set, and early Egyptian mosques, the winter sunrise, so that these mosques would be in some sense “parallel” to the relevant wall of the Ka’ba. Nevertheless, even within the same city “there were differences of opinion; and different directions were favoured by particular groups” (King 1993, I 255).

Although the increasingly accurate approximations and formulas of mathematical astronomers from the 8th to 15th centuries were circulated only within the scientific community, and were largely ignored by Muslim legal scholars and by the wider community, this mathematical approach eventually, by the modern era, came to dominate. Today, mosques are built according to the gibla found by calculating the initial compass direction of the shortest distance to Mecca (i.e., the great-circle route) using precise geographic coordinates (King 1993).

Bahá’í

The Bahá’í faith, which began in the Middle East in the mid-19th century and today has millions of followers worldwide, has its own gibla for the direction of certain prayers. Individual Bahá’ís recite the daily obligatory prayer while facing in the direction of the tomb of Bahá’u’lláh, located at Bahjí, just north of Acre, Israel (near Haifa). According to Bahá’u’lláh’s Book of Laws, “When ye desire to perform this prayer, turn ye towards the Court of My Most Holy Presence, this hallowed Spot that God hath decreed to be the Point of Adoration for the denizens of the Cities of Eternity (Kitáb-i-Aqdas, 56). In addition, this gibla towards Acre is used during a communal prayer recited twice per year and whenever visiting two particular Bahá’í shrines. It is also customary for Bahá’ís to be buried with their feet in the direction of Acre (Yancy 2000).

Like modern-day Muslims facing Mecca, Bahá’ís compute their gibla based on the initial compass direction of the great-circle route to Acre. So, for example, in North America’s Bahá’í House of Worship, which was designed in the mid-1920s and is located just north of Chicago, the chairs in the auditorium face roughly northeast, or east by northeast (Stockman 2000; Yancy 2000). Interestingly, though, local folklore at this particular House of Worship near Chicago has it that the sidewalk leading (in a south-easterly direction) from the temple to the nearby intersection forms an “arrow” pointing towards Acre (Yancy 2000). This southeastward sidewalk is fairly consistent with a rhumb line from Chicago to Acre, although, as already noted, the actual seating inside the temple is based on the initial compass direction of the great-circle route (i.e., people face northeast). In practice, many Bahá’í followers, like Jews facing Jerusalem, are not especially strict about following the gibrāh towards Acre (Brown and Bromberek 2000; Yancy 2000). For those followers who are interested, though, the Bahá’í Computer and Communication Association has created a “web-based calculator” that will compute the gibrāh to Acre based on the initial compass direction of the great-circle route from any latitude and longitude entered (Brown and Bromberek 2000).

Common Themes

Thus, for these world religions, the meaning of physical space and geography has a strong spiritual component. In orienting the direction of prayer, these faiths have historically made use of scientific methods on occasion but also other rules of thumb for determining the proper direction. Moreover, the knowledge by worshippers that all of their co-religionists are praying in the same direction, or in the direction of the same place, can be a source of unity in a number of ways among these worshippers—particularly among Jews, Muslims, and Bahá’ís, who are facing a specific location. Synchronizing geographic direction plays a symbolic role in supporting theological notions of unity, such as unity of faith, of the divine, of a people, or of humankind; it plays a social role in creating a sense of community and fellowship among worshippers even if they are scattered all over the world; and it plays an institutional role in supporting the process of building and maintaining cross-national linkages and unity among members of the same religious organizations.

Geographical Considerations

The Earth Is Round

Yet, ironically, the question of which way to face, despite its purpose as a source of unity, lacks, geographically speaking, the unity of a single answer that worshippers in the modern era might expect. That is, over short distances we can simply assume that the two points essentially lie on a flat surface, and we can draw a straight line between them to determine the compass direction. As the two locations in question become farther and farther apart on the earth, however, the question of which way to face ceases to be just a straightforward math problem. Indeed, for longer distances, we are forced to take into account that the earth’s surface is actually curved and thus we must add the constraint that the “line” connecting the two points must remain on the curved surface. With this constraint, however, the very notion of a “straight” line between two points becomes considerably less intuitive than it was on the flat surface, for no line on a curved surface is truly straight; it is, by definition, curved.

Thus, we need some sort of curved-surface analog to the notion of a straight line on a flat surface.

We all know, for instance, what a straight line is. It is the shortest distance between two points, and it is, well, straight [i.e., it forms a constant angle]. But when we try to draw a straight line on the surface of the globe, it is immediately apparent that we can’t draw any sort of line which even begins to meet our intuitive idea of what a straight line should be. (Reid 1963, 149)

Since our intuitive notions of direction and distance are derived almost entirely from our visual perception of and interaction with a flat (Euclidean) world, we must make conceptual compromises when defining a “straight” line on