Architectural drawings dating from before the nineteenth century are a rarity, but those few that do exist permit us to look into the creative processes of earlier times and gain insight into the processes of architectural design that often reveal a world of thought very different from our own. But this dialogue across the centuries requires an understanding of the drafting methods used in the past, and often we are confronted by drawings whose design language cannot easily be deciphered. Even the partially published collection of muqarnas

Fig. 1. Ustad Shirin Muradov's sketches of stalactites and their spatial treatment in scale models made of paper. (a) muqarnas model, (b) muqarnas sketch, (c) ʿraṣṣ muqarnas model; (d) ʿraṣṣ muqarnas sketch.
drawings by the well-known modern Bukharan master builder Ustad Shirin Muradov (1880–1957) uses a system of coded designs I could not have understood had I not met Muradov himself during restoration work on the monuments of Samarqand and Bukhara, when he explained how he created each of his sketches of muqarnas vaults, capitals, and cornices. He executed each plan according to the laws of orthogonal projection, at the same time using a web a of lines and conventional signs to represent successive corbeled tiers of modular muqarnas cells (fig. 1a–d).

In earlier centuries elevations and sections of muqarnas configurations were not completely worked out, a practice that was fully justified by the rational technology of muqarnas construction: the height of a muqarnas tier — whether of brick, terra cotta, stone, or plaster — within a framing niche or vault was often the same. Judging by the late-fifteenth-century Timurid mathematical treatise by Ghiyath al-Din al-Kashi, in which the muqarnas is discussed and by the information provided to me by Ustad Shirin Muradov, this scale was proportionally correlated with the horizontal divisions of modular muqarnas units. In practice, however, it was adjusted to fit the format of any given space. For the realization of his spatial conception it was enough for the master builder to enlarge the two-dimensional plan proportionally to full scale according to specific dimensions and to prepare and assemble all the component units of the elevation on the building site on the basis of a drawing on paper.

In principle, the two-dimensional representation of the complex three-dimensional muqarnas form was abbreviated according to traditional design conventions. A set of muqarnas drawings from the sixteenth century, preserved today in the Uzbek Institute of Oriental Studies of the Academy of Sciences in Tashkent, illustrates

Fig. 2. Analogues of the sixteenth-century sketches: stalactites in architectural monuments of Bukhara: (1) the necropolis of Chor-Bakr (sixteenth century); (2) the khanqah of Bahauddin (sixteenth century); (3) the madrasa of Mir Arab (1525–36); (4) the madrasa of Juipari-Kalian (1670–71); an incomplete stalactite decoration; (5) the madrasa of Abdulaziz Khan (1651–52); and (6) the madrasa of Tursun Jon (1796–97).