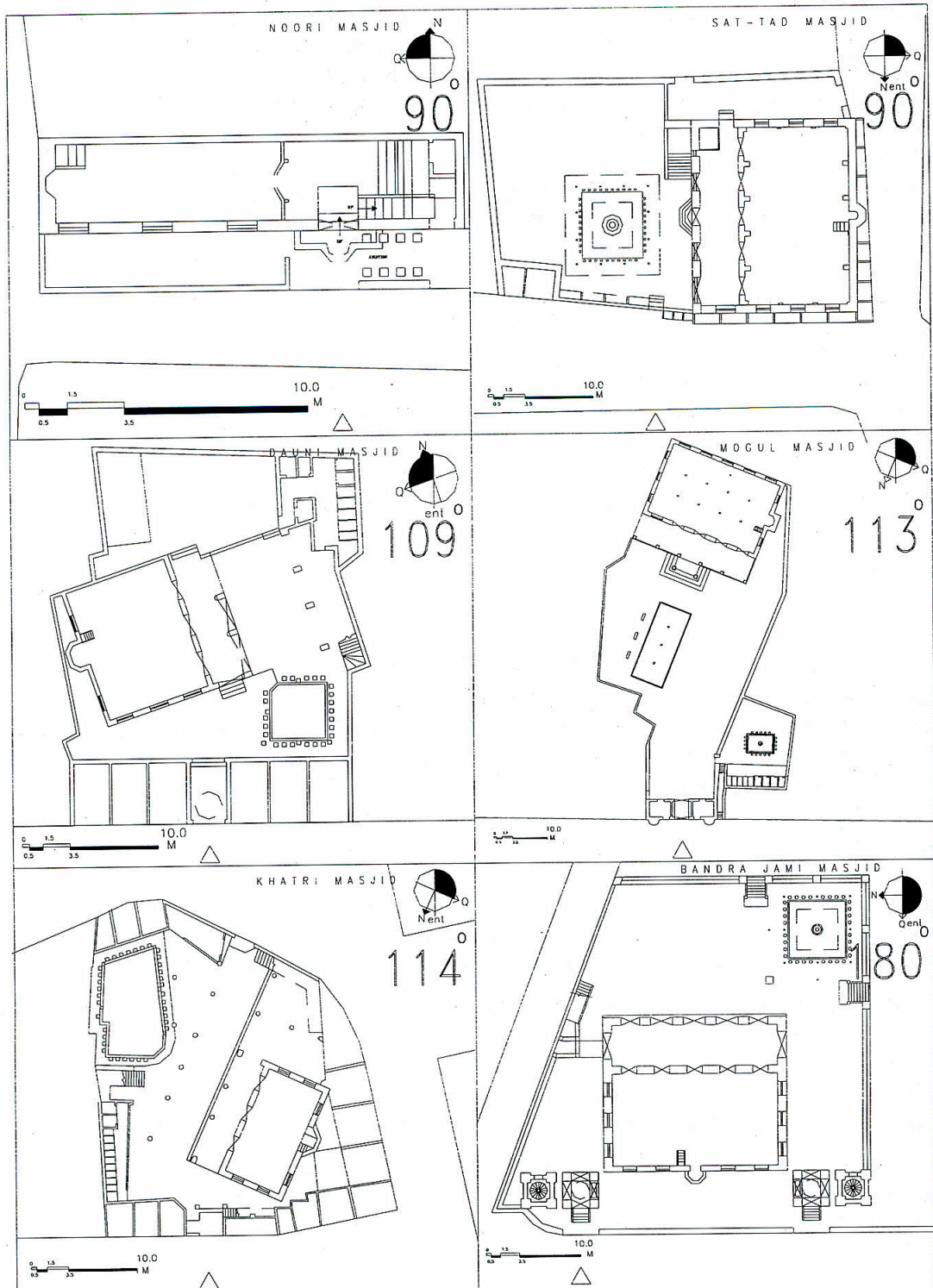


Fig. 2: Sunni Khoja Masjid, Gol Masjid, Ismail Habib Masjid
 Rasool Masjid, Minara Masjid, Hamdiya Masjid



**Fig. 3: Zakaria Masjid, Kazi Masjid, Khoja Ishnari Masjid
Shafi Masjid, Jami Masjid, Masjid-e-Majidiya**



**Fig. 4: Noori Masjid, Sat-tad Masjid, Dauni Masjid
Mogul Masjid, Khatri Masjid, Bandra Jami Masjid**

Legibility

Data gathered are as chaotic as the field is rich. Legibility is restored once the information is arranged under a scientific system, which reveals the order inherent. Accordingly the diversity of mosque layouts with their plethora of elements will be seen to follow the logic of the mosque rotating from 0° to 180° with respect to the entrance. With the understanding of the angular continuum comes the ability to predict (a corollary of any scientific law). For instance the knowledge of genus- 30° and genus- 90° mosques allows one to predict the layout of a genus- 60° mosque even before encountering that configuration. (A faint resonance of the discovery of scandium which Mendeleev had predicted to have an atomic weight between that of calcium and titanium; he had left a vacant space for it in his table).

Universality

An objective system is free from biases of personal-opinion, culture, geography and history. It is also non-judgmental. Accordingly the angular taxonomy generated by the Qibla Law is a bias-free system. As with Linneus classification of all organisms and Mendeleev's classification of all chemical elements, the Qibla classifies all existing & future mosques without judging them on aesthetic, stylistic or historical grounds. It universally groups mosques in accordance with their genus-angles.

Concluding Remarks

The Influence of Qibla on Mosque Architecture is apparent in the structure of streets of the Muslim communities, which is based on the transitional spaces that are involved in negotiating the turn required. There is a complete system of collateral architecture comprising of entrance gates, street-facade buildings, courtyards, verandahs, ablution-courts and even stairwells that await architects' attention wherever mosques are being built. It proposes that the very architecture of the mosque lies in these literal turnings as they have the metaphorical resonance of 'turning to God'. They are more important than the decoration of prayer halls and embellishments of mihrabs. Traditional elements such as minarets and domes can be reinterpreted as accomplishing the turn on a community-level in an urban context. Hence the city provides clues to their location, size or even their absence.

Finally, the architecture of the mosque lies successful resolution of four directions:

1. The direction towards Ka'aba
2. The direction upwards (hence the use of arches, domes and convex forms, minarets)
3. The direction of the street and site (the mosque as a part of the urban fabric)
4. The direction inwards towards the heart of the worshipper.

Though the last is the least measurable, it is in fact crucial in achieving the goal of the mosque which is to bring in man the awareness that he stands in the previous three have been dealt with. Transitional spaces help him in arriving at that state.

References

- [1] Jairazbhoy, R.A. *An Outline of Islamic Architecture*. Bombay: Asia Publishing House, 1921.
- [2] Mukharji, T.N. *Art Manufacturers of India*, Calcutta: 1888.
- [3] Burckhardt, Titus. *Art of Islam, Language and Meaning*. London: World of Islam Festival Publishing Company, 1976.
- [4] Critchlow, Keith. *Islamic Patterns*. London: Thames and Hudson, 1976.
- [5] El Said, Issam. *Geometric Concepts in Islamic Art*. London: World of Islam Festival Publishing Company, 1976.
- [6] Grabar, Oleg. *The Formation of Islamic Art*. New Haven: Yale University Press, 1973.
- [7] Holod, Renata with Darl Rastorfer(editors). *Architecture and Community – Building in the Islamic World Today*, Newyork: Aperature, 1983.
- [8] Nasr, Seyyed Hossein. *Islamic Science*. London: World of Islam Festival Publishing Company, 1976.

تأثير القبلة على توجيه الشوارع في المدن الإسلامية

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ملخص البحث: يحتل موقع كل مسجد في شتى أرجاء المعمورة نقطة على محيط دائرة مركزها الكعبة. وتبعاً، تكون أهم خاصية لأي مسجد هي اتجاه قبلة ذلك المسجد. وبالتالي يصبح توجيه المسجد من الوجهة التجريدية هو المحدد لشخصية ذلك المسجد وليس مجرد عناصره المختلفة كالقبة والمئذنة والمحراب. وفي معظم أرجاء العالم، يتعارض اتجاه حائط القبلة للمسجد مع ضلع قطعة الأرض التي يحتلها المسجد، والتي تعتبر جزء من المخطط الشبكي للمدينة. وتبعاً تصبح صفوف الصلاة غير متوازية مع أضلاع القطعة التي يقع فيها المسجد. وتنطبق هذه الحالة مع العديد من المساجد في الأحياء الحديثة في شتى بلاد العالم. تناقش الورقة هذه الحالة من اللا انسجام بين توجه الشوارع والمساجد كما تهي فرصة استفاد منها في إعادة توجيه شبكة الشوارع. وتوضح توجيه زوايا موقع المسجد أهمية القبلة في تخطيط المدن الإسلامية، وهو ما تسعى الورقة نحو توضيحه. وتشتمل الورقة على مساقط أفقية لثمانية عشر مسجداً في مدينة مومباي في الهند كخطوة أولى لتوثيق قرنين من بناء المساجد في المدينة.