Finding the Balance

Who does not want to preserve a balance in personal life? Are we likely to be persuaded by an unbalanced approach to argument or debate? What enterprise can afford to take its eye off the balance sheet?

These preoccupations with the balance may seem peculiarly modern. But the balance is an ancient instrument, and it has been both a practical tool and a guiding metaphor in many cultures. Balance is intrinsic to the very notion of weight, and there are extant representations of the balance in many ancient cultures.

The Empire's rulers controlled a huge diversity of peoples and places. Although the empire eventually split into rival dynasties and regimes, the widespread use of Arabic helped to maintain a common culture. Arabic was not only the language of the Qur'an but the vehicle for translations of ancient Greek and Indian sciences into Arabic.

Late centuries also saw the development of new educational institutions (madrasas) and the emergence of urban patrons. But the court remained an important centre for research and authorship, with princes and administrators sponsoring beautifully prepared texts, ranging from religion and literature to astronomy and geography. The most spectacular scientific instruments were an additional element in the courtly culture of conspicuous display.

The manufacture of scientific instruments was organised much like other forms of craft production. Most makers would have had their own small workshop, where the master worked and trained apprentices. As these shops expanded, the manufacture of scientific instruments demonstrated the combination of mathematical and metalworking skills across a vast geographical area.

Finding the Balance

The geography of Islam

After the foundation of the Islamic era in 622, the Islamic empire grew with extraordinary speed. Within a century of its foundation, it had devastated the heathen centres from Central Asia to the Atlantic coast of Spain — larger than the Roman Empire had ever been.

Science and Craft

Sophisticated astronomical instruments survive from many parts of the Islamic world. Their technical design depended on the knowledge transmitted from other intellectual centres, and there are usually individual names of the makers. But they are still objects as well as intellectual creations, and were owned by the court and upper society.

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Scientific instruments were not only scientistic artefacts, but also a status symbol given to the makers and their patrons. They were often passed on from one family generation to the next, making it difficult to trace the evolution of designs.

The art of metalwork

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Science and Arts in the Islamic World

A Special Exhibition

26 October 2010 – 20 March 2011

"Al-Mizan" is the Arabic word for balance — both the familiar measuring instrument and the metaphorical pursuit of justice and harmony in all human endeavours.

For hundreds of years after the advent of Islam, Arabic was the language in which mathematics and science were most actively studied. The intellectual achievements of scholars in the Islamic world were matched by the emergence of a highly distinctive visual and artistic culture.

This exhibition explores the connections between the sciences and arts in Islamic societies. It presents highlights from the Museum's collection of Islamic scientific instruments alongside medieval manuscripts, embroidered textiles and ceramics loaned from other major collections. The links between scientific inquiry and artistic beauty are vividly revealed through the decorative and practical work of the craftsmen.

The exhibition is staged in collaboration with the Oxford Centre for Islamic Studies, in celebration of its 25th anniversary.
**MATERIALS**

As with many other civilizations, gold and silver were the most precious materials available in the Islamic world. Royal treasures such as that of the Topkapi Palace in Istanbul preserve creations executed in gold or silver. But objects made of these metals were usually melted down in times of need, and they do not survive well. In addition, some Muslims shunned gold and silver vessels, and there was considerable debate on the extent to which such metals could be used in religious architecture.

Brass is therefore the principal metal of surviving decorative artefacts, as well as scientific instruments. But just as there were many other media for Islamic art—such as textiles and ceramics—so instruments used a variety of materials. Wood provided a lightweight, easy-to-work surface for portable quadrants, and ivory was used for outdoor quadrants. Occasionally very precious metals were used for decorative instruments for astrological use, and enameled gold and silver were used for their illuminated letters and intricate paintings.

**CALLIGRAPHY**

Writing assumed great significance in Islamic culture. The centrality of the Qur’an and the strict prohibitions against any artistic representations of God helped to make calligraphy both a religious and an aesthetic discipline.

Key figures in the creation of scripts suitable for the Qur’an and for secular use were widely celebrated. The 10th-century Visnul, who provided a geometric codification of cursive script, was even likened to ‘a prophet in the field of handwriting’. It was praised upon his death, even as it was revealed in the fields to make their horses more manoeuvrable.

Inscriptions on parchment enabled an art of writing through the mathematical proportions of calligraphy. Tulids, sad, and handwriting were long used by astronomers, as were examples of cursive writing. It therefore seems appropriate that calligraphy play a vital decorative role in the most prestigious mathematical instruments.

**INSCRIPTIONS**

The importance of calligraphy gave inscriptions a far greater role and status in Islamic culture than in contemporary Europe. On a monumental scale, excerpts from the Qur’an were inscribed in brickwork to become three-dimensional elements of buildings, or rendered in tiles as a luxuriously colourful surface. In addition to their decorative effect, such inscriptions often gave clues about the functions and meaning of Islamic architecture and objects.

Many types of artefact include specifically religious or more generally moral phrases. Blessings in anonymous vernacular inscriptions are common on metalwork and ceramics, suggesting that they were intended for sale at market rather than specifically commissioned by an individual patron.

The inclusion of scientific instruments provides a medium for such pious adages. An instrument intended specifically for astrological use might include celebratory and propagandistic purpose, and carry a bombastically lengthy inscription with the patron’s many honorific titles.

There is one inscription peculiarly appropriate for astrology. One of the best-known passages in the Qur’an is the Thirteenth verse (2: 255).

This is used, for example, to surround the highest point of the stars in many Islamic manuscripts, and appears in numerous other contexts. The layout of an astrological chart, which connects the supervening ring and the circling ring, is drawn on the plane of the Thirteenth verse. The Qur’an verse is often unengraved there.