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# *Jahangir as Francis Bacon's Ideal of the King as an Observer and Investigator of Nature\**

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## **Abstract**

*The Mughal Empire is paradigmatic in many of its formulations, and it is epitomised in the persons of its first six padshahs or emperors. The Great Mughals, Grao Mogor, Grand Mogul, Großmogul or Grootte Mogul, as the padshahs were known in Europe, have been considered as paragons of rulership. In critical appraisals, which were the prevailing view in the seventeenth and eighteenth centuries, they were the quintessential Oriental despots, held up as a warning to those rulers in Europe with similar aspirations. One thinks here especially of Francois Bernier's letters of the Mughal court to his French contacts which included Colbert, the minister of Louis XIV (r. 1643-1715). In more sympathetic (and more recent) eyes, such as those of the world-traveller, philosopher and enthusiastic inter-culturalist Count Hermann Keyserling, who was in India in 1911, they were "the grandest rulers brought forth by mankind". Keyserling came to this conclusion because the Mughals "combined in their personalities so many divers talents: they were men of action, refined diplomats, experienced judges of the human psyche, and at the same time aesthetes and dreamers". He felt that such a "superior human synthesis" (grossartige Menschheitsynthese) had not shown itself in any European king. Here I discuss to what extent the emperor Jahangir fulfilled Francis Bacon's ideal of the perfect ruler.*

## **The Mughals as Paragons of Rulership**

The memory of mankind is short, and outside of South Asia it has been largely forgotten that the Mughals were once a superpower of Asia and of the Islamic world. Great Britain provides an exception to this collective amnesia; there many families have an ancestor or family member who served in India, or spent time in India, and thus know about its history and culture.

Currently there is nowhere in the world where Mughal studies have a lobby, comparable to Ottoman studies in Turkey, or Safavids studies in the Iranian community (meaning exiled Iranians, because the Safavids as *shahs* are not popular in the Iran of the Mullahs). A potential candidate would be Pakistan which identifies strongly with the Mughal heritage but so far not much support for Mughal studies has come forth from there. Thus studying the Mughals outside of South Asia is almost something like *l'art pour l'art*, but those who undertake it are richly recompensed. The Mughal empire is paradigmatic in many of its formulations, and it is epitomised in the persons of its first six *padshahs* or emperors. The Great Mughals,

\*This article is based on a lecture presented to the Royal Asiatic Society on 8 November 2007.

Grao Mogor, Grand Mogul, Großmogul or Groote Mogul, as the *padshahs* were known in Europe, have been considered as paragons of rulership. In critical appraisals, which were the prevailing view in the seventeenth and eighteenth centuries, they were the quintessential Oriental despots, held up as a warning to those rulers in Europe with similar aspirations. One thinks here especially of François Bernier's letters of the Mughal court to his French contacts which included Colbert, the minister of Louis XIV (r. 1643–1715).<sup>1</sup> In more sympathetic (and more recent) opinions, such as those of the world-traveller, philosopher and enthusiastic inter-culturalist Count Hermann Keyserling, who was in India in 1911, they were “the grandest rulers brought forth by mankind”. Keyserling came to this conclusion because the Mughals “combined in their personalities so many divers talents: they were men of action, refined diplomats, experienced judges of the human psyche, and at the same time aesthetes and dreamers”. He felt that such a “superior human synthesis” (*grossartige Menschheitsynthese*) had not shown itself in any European king.<sup>2</sup>

For Keyserling even a few of the qualities and interests of the Mughals were sufficient to make them exemplary rulers. He did not know, or did not choose to comment upon, other outstanding Mughal characteristics, such as their rationality and empiricism. These acquired a scientific quality in their affirmative attitude towards nature; the Mughals' keen observation of the natural world became a feature of the dynastic personality. It began with Babur's (rul. in India 1526–30) vivid descriptions of natural phenomena, of the flora and fauna of Hindustan in his autobiography, the *Baburnama*.<sup>3</sup> And it culminated in Jahangir (rul. 1605–27) who emerges from his own *Jahangirnama*, virtue of his observations and the investigations and experiments he describes there, as an acknowledged naturalist if ever one sat on a throne (Fig. 1).<sup>4</sup>

### Francis Bacon's concept of the ruler as an investigator of nature

Three hundred years before Keyserling in Europe, Jahangir's kingly involvement with nature would have not have gone unnoticed. It fitted perfectly with what Sir Francis Bacon (1561–1626), politician (Lord Chancellor of England under James I [1566–1625]), natural philosopher and writer of an utopia, expected of a king. Bacon postulated that the boundaries of ancient learning should be surpassed and advocated an inductive methodology for scientific inquiry which implied drawing knowledge from the natural world through experimentation, observation and the testing of hypotheses. For Bacon science was applied science and he claimed that rulership also would benefit from it. In the early modern period the concept of rulership began to change and the claims to power could no more be based solely on

<sup>1</sup>J.P. Rubiés, “Oriental Despotism and European Orientalism: Botero to Montesquieu”, *Journal of Early Modern History*, vol. 9, nos 1–2 (2005), pp. 109–180.

<sup>2</sup>Graf H. Keyserling, *Das Reisetagebuch eines Philosophen* (Darmstadt, 1923), i, pp. 233–235.

<sup>3</sup>Zahir-ud-Din Muhammad Babur, *Babur-Nama (Memoirs of Babur)*, trans. by A. S. Beveridge (1921, repr. New Delhi, 1970); *Baburnama, Chaghatay Turkish Text with Abdul-Rahim Khankhanan's Persian Translation, Turkish Transcription, Persian Edition and English Translation* by W. M. Thackston, 3 vols (Cambridge, Mass., 1993); *The Baburnama: Memoirs of Babur, Prince and Emperor*, trans., ed. and annotated by W. M. Thackston (Washington, D. C./New York, 1996).

<sup>4</sup>Jahangir, *Tuzuk-i Jahangiri or Memoirs of Jahangir*, trans. by A. Rogers, ed. by H. Beveridge, 2 vols (1909–14, repr. Delhi, 1994); *The Jahangirnama: Memoirs of Jahangir, Emperor of India*, trans., ed. and annotated by W. M. Thackston (New York, 1999)



Fig. 1. Portrait of Jahangir, attributed to Hashim, ca. 1620, courtesy of the British Museum, London.

salvation history and divine right to rule. Many thinkers tried to gain influence on worldly power, and a distinct voice was Bacon's. In his *The Advancement of Learning* (1605) he reflects on the advantage which politics can draw from science and learning, and to bolster up his thesis, he adduces the biblical King Solomon. Solomon for Bacon is not only the just and wise ruler but also an investigator of nature, able "to compile a natural history of all verdure, from the cedar upon the mountain to the moss upon the wall (...) and also of all things that breathe or move".<sup>5</sup> The saying of Solomon which Bacon cites: "The glory of God is to conceal a thing but the glory of the king is to find it out". (Proverbs, 25,2)<sup>6</sup> becomes according to Rauschenberg "die *Handlungsmaxime* (the maxim of action) for all kings".<sup>7</sup> When the king finds out about nature he fulfils the task which God has given him. In accordance with this postulate the wise king Solamana (patterned on Solomon), in Bacon's utopia *New Atlantis* (written probably in 1624, published in 1627) is not only a law-giver<sup>8</sup> but a founder of the Society of Salomon's House, an institution "dedicated to the works and creatures of God",<sup>9</sup> "for the finding out of the true nature of all things".<sup>10</sup> And Bacon directly exhorts his king James I in his introduction to *The Great Instauration*<sup>11</sup> to become a true and complete second Solomon — and thus an ideal king — by ordering the compilation of a *Historia Naturalis et Experimentalis*, a natural history:

Lastly, I have a request to make – a request no way unworthy of your Majesty, and which especially concerns the work at hand, namely that you who resembles Solomon in so many things – in the gravity of your judgments, in the peacefulness of your reign, in the largeness of your heart, in the noble variety of the books which you have composed – would further follow his [Solomon's] example in taking [giving] order for collecting and perfecting of a Natural and Experimental History (*Historiam Naturalem et Experimentalem*), true and severe [accurate] (unincumbered with literature and book-learning), such as philosophy may be built upon – such, in fact, as I shall in its proper place describe: that so at length, after a lapse of so many ages, philosophy and the science may no longer float in air, but rest on solid foundation of experience of every kind, and the same well examined and weighed. I have provided the machine, but the stuff must be gathered from the facts of nature. May God Almighty long preserve your Majesty.<sup>12</sup>

The advantage for Bacon in the combination of rulership and learning is obvious, because "if they [the rulers] be illuminate by learning they have those notions of religion, policy and

<sup>5</sup> *The Advancement of Learning and New Atlantis* by Francis Bacon with a preface by T. Case (London, 1605 and 1627, 1906; rpt 1966), p. 47.

<sup>6</sup> *Ibid.*, Bacon cites this Proverb of Solomon (25,2) also in his *New Organon*, see *Neues Organon*, Latin text of the ed. of J. Spedding, R. L. Ellis and D. D. Heath of 1858 with German translation of R. Hoffmann, ed. by G. Korf, ed. M. Buhr, (Berlin, 1962), newly edited with an introduction by W. Krohn, 2nd ed. (Hamburg, 1999), vol. 1, pp. 268–69; cf. *Francis Bacon: The New Organon*, ed. by L. Jardine and M. Silverthorne (Cambridge, 2000), pp. 99–100.

<sup>7</sup> S. Rauschenbach, "Wissenschaft zwischen politischer Repräsentation und gesellschaftlichen Nutzen. Über den Traum vom gelehrten Herrscher in der Frühen Neuzeit [Science between Political Representation and Use by Society: About the Dream of the Scholarly Ruler in the Early Modern Period]", in R. van Dülmen and S. Rauschenbach, *Macht des Wissens: Die Entstehung der modernen Wissenschaftsgesellschaft*, (Cologne, Weimar, Vienna, 2004), pp. 295–318, citation from p. 307.

<sup>8</sup> Bacon, *Advancement of Learning and New Atlantis*, (1966), p. 274.

<sup>9</sup> Bacon, *Advancement of Learning and New Atlantis*, (1966), p. 276.

<sup>10</sup> Bacon, *Advancement of Learning and New Atlantis*, (1966), p. 277.

<sup>11</sup> Francis Bacon, *New Atlantis and The Great Instauration*, (1980); rev. ed. ed. J. Weinberger (Wheeling, Illinois, 1989), p. 6.

<sup>12</sup> Bacon, *New Atlantis and The Great Instauration*, (1989), p. 6

morality, which do preserve them and refrain them from all ruinous and peremptory errors and excesses".<sup>13</sup> The ruler who is enlightened and empowered by learning and scientific research becomes able to understand the nature of things in general and to foresee the development of affairs and thus remains in control. Bacon brings political and scientific thinking together.<sup>14</sup>

### Jahangir as Naturalist

I have laid out Bacon's ideas in some detail because it is quite surprising how much of what he requests a ruler to be fits the Mughal *padshah* or Emperor Nur ud-Din Jahangir. Our best textual source on Jahangir is Jahangir himself in his *Jahangirnama*, his autobiography in which he reveals his multi-faceted persona as a sovereign, naturalist, hunter, aesthete, patron of the arts and collector. The importance and complexity of this text begins only now to be fully understood by modern historians.<sup>15</sup> Jahangir has indeed been something of a Cinderella of text-based Mughal historical studies because the focus of Mughal historians has been on Akbar's (rul. 1556–1605) and Aurangzeb's reign (rul. 1658–1707).<sup>16</sup> This is especially true of the dominant Aligarh school led by Irfan Habib. The Aligarh scholars, moreover, have concentrated on economic and administrative issues and have viewed cultural and social studies (including art history) with reserve; thus some of the richest contributions of the Mughals are still insufficiently understood.

While modern historiography has neglected Jahangir, the scientists and art historians have not. They paid attention to the Mughal *padshah*, and this has even led to something like an interdisciplinary discourse.

Scientists have explored the *Jahangirnama* for its observations on biology, botany, geology, ornithology, and zoology.<sup>17</sup> Jahangir's description of the breeding habits of the saras crane (*Grus antigone*), for instance, and the study by one of his painters of the now extinct Mauritius dodo (*Raphus cucullatus* L.) have become part of the ornithological literature. I shall come back to this later.

And art historians have analysed how Jahangir directed his artists to turn his observations of natural phenomena into nature studies.<sup>18</sup> Art historians have also undertaken what historians

<sup>13</sup>Bacon, *Advancement of Learning and New Atlantis*, (1966), p. 52.

<sup>14</sup>Rauschenbach, "Wissenschaft zwischen politischer Repräsentation und gesellschaftlichen Nutzen", p. 310.

<sup>15</sup>This has been pointed out by C. Lefèvre-Agrati, *Introduction Pouvoir et élites dans l'empire Moghol de Jahangir (r. 1605–1627)*, Doctoral dissertation, Écoles des Hautes Études en Sciences Sociales, (Paris, 2005). Another study on Jahangir is by H. Franke, *Akbar and Jahangir: Untersuchungen zur politischen und religiösen Legitimation in Text und Bild* (Bonn, 2005) which represents her dissertation in Comparative Religious Studies at the University of Bonn, Germany.

<sup>16</sup>On this point see E. Koch, Introduction, *Mughal Art and Imperial Ideology: Collected Essays* (New Delhi, 2001), pp. xxiii–xxvii.

<sup>17</sup>M. A. Alvi and A. Rahman *Jahangir the Naturalist* (New Delhi, 1968); The famous Indian ornithologist Salim Ali acknowledges the pioneering contribution of Jahangir to the study of Indian birds with these words: "His memoirs reveal him not only as a remarkably observant but also as an extraordinarily rational student of birds", see his "Ornithology in India: Its Past, Present, and Future", in *Salim Ali's India*, ed. A. S. Kothari and B. F. Chhapgar (Mumbai, Delhi, Calcutta, Madras, 1996), p. 19.

<sup>18</sup>See in particular R. Skelton, "A Decorative Motif in Mughal Art", in *Aspects of Indian Art: Papers presented in a symposium of the Los Angeles County Museum of Art, October 1970*, ed. P. Pal (Leiden, 1972), pp. 147–152; A. K. Das, *Mughal Painting During Jahangir's Time* (Calcutta, 1978); S. P. Verma, *Mughal Painter of Flora and Fauna Ustad Mansur*, (New Delhi, 1999), this publication suffers from an erratic placement of badly printed illustrations; and the articles by S. P. Verma, and M. A. Alvi in *Flora and Fauna in Mughal Art*, ed. S. P. Verma (Mumbai [Bombay], 1999).

have largely omitted, they have studied Jahangir's concept of rulership by basing their observations on visual sources, especially the emperor's famous political allegories.<sup>19</sup>

This interdisciplinary discourse between natural scientists and art historians is brought about by Jahangir himself – he explains the advantages of a combined method, written and visual, in representing natural phenomena, and sees in it an improvement of his ancestor Babur's approach. He reflects about it in March 1612 in the *Jahangirnama*, when Muqarrab Khan brought a turkey cock and a monkey to the court. Jahangir had placed the high ranking noble as his agent at Goa to purchase rare objects and exotic animals, with no expense to be spared (the Mughals looked at Goa for their purchases, like European princely collectors — only from the other direction).<sup>20</sup> The emperor writes:

He [that is Muqarrab Khan] had brought several very strange and unusual animals I had not seen before. No one even knew what their names were. Although His Majesty Firdaws-Makani [Babur] wrote in his memoirs of the shapes and forms of some animals, apparently he did not order the artists to depict them. Since these animals looked so extremely strange to me, I both wrote of them [described them] and ordered the artists to draw their likeness in the *Jahangirnama* so that the astonishment one has at hearing of them would increase by seeing them. One of the animals was larger in body than a peahen and significantly smaller than a peacock. Sometimes when it displays itself during mating it spreads its tail and its other feathers like a peacock and dances. Its beak and legs are like a rooster's. Its head, neck, and wattle constantly change color [sic]. When it is mating they are as red as can be—you'd think it all had been set with coral. After a while these same places become white and look like cotton. Sometimes they look turquoise. It keeps changing color like a chameleon. The piece of flesh it has on its head resembles a cock's comb. The strange part about it is that when it is mating, the piece of flesh hangs down a span from its head like an elephant's trunk, but then when it pulls it up it stands erect a distance of two fingers like a rhinoceros' horn. The area around its eyes is always turquoise-colored and never changes. Its feathers appear to be of different colors, unlike a peacock's feathers (Then follows a detailed description of the monkey).<sup>21</sup>

This patient and exact observation of a bird is not something one would expect from the pen of a Mughal emperor, even less in his autobiography. Jahangir shows himself with this and other entries into the *Jahangirnama* as a naturalist of first rank, and impresses us the more,

<sup>19</sup>The pioneering work is R. Ettinghausen, "The Emperor's Choice", in *De Artibus Opuscula XL: Essays in Honor of Erwin Panofsky*, ed. M. Meiss (New York, 1961), text, vol. 1, pp. 98–120 vol. 2, pp. 27–35. After that: Das, "Abu'l Hasan, Bichitr and the Iconographical Drawings", in *Mughal Painting During Jahangir's Time*, pp. 213–228; R. Skelton, "Imperial Symbolism in Mughal Painting", in *Content and Context of Visual Arts in the Islamic World*, Papers from a colloquium in memory of Richard Ettinghausen, Institute of Fine Arts, New York University, ed. P. P. Soucek (University Park and London, 1988), pp. 177–187; E. Koch, "The Influence of the Jesuit Mission on Symbolic Representations of the Mughal Emperors", *Islam in India: Studies and Commentaries*, 1: *The Akbar Mission & Miscellaneous Studies*, ed. C. W. Troll (New Delhi, 1982) pp. 14–29; revised ed. in *The Phenomenon of "Foreign" in Oriental Art*, ed. Annette Hagedorn (Wiesbaden, 2006), pp. 117–134; *eadem*, "Jahangir and the Angels: Recently Discovered Wall Paintings Under European Influence in the Fort of Lahore", in *India and the West*, ed. J. Deppert (New Delhi, 1983), pp. 173–195 both reprinted in E. Koch, 2001, *Mughal Art and Imperial Ideology*, pp. 1–11, and 12–37; (the volume contains also other studies which discuss Jahangir's patronage); and *eadem* "My Garden is Hindustan: The Mughal Padshah's Realization of a Political Metaphor", in *Middle East Garden Traditions: Unity and Diversity: Questions, Methods and Resources in a Multicultural Perspective*, ed. M. Conan, papers presented at the 31st Dumbarton Oaks Colloquium on the History of Landscape Architecture, held at the Freer and Sackler galleries April 27–28, 2007 (Washington, 2007), pp. 158–175; Franke, *Akbar and Ġahangir*.

<sup>20</sup>Goa was one of the places from where European collectors would get their exotica from through agents placed at Spain and Portugal. See *Exotica: Portugals Entdeckungen im Spiegel fürstlicher Kunst-und Wunderkammern der Renaissance*, ed. H. Trnek and S. Haag, *Jahrbuch des kunsthistorischen Museums*, vol. 3 (2001).

<sup>21</sup>*Jahangirnama*, trans. Thackston, p. 133.

both because he is, but for his ancestor Babur's precedent, self taught, and because he pursues his interest out of his own initiative. It is fortuitous that the painting of the turkey cock has survived to match the description and it testifies to the artistic quality and accurate detail of the natural history illustration created for Jahangir (Fig. 2).

We may ask then, how did Jahangir's painters arrive at what was so important to their imperial patron, namely depicting animals and plants in an exact manner, so that from description and depiction a full representation of the natural phenomenon could be obtained?

In the Islamic world natural history illustration, of elementary importance in the early periods, had, by the time of Jahangir, lost its life and scientific relevance, perpetuated in stereotyped illustrations of classical works of science, especially Arabic and Persian translations of Dioscorides' (ca 40 – 90 A. D.) *De materia medica*, or of Qazwini's (1203–82) ever popular cosmography, the *'Aja'ib al-makhlūqat*<sup>22</sup> (Fig. 3). Further in pre-Mughal India no suitable models were available which satisfied the Mughals' understanding of nature.<sup>23</sup> Already in Akbari painting we discern the attempt to render the flora and fauna of Hindustan with more naturalism than in Persian, Timurid or in Deccani painting by looking at European models,<sup>24</sup> and in their endeavour to raise this naturalistic trend to a scientific level Jahangir and his artists turned to European scientific illustration.

### Emperor Rudolf II as Leading Patron of Natural Research and Illustration in Europe

In Europe scientific research and illustration had been on the rise throughout the sixteenth century, freeing itself from the refraining impositions of the Catholic church and finding sponsorship from European courts, most notably the court of the Medici at Florence,<sup>25</sup> the Munich court of the Bavarian Dukes (Duke Albrecht V and Duke Wilhelm V), and the court of the Holy Roman Emperor at Vienna and Prague. The shining figure here is Emperor Rudolf II (rul. 1576 – 1612),<sup>26</sup> almost a contemporary of Jahangir and in many ways a

<sup>22</sup>See e. g. St. Carboni, "The Arabic Manuscripts", in *Pages of Perfection: Islamic Paintings and Calligraphy from the Russian Academy of Sciences, St Petersburg*, exhibition catalogue (New York, 1995), pp. 86–91; G. Saliba and L. Komaroff, "Illustrated Books May be Hazardous to Your Health: A New Reading of the Arabic Reception and Rendition of *Materia Medica* of Dioscorides", *Ars Orientalis* 35 (2008), pp. 1–65, with extensive bibliographical references on the subject of medieval Arabic scientific illustration.

<sup>23</sup>There is a group of sixteenth and seventeenth-century Deccani works dealing with science, not all of them easy to place and to date because of the conventional schematic character of the illustrations; they consist in particular in copies of Qazwini (see B. Schmitz and Z. Desai, *Mughal and Persian Paintings and Illustrated Manuscripts in the Raza Library, Rampur* (New Delhi and Rampur, 2006), cat. no. II.1); and the *Nujūm al-ʿulūm* ('Stars of Sciences') (1570–71), (see: L. Leach, *Mughal and Other Indian Paintings from the Chester Beatty Library* (London, 1995), vol. II, pp. 819–889. Carboni attributes to this group a copy of a new Persian translation of Dioscorides done for the Safavid Shah ʿAbbas I (ruled 1588–1629) with the title *Kitāb-i hashāʾish* (Herbarium); see Carboni (previous note), pp. 89–91.

<sup>24</sup>Verma, *Mughal Painter of Flora and Fauna Ustad Mansur*, pp. 21–23.

<sup>25</sup>The Medici sponsored the universal scholar Ulisse Aldrovandi (1522–1605), active at Bologna who tended a large botanical garden and wrote inter alia a *Historia animalium* which was next to the one of Conrad Gesner the foundation work of modern zoology. See inter alia K. Seidl, cat. nos 2.38, 2.39, 2.40 and 5.7 in the exhibition catalogue *Die Entdeckung der Natur: Naturalien in den Kunstkammern des 16. und 17. Jahrhunderts* (Vienna, 2006).

<sup>26</sup>I have consulted in particular L. Hendrix, "Natural History Illustration at the Court of Rudolf II", B. Bukovinska, "Die Kunstkammer of Rudolf II: Where it Was and What it Looked Like"; P. Findlen, "Cabinets, Collecting and Natural Philosophy", P. Gouk, "Natural Philosophy and Natural Magic", all in *Rudolf II and Prague: The Court and the City*, ed. by E. Fucikova et alii, exhibition catalogue (London, 1997), pp. 157–71, 199–208, 209–219, 231–37; *Die Entdeckung der Natur* (previous note); and *Arcimboldo 1526–1593* exhib. cat., ed. S. Ferino-Pagden, (Vienna, 2008).

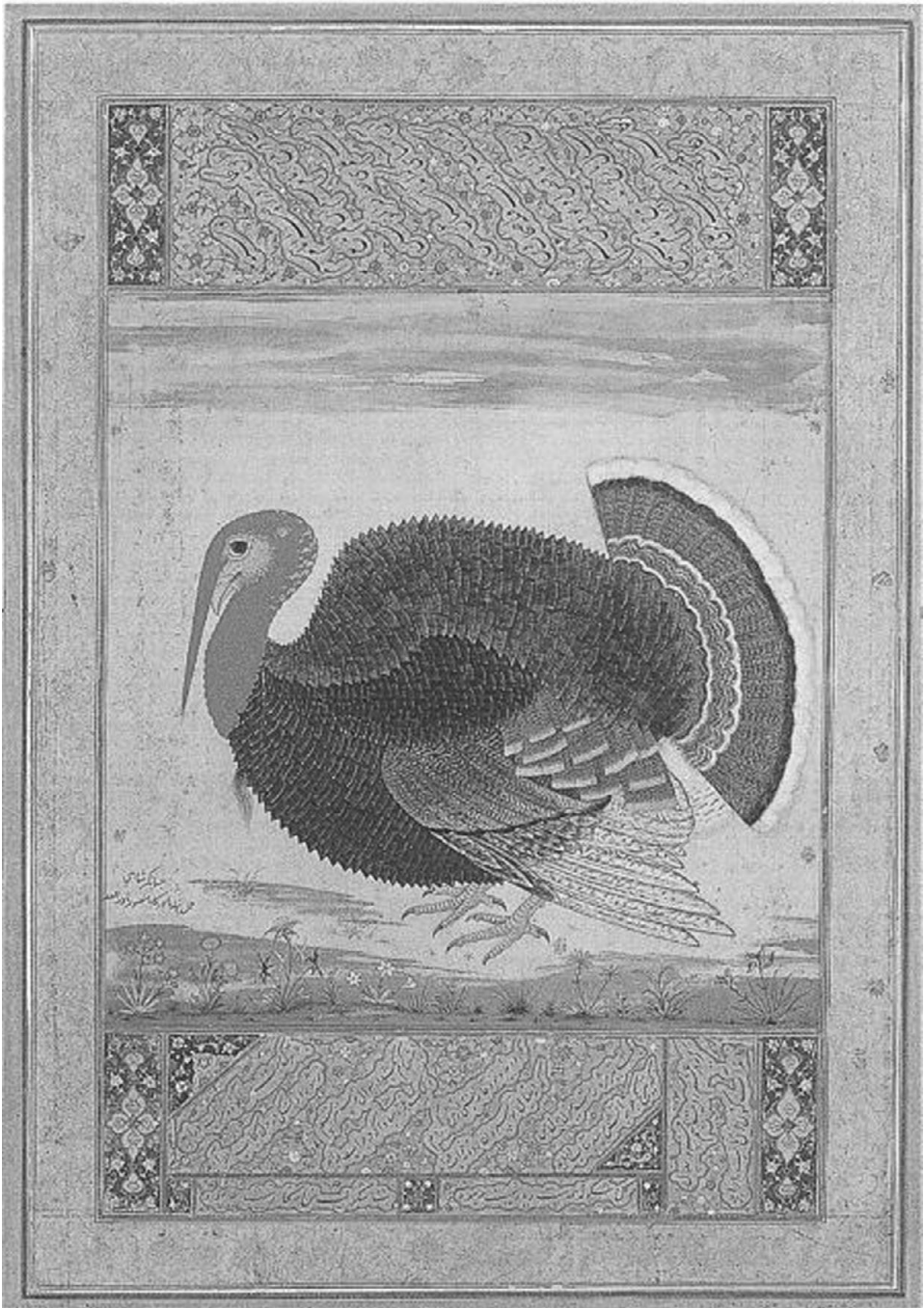


Fig. 2. A turkey cock signed by Mansur, ca. 1612, opaque water colour on paper, image area 12.9 × 12. cm, by courtesy of the Trustees, Victoria and Albert Museum, I. M. 135–1921 bequeathed by Lady Wantage.





Fig. 3. Almond tree (9.8 × 6.7 cm) and lemon tree (9 × 7.5 cm), from al-Qazwini, *‘Aja’ib al-makhluqat wa ghara’ib al-maujudat* (The Wonders of Creation and the Marvels of Existence), copied ca 1640 from a Timurid manuscript, The New York Public Library, Spencer, Pers. ms. 45, fol. 88b (after B. Schmitz 1992).

kindred mind (Fig. 4). Rudolf II brought the naturalistic, scientific and artistic interests of the Habsburgs to an apogee. He was preceded by his uncle Archduke Ferdinand II (1529–95), ruler of Bohemia at Prague, and after that in charge of Tyrol and Further Austria; and by his father, Emperor Maximilian II (ruled 1562–1576), both nephews of Charles V.

Maximilian II had a special interest in botany and zoology and drew the distinguished Netherlandish naturalists and physicians Charles d'Écluse (Carolus Clusius) (1526–1609) and Rembert Dodoens (Rembertus Dodoneus) (1517–85) to Vienna (they were also to work for Rudolf at Prague) and the learned ambassador Ogier Ghislain de Busbecq who brought the first tulips and lilac from Turkey. The emperor kept rare and foreign plants and animals in his gardens and tended to them personally, and corresponded with his ambassadors to the court of Philip II of Spain (rul. 1556–98) about the acquisition of exotic flora and fauna. In 1552 the first (Indian) elephant arrived in Vienna and delighted the population; the emperor had brought it with his new bride from Spain.<sup>27</sup>

His son and successor Rudolf II transferred his court in 1583 from Vienna to Prague where he brought together an impressive assemblage of flora and fauna and an extensive collection of nature drawings, objects and specialised instruments that would help him to pursue the knowledge of nature.<sup>28</sup> A deer park surrounded Hradšchin Castle, with an aviary where one could see birds of paradise, and after 1598 a dodo, and there was also a botanical garden with exotic plants.<sup>29</sup>

Outstanding artists were called to Prague from all over Europe to tend to Rudolf's taste for nature illustrations, among them Hans Hoffmann (born c. 1530 perhaps in Nuremberg, died between 1591 and 1592 most likely in Prague) who newly interpreted Dürer's celebrated *Hare* (1502) (also in the collection of Rudolf) with his own versions, such as a *Hare among Plants* (1585) creating for the animal "an ecological whole";<sup>30</sup> the Antwerp born Joris (Georg) Hoefnagel (born 1542–1600) created the *Four Elements*, that is four 'animal books' corresponding to the four elements (dated variously to 1575, 1576, 1580 and 1582, completed 1590) "a compendium of the known world of natural history" based on prints by A. de Bruyn, Adrian Collaert, Conrad Gesner's *Historia animalium*, drawings by Dürer, and works by other artists.<sup>31</sup> Hoefnagel added between 1590–94 his celebrated nature miniatures to the *Schriftmusterbuch* of Georg Bocksay (completed 1594), and to Bocksay's *Mira Calligraphiae Monumenta* (1561–62, Hoefnagel 1596), today in the J. Paul Getty Museum.<sup>32</sup> Jacob Hoefnagel (1575–1630) also worked at Rudolf's court, son of the more famous Joris (Georg)

<sup>27</sup>S. Ferino Pagden, "Arcimboldo as conterfeiter der Natur" in *Arcimboldo 1526–1593*, p. 104; K. Rudolf, "Die Kunstbestrebungen Kaiser Maximilians im Spannungsfeld zwischen Madrid und Wien. Untersuchungen zu den Sammlungen der österreichischen und spanischen Habsburger im 16. Jahrhundert", in *Jahrbuch der kunsthistorischen Sammlungen in Wien*, 91 (1995), pp. 165–256

<sup>28</sup>Rudolf was not only interested in nature studies, he was open to all scientific activities which characterised late Renaissance intellectual life. A steady stream of learned visitors came to his court, the English alchemists John Dee and Edward Kelley, the Italian mystic and Neoplatonist Giordano Bruno, and the physicians and occultists Oswald Croll and Michael Maier. The Danish astronomer Brahe, assisted by Kepler, were in residence. See Findlen, "Cabinets, Collecting and Natural Philosophy", in *Rudolf II and Prague*, pp. 209–219 especially pp. 13–14.

<sup>29</sup>Findlen, as above.

<sup>30</sup>T. DaCosta Kaufmann, *The School of Prague: Painting at the Court of Rudolf II* (London and Chicago, 1988), p. 215; Hendrix, "Natural History Illustration at the Court of Rudolf II", *Rudolf II and Prague*, pp. 157–171.

<sup>31</sup>DaCosta Kaufmann, *The School of Prague*, pp. 202–203.

<sup>32</sup>L. Hendrix and T. Vigneau-Wilberg, *Nature Illuminated: Flora and Fauna from the Court of the Emperor Rudolf II* (Los Angeles, 1997).



Fig. 4. Portrait of Rudolf II, engraving after Hans von Aachen, 1604, Bibliothèque Nationale, Paris.

who paraphrased the work of his father with his *Archetypa studiaeque patris Georgii Hoefnagelii* (1592) (Fig. 5); Daniel Fröschl (born 1563 in Augsburg, died 1613), *kaiserlicher Miniaturmaler* (imperial miniature painter) who did studies of birds and compiled, between 1607 and 1611, as imperial antiquarius an inventory of the imperial collections; and Dirck de Quade van Ravesteyn (ca 1565–1619).<sup>33</sup> Then there were Roelandt Savery (born probably 1576 in Kortrijk/Courtrai–1639 in Utrecht) who adapted the subject matter of natural history illustration for use in oil painting,<sup>34</sup> and the Milan born Guisepppe Arcimboldo (1526–93) who made a fund of nature studies on the basis of which he created his famous composite heads.<sup>35</sup> Two impressive manuscripts with miniature paintings of animal studies and *Kunstkammer* objects, the so called *Museum of Rudolf II* (completed 1611), documenting his *naturalia* collection, are preserved in the Austrian National Library.<sup>36</sup> These artists produced woodcuts and engravings of plants or animal specimens with which the scientists illustrated their works.

Rudolf's patronage of nature studies and illustrations were part of his larger interests. His galleries at Hradschin Castle housed several thousand paintings and equally vast numbers of sculptures, coins, vases, gems, natural rarities, precious medicines, scientific instruments, clocks, books and other curiosities that represented the imperial *Kunstkammer*. In the last decade of his reign, Rudolf epitomised, as Paula Findlen pointed out, the image of the learned monarch who created and consumed all forms of knowledge. Francis Bacon, had he ever made the voyage from London to Prague, would have found here a ruler much to his liking,<sup>37</sup> though he would have disapproved of Rudolf's passion for alchemy.<sup>38</sup>

Habsburg control reached into Germany, the Netherlands, Flanders, Spain and Portugal and from there overseas, into the Estado da India with its capital Goa. Scholars and artists patronised by the Habsburgs moved also to other courts and cities of Europe.<sup>39</sup> It was a time of intense artistic exchange and free flow of ideas, which, through religious, commercial and political connections, extended beyond Europe. In this way European nature illustration also reached Mughal India.

<sup>33</sup>Th. Vignau-Wilberg, "Le 'Museum de l'empereur Rodolphe II' et le Cabinet des arts et curiosités" in the splendid French facsimile edition: H. Haupt, Th. Vignau-Wilberg, E. Irblich, M. Staudinger, *Le Bestiaire de Rodolphe II: Cod. min 129 et 130 de la Bibliothèque nationale d'Autriche* (Paris, 1990), pp. 55–59.

<sup>34</sup>DaCosta Kaufmann, *The School of Prague*, pp. 228–248

<sup>35</sup>H. Haupt, Th. Vignau-Wilberg, E. Irblich, M. Staudinger, *Le Bestiaire de Rodolphe II*, p. 40; DaCosta Kaufmann, "Arcimboldos Kompositköpfe: Ursprünge und Invention", S. Ferino-Pagden, "Arcimboldo als 'conterfeter' der Natur", M. Staudinger, "Arcimboldo und Ulisse Aldovrandi", in *Arcimboldo 1526–93*, pp. 97–117, and pp. 124–167. See also below, Fig. 25.

<sup>36</sup>Cod. min. 129 (88 folios 40,5 × 30 cm) and Cod. min 130 (92 folios, 40.1 × 30.3 cm) published in *Le Bestiaire de Rodolphe II*. A third manuscript Cod. min. 42 contains animal studies of various artists and of various periods, such as by Arcimboldo, several of which were copied in a more elaborate form in the Museum of Rudolf. See also Staudinger in *Arcimboldo*, pp. 113–117, cat. nos. IV. 24, and S. Pénot, cat. no. IV.25–26, pp. 165–68.

<sup>37</sup>Findlen, "Cabinets, Collecting and Natural Philosophy", p. 209; H. Bredekamp, *Antikensehnsucht und Maschinenglauben: Die Geschichte der Kunstkammern und die Zukunft der Kunstgeschichte* (Berlin, 1993), p. 63 says that Bacon's organisation of natural knowledge in his writings corresponded to the inventories of Rudolf's collections according to *naturalia*, *artificialia*, and *scientifica*

<sup>38</sup>Bacon lashes out against the philosophy of the alchemists which "hath the foundation in imposture, in auricular traditions and obscurity" in a speech which praises "the worthiest power (knowledge)" held on 17 November 1592 at a court entertainment for Queen Elizabeth to celebrate the anniversary of her accession, Francis Bacon, *The Essays*, edited with an introduction by J. Pitcher (London, 1985), Appendix 2: Counsels for the Prince, p. 260.

<sup>39</sup>Artists from continental Europe worked also in England where the iconoclastic tendencies of the Protestant Reformation suppressed indigenous art practice. An exception was portrait miniature, with Nicholas Hilliard and Isaac Oliver.

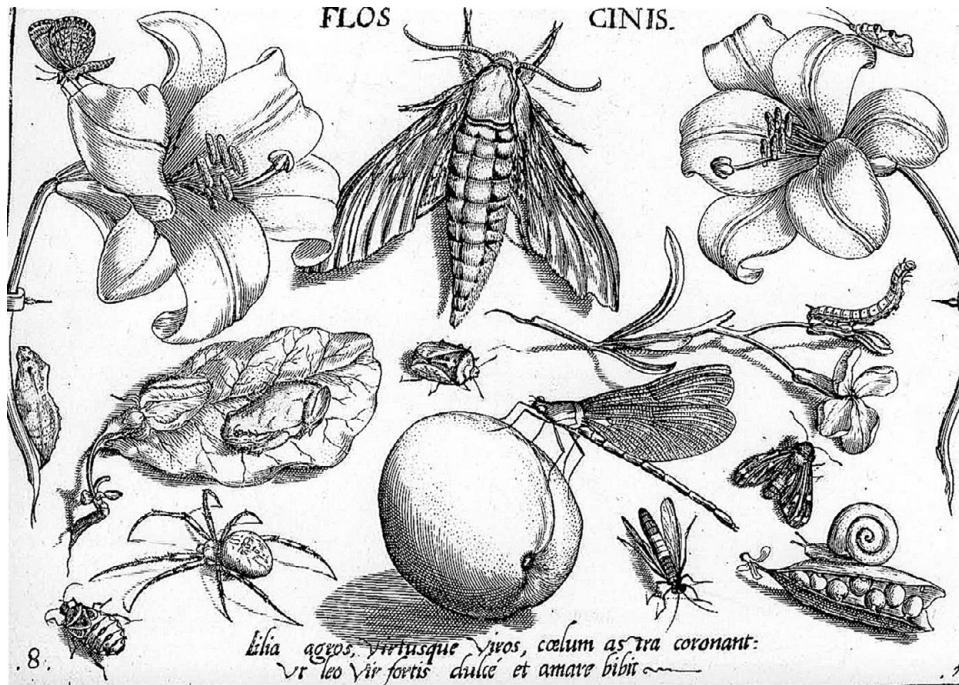


Fig. 5. *Flos cinis*, Jacob Hoefnagel, *Archetypha studiaque patris Georgii Hoefnagelii*, Frankfurt a. M. 1592.

### Europeanising nature illustration under Jahangir

Robert Skelton and Vivian Rich have shown that Mughal artists based studies of flowers and plants, including those which were native to their own environment, on the illustrations of the great European scientific plant books.<sup>40</sup> Mughal nature studies belong to the genre of miniature painting, small pictures painted in opaque water colour on paper, conceived as illustrations of books or to be pasted in an album. On the album page a painting or a collage of several paintings would be typically be surrounded by a calligraphic frame, made of verses or text (not necessarily related to the painting) and a wider ornamental margin.

A key image of Mughal floral illustration by *ustad* Mansur is inserted in Jahangir's great album, a major part of which is kept today under the name Gulshan album in the Gulistan Library at Tehran (Fig. 6).<sup>41</sup> Mansur's page, signed '*amal-i Mansur Jahangir Shahi* (work of

<sup>40</sup>R. Skelton, "A Decorative Motif in Mughal Art"; V. A. Rich, "The Origins of Mughal Painting and its Development with particular Reference to the 17th and 18th Centuries", submitted for a PhD degree, School of Oriental and African Studies, London (1981); *eadem*, "Mughal Floral Painting and its European Sources", *Oriental Art*, XXXIII, 2 (1987), pp. 183–189.

<sup>41</sup>Gulistan Palace Library No. 1663, p. 103. Das, *Mughal Painting*, pp. 64–65 has outlined the research on the Gulshan album until 1978. A comprehensive study of the Gulshan album is carried out by M. C. Beach. See his "The Gulshan Album and its European Sources", *Museum of Fine Arts, Boston Bulletin*, 63, no. 332, 1965, pp. 63–91; *idem*, "Jahangir's Album: Some Clarifications", in *Arts of Mughal India: Studies in Honour of Robert Skelton*, edited by R. Crill, S. Stronge and A. Topsfield (London and Ahmedabad, 2004), pp. 111–118; *Shahkarha-yi nigarkari Iran/Masterpieces of Persian Painting*, published on the occasion of an exhibition with the same title by the Tehran Museum of Contemporary Art (Tehran, 2005) pp. 405–466. I had the opportunity to study and photograph the folios of the Gulshan album in October 2004 and in April and May 2005 and thank the director of the Gulistan



Fig. 6. Lilies and other flowers, signed by Mansur, ca. 1610. Opaque water colour on paper, Gulshan album, detail of album page. Gulistan Palace Library, Tehran, No. 1663, p. 103 (Photo Ebba Koch).

Mansur [servant] of King Jahangir), shows a compendium of different kind of flowers, mainly lilies, copied in reverse from various works and rendered in colour.<sup>42</sup> The models of Mansur's lilies were woodcuts based on drawings by Pieter van der Borcht and they illustrated the plant books of Carolus Clusius (Charles de l'Écluse), *Rariorum aliquot stirpium per Hispanias observatarum historia libris duobus expressa* (Antwerp: Plantin, 1576); *idem*, *Rariorum aliquot stirpium per Pannoniam, Austriam et vicinas quasdam provincias observatarum historia, quatuor libris expressa* (Antwerp: Plantin, 1583), *idem*, *Rariorum plantarum historia* (Antwerp: Plantin, 1601) (Fig. 7); Mathaeus Lobelius (Mathias de l'Obel), *Plantarum seu stirpium historia* (Antwerp: Plantin, 1576), *Kruydsboeck* (Antwerp: Plantin, 1581); *idem*, *Plantarum seu stirpium icones* (Antwerp: Plantin, 1581); *idem*, *Icones stirpium seu plantarum tam exoticarum, quam indigenarum, in gratiam rei herbariae studiosorum in duas partes digestae* (Antwerp: Plantin, 1591) (Fig. 8); and Rembertus Dodonaeus, *Stirpium historiae pemptades sex; . . .* (Antwerp: Plantin, 1576, 1583 and 1616).<sup>43</sup>

Clusius and Dodonaeus were sponsored by Maximilian II and Rudolf II; Lobelius (1538–1616) was the physician and botanist of James I of England. Their works were printed by Christophe Plantin in Antwerp and his principal artist Pieter van der Borcht did most of the illustrations. The renowned publisher had also brought out the famous *Polyglot Bible* (1568–72) with the support of Philip II of Spain (and since 1580 of Portugal as well), which the first Jesuit Mission had brought via Goa to the court of Akbar in 1580, and its illustrations had a great impact on Mughal art.<sup>44</sup>

Another instance of the use of European plant models is in the flower studies of the so called *Small Clive Album* of the Victoria & Albert Museum, London (late seventeenth or eighteenth century) (Fig. 9). Several are copied from the French florilegium of Pierre Vallet, *Le Jardin du Roi très Chretien Henry IV* (Paris, 1608; second enlarged edition *Roi très Chretien Louis XIII*, 1623) (Fig. 10).<sup>45</sup>

Since Jahangir's involvement in nature went hand in hand with his highly developed sense of aesthetics, he put his most outstanding masters to the task; the specialists trained for nature studies were the already mentioned *ustad* Mansur, Nadir al-Asr, the Wonder of the Age, and Abu'l Hasan or Nadir az-Zaman also meaning Wonder of the Age, as the emperor had titled them.<sup>46</sup> The resulting paintings emerge as exact natural history drawings which, in their best moments, are compelling works of art.

Library Mrs Parvina S. Seghatoleslami for the permission, and librarian Mr Hasan Alae-ni for his assistance and help in reading inscriptions. Since then S. Stronge has published p. 103 in "The Gulshan Album, c. 1600–1618" in *Muraqqa': Imperial Mughal Albums from the Chester Beatty Library* (Alexandria, Virginia, 2008), pp. 76–81, see also *eadem*, "The Minto Album and Its Decoration, c. 1612–1640", *ibidem*, pp. 82–105, especially 95–98.

<sup>42</sup>Verma, *Mughal Painter of Flora and Fauna*, Fig. 2, pp. 54, 134 with further literature. Verma does not even try to identify the botanical species.

<sup>43</sup>For a detailed investigation of which plant appears in which work and in which edition see Rich, "The Origins of Mughal Painting", pp. 154–160.

<sup>44</sup>Koch, "The Influence of the Jesuit Missions"; G. A. Bailey, Chapter 5 "A Bright Assembly: The Jesuit Mission to 'Mogor', 1580–1773", *Art on the Jesuit Missions in Asia and Latin America* (Toronto, Buffalo, London, 1999, reprint, 2001), pp. 112–143.

<sup>45</sup>The 1613 edition is available on the internet under <http://www.illustratedgarden.org/mobot/rarebooks/author.asp?creator=Vallet,%20Pierre&creatorID=57> (accessed, 29 Jan 2007). Skelton in his "A Decorative Motif" drew attention to the connection between Valet's *Le Jardin du Rois* and the Small Clive Album in the Victoria and Albert Museum I. S. 48–1956; Rich further explored the connection, see "The Origins of Mughal Painting", and "Mughal Floral Painting".

<sup>46</sup>Both titles mean the same, with the Persian *zaman* instead of the Arabic 'asr.

## PLANTARVM HISTOR. LIBER II.

131

cheirurgi, qui Hyacinthi majoris nomine appellabatur cum apud illum anno M. D. LXXI. Lutetiae esset.

De hac etiam planta ad nos in Belgicam scribebat Alphonsus Pancius, quando Tufai iconem mittebat, his verbis *Penachio Perfiano è pianta bellissima, & è specie di Giglio à Martagon, diverso della Corona Imperiale*: hoc est Penachio Perfiano elegantissima est planta è Lilij aut Martagonis generibus, differens à Corona Imperiali.

LILIUM RUBRUM SIVE MINIATVM Byzantinum.

CAP. III.



VENUSTA admodum est, & dum ejus historiam describerem, satis rara hæc planta, cujus folia Lilij albi folijs similia, breviora tamen latioraque, & in lateribus subhirsuta, confuso ordine caulem amplectuntur, qui cubitalis aut major est, ex viridi purpurascens, digitalis crassitudinis: flores summo fastigio proferunt languido collo deorsum propendentes, sex folijs convolutis & reflexis, ut in Lilio montano, sive Martagone Matthioli, constantes, elegantissimo minij, aut ceræ rubræ recentis colore: è medio flore exeunt sex candidantia stamina, croceis apicibus insignita, stilo inter illa prominente. Floribus succedunt capita ijs quæ in Lilio silvestri sive montano nascuntur plurimum respondentia, atque simile paleaceum fuscumque semen continentia. Radix interdum valde magna non est, nec Lilij silvestris radicem multum superat, illi que (recentis eruta) colore valde similis est, diutius autem extra terram adseruata, aliquando exalbescit, nonnumquam squamæ vel tozæ purpurascunt, vel quibusdam notis saturatè rubetibus asperguntur: augetur verò lactiore solo confita, & subinde in plures bulbos dividitur: omnes autem hujus plantæ caules in firmâ parte paullo supra bulbum, fibris ut in Lilio silvestri, sunt donati.

Floret Junio cum Lilij, aut paullo serius: semen etiam serò admodum, videlicet sub Augusti finè, aut demum Septembri maturum est.

Constantinopoli Viënam delata fuerat, ante meum in eam urbem adventum, hæc planta, & aliquot nobilibus Matronis communicata. Vnicum postea bulbum inter alios *Sultan Zambach* nomine missos à Generoso & Mag<sup>o</sup> Viro Davide Vngnad, cum apud Turcarum Imperatorè Cæsareus Orator esset, accipiebam, qui primis annis unicum florem semper mihi protulit: sed anno M. D. LXXIX. quaternos, altero cum insequente, senos, eosque omnes ex summo extimoque caule simul prodeuntes, quemadmodum & ea planta quæ Generoso Viro Wolfgango Christophoro ab Entzestorf anno M. D. XXXI. floruit, tredecim flores extimo caule, eoque unciam lato sustinens saturatè rubentes, cum præcedente anno quinque duntaxat extimo etiam sed rotundo caule, ut meus, tulisset.

Sed & Patricia quedam Viennensis aliquot plantas habuit, inter quas una extimo caule duas uncias lato tres & viginti flores tulit, in reliquis plantis quæ vel in ipsius, vel aliarum nobilium Matronarum, vel Entzestorfij, qui instructissimum habuit, vel meo hortu alebantur, plerumque unicum, interdum alterum & tertium in singulis caulibus florem natum conspiciebam. Gen. porrò Ioan. vander Dilst plantam habuit semine natam, quæ primo quo flores proferre cepit anno, octonos, proximo autem insequente, qui fuit septuagesimus octavus supra millesimum & quingentesimum, quadragenos protulit: an verò planus fuisset caulis, & illius extimo fastigio nati flores, non significabat. Sed pictura illa à Rasio mihi donata, cujus superiore capite memini, vicosos aut plures flores ab extimo caule plano propendentes habebat.

Anno præterea secundo & nonagesimo supra millesimum & quingentesimum binas habuit saturatiores flores gerentis plantas, quarum prior quaternos, altera septenos flores tolerant, omnes summo caulis fastigio æqualiter innascentes, non remerè per caulem sparsos, quemadmodum Liliū album aut silvestre ferre solent: singulæ autem hoc peculiare habuerunt, ut unus medius inter reliquos surrecto pediculo nasceretur, & in alterâ quidem ille duodenis foliis constans, & quodammodo gemellus, ut in secundâ subjectâ iconè videre licet.

Fig. 7. *Lilium rubrum* from Carolus Clusius (Charles de l'Écluse), *Rariorum plantarum historia*, Antwerp,

1601.



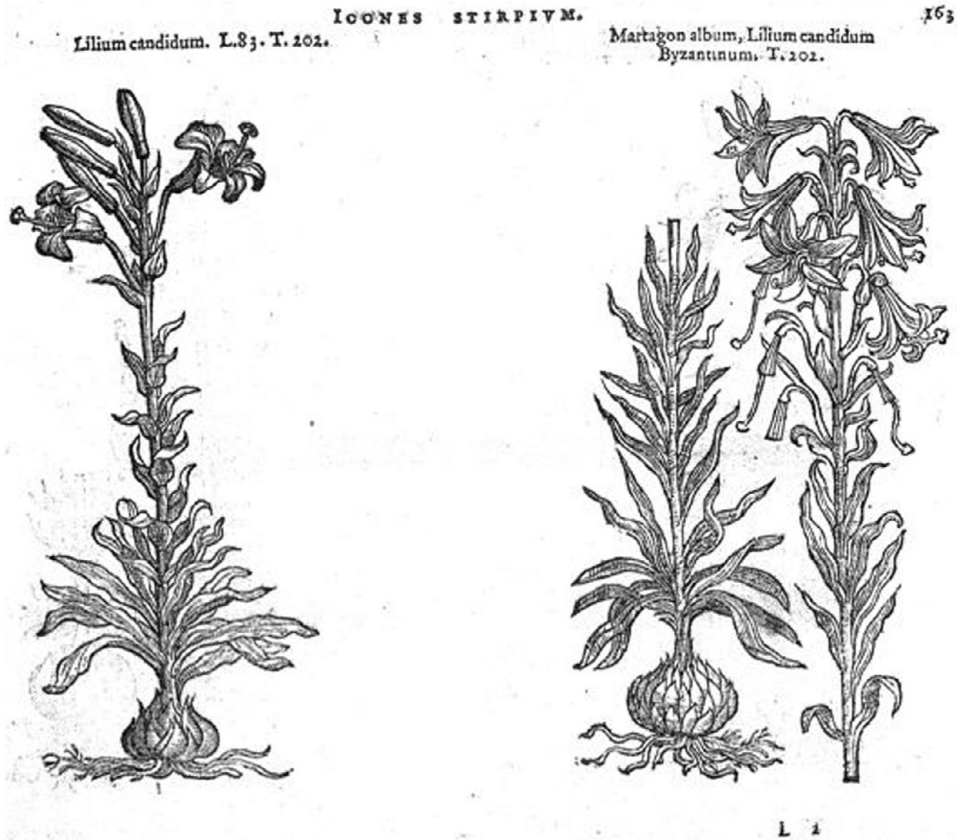


Fig. 8. *Lilium candidum* and *Martagon album* from Mathaeus Lobelius (Mathias de l'Obel), *Icones stirpium . . .*, Antwerp, 1591.

The Mughal artists did not only copy flowers of European herbals. They adopted from the herbals' system the composition in the rendering of a flower, the use of front and side views of the blossoms, the progression from bud to full blossom to withered bloom on one plant, and the arrangement of the blossoms to display the botanical details of stamen and carpels. This was combined with a sense of movement in the petals, leaves and stems which was also typical of herbal illustration of the period.<sup>47</sup>

On the basis of this principle, of representing a plant native to India according to the European herbal style, *ustad* Mansur's famous Tulips, c. 1620, at the Maulana Azad Library, Aligarh Muslim University, could possibly be the earliest botanical illustration of *Tulipa linifolia* Regel 1884 (Fig. 11).<sup>48</sup> It grows in western Central Asia, reaching into the Himalayas in Kashmir and North India, Mansur renders correctly the undulating leaves, and the broad glowing red petals that abruptly contract to a fine point and curve outward, all characteristic

<sup>47</sup>Rich, "Mughal Floral Painting", p. 183.

<sup>48</sup>Verma, *Mughal Painter of Flora and Fauna Ustad Mansur*, Pl. XI, p. 116–117, identifies the flower as *Tulipa clusiana* but it clearly fits the description of *Tulipa linifolia* better.

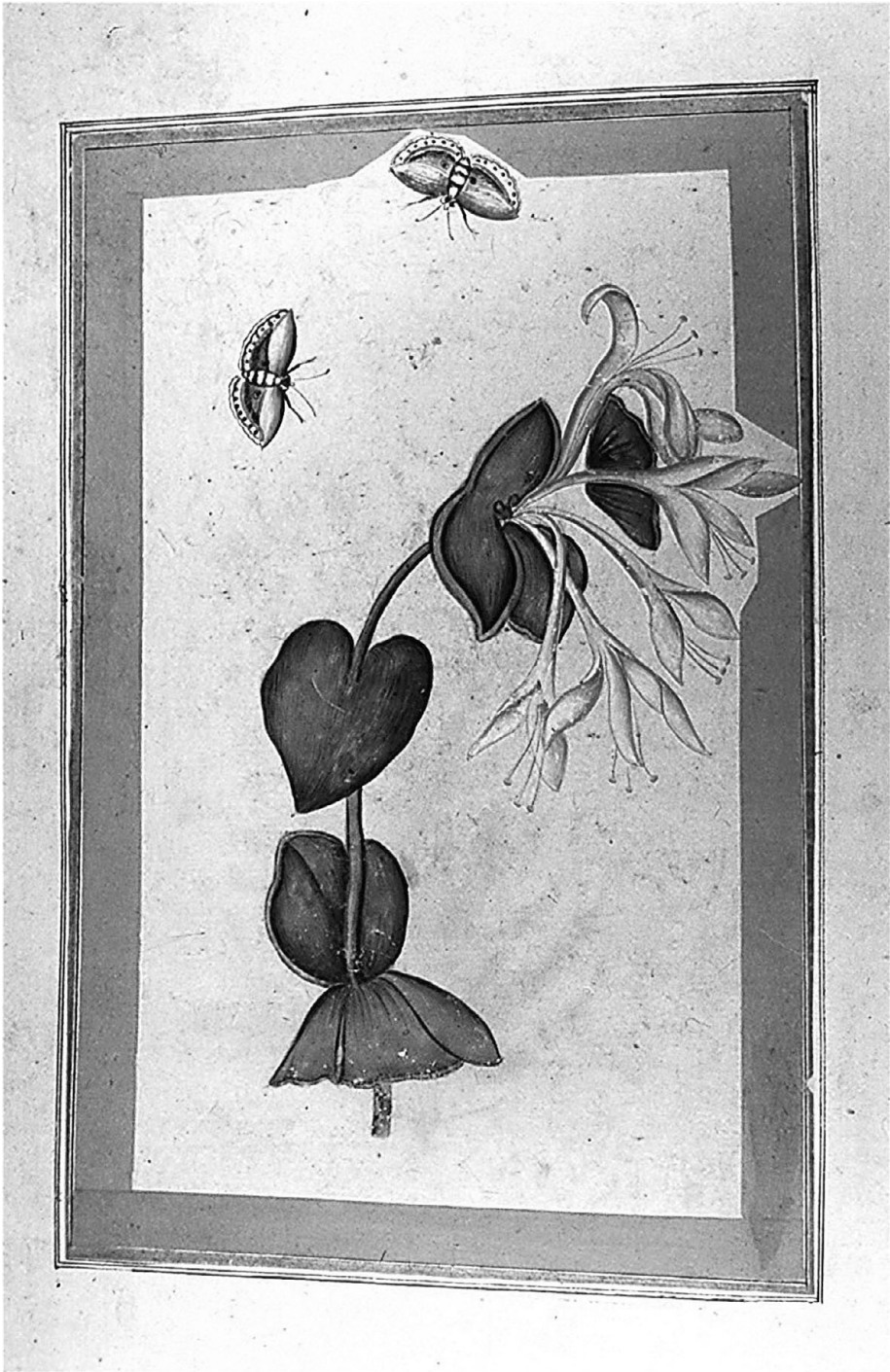


Fig. 9. Flower, opaque water colour on paper, Small Clive album, by courtesy of the Trustees, Victoria and Albert Museum, London, I. S. 48–1956, fol. 39 (Photo Ebba Koch).

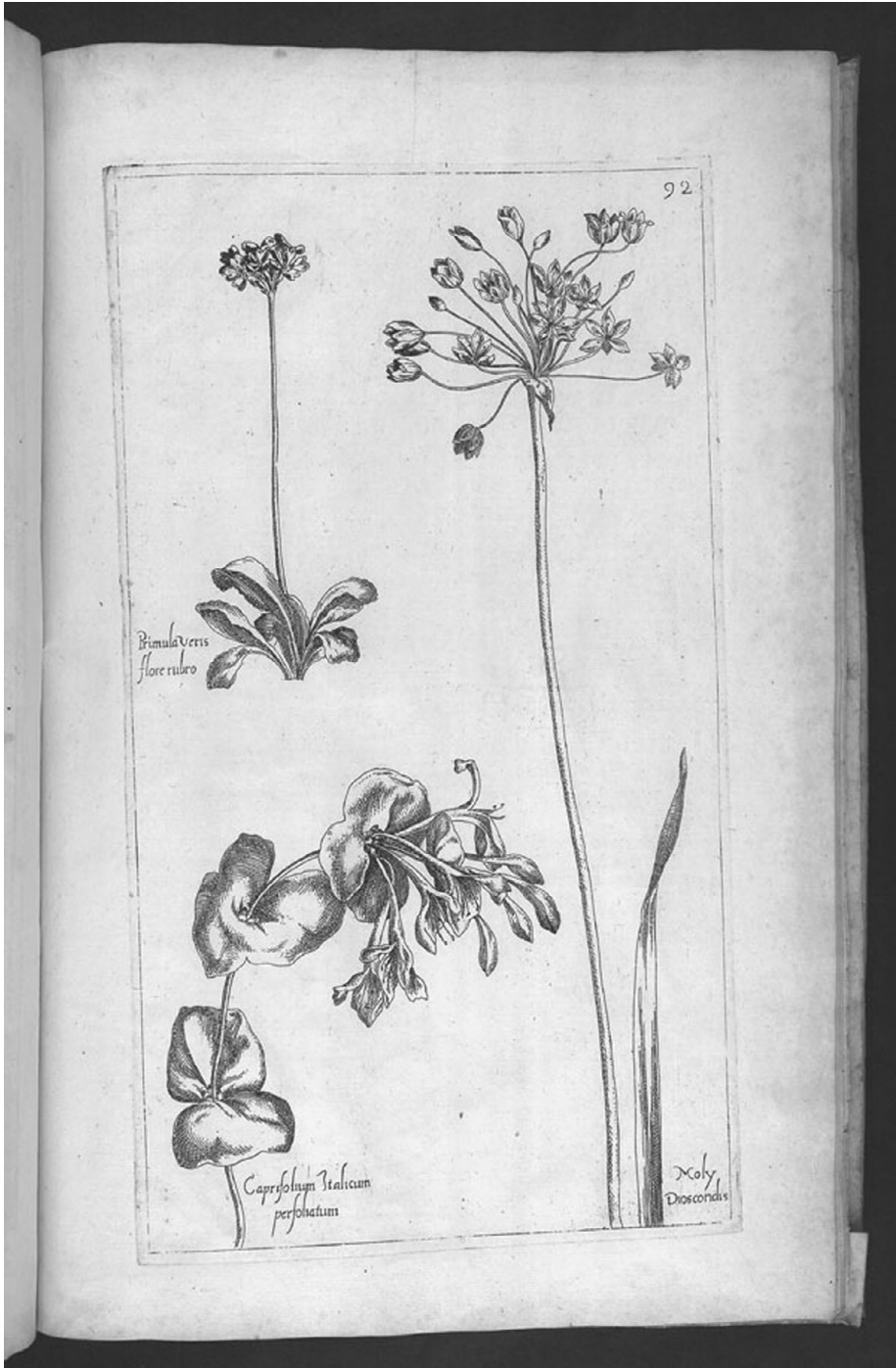


Fig. 10. *Caprifolium italicum perfoliatum* (a type of honeysuckle) from Pierre Vallet. *Le jardin du Roy* (1623), p. 92.



Fig. 11. Tulips, signed by Mansur, c. 1620, opaque water colour on paper, Maulana Azad Library, Aligarh Muslim University, Aligarh (Photo Ebba Koch).

of the species. In Europe *Tulipa linifolia* Regel was only described at the end of the nineteenth century by Eduard August Regel (1815–1892), since 1855 Director of the Imperial Gardens of St Petersburg, who expanded botanical knowledge towards the regions of the Caucasus and Central Asia. One of the early botanical illustrations by an anonymous artist from *Curtis Botanical Magazine* (1905) shows a striking resemblance to the tulips of Mansur (Fig. 12).<sup>49</sup> It is uncertain whether the artist knew Mansur's image but it shows in retrospect how close the Mughal artist was to a western scientific representation of a plant so far unrecorded, and how he turned it into a striking work of art.

Another favourite of the Mughals was *Fritillaria imperialis*, or crown imperial. Jahangir described one he saw during a trip to Kashmir in March 1620, and in this context, also comments on the problem of methodology in assessing his material:

There was one strange flower in particular with an odd shape. It had five or six orange-coloured flowers blooming with their heads down, and several leaves were poking out from inside the flowers. It was something like a pineapple [he means obviously the topping crown of leaves] (. . .). The flowers of Kashmir are beyond counting or enumeration. Which ones shall I write about? How many can one write about? Only those that are really special can be recorded.<sup>50</sup>

No image by any of Jahangir's painters is preserved to match this description but a doubled tiered *Fritillaria imperialis* appears later in the Dara Shikoh Album, British Library, assembled between circa 1633–42 (Fig. 13).<sup>51</sup> The fleshy rendering of its stem, leaves and blossoms is close to European botanical representation (Fig. 14), only its colour is altered to a somewhat unrealistic pink which was in line with the new 'Shahjahani' trend of subjecting botanical correctness to artistic alienation.<sup>52</sup>

Besides flowers, Jahangir had a deep interest in birds. I have referred to his famous experiment of breeding saras cranes (*Grus antigone*) in captivity. Over an extended period from end of June to September 1618 he reports in five consecutive detailed entries in the *Jahangirnama* how a pair of these birds named Laila and Majnun, which he had kept for five years in his establishment and which were tended by eunuchs, began to mate, and how, after the female laid her eggs, the birds took turns sitting on them, and how they hatched the chicks and raised them.<sup>53</sup>

It is worthwhile to cite at least some lines of Jahangir's long observation;

One day one of the eunuchs told me they had mated in his presence. . . . He came one morning at dawn and told me they were going to mate [again]. I immediately ran out to watch. The

<sup>49</sup>A. Pavord, *The Tulip* (New York and London, 1999), p. 318, illus. on p. 319.

<sup>50</sup>*Jahangirnama*, trans. Thackston, pp. 327–328.

<sup>51</sup>T. Falk and M. Archer, *Indian Miniatures in the India Office Library* (London, Delhi, Karachi, 1981), cat. no. 68, fol. 62, pl. on p. 397.

<sup>52</sup>Under Shah Jahan such botanical illustration made its way into the applied arts and architecture and *Fritillaria imperialis* became a distinct motif of Mughal flower ornament. It is translated into marble relief on the dados of the Taj Mahal, in *commesso di pietre dure*, called *parchin kari* by the Mughals on Shah Jahan's cenotaph in the Taj Mahal, see E. Koch, *The Complete Taj Mahal and the Riverfront Gardens of Agra* (London, 2006), pp. 175, 221. The plant appears also on a type of imperial Mughal carpet, patterned with rows of botanically recognisable flowers and trees, see D. Walker, *Flowers under Foot: Indian Carpets of the Mughal Era* (New York, 1997), p. 104.

<sup>53</sup>*Jahangirnama*, trans. Thackston, pp. 266, 269, 270, 274, 277; Alvi and Rahman, *Jahangir the Naturalist*, pp. 68–74.



Fig. 12. *Tulipa linifolia* Regel 1884 from *Curtis Botanical Magazine*, 1905.

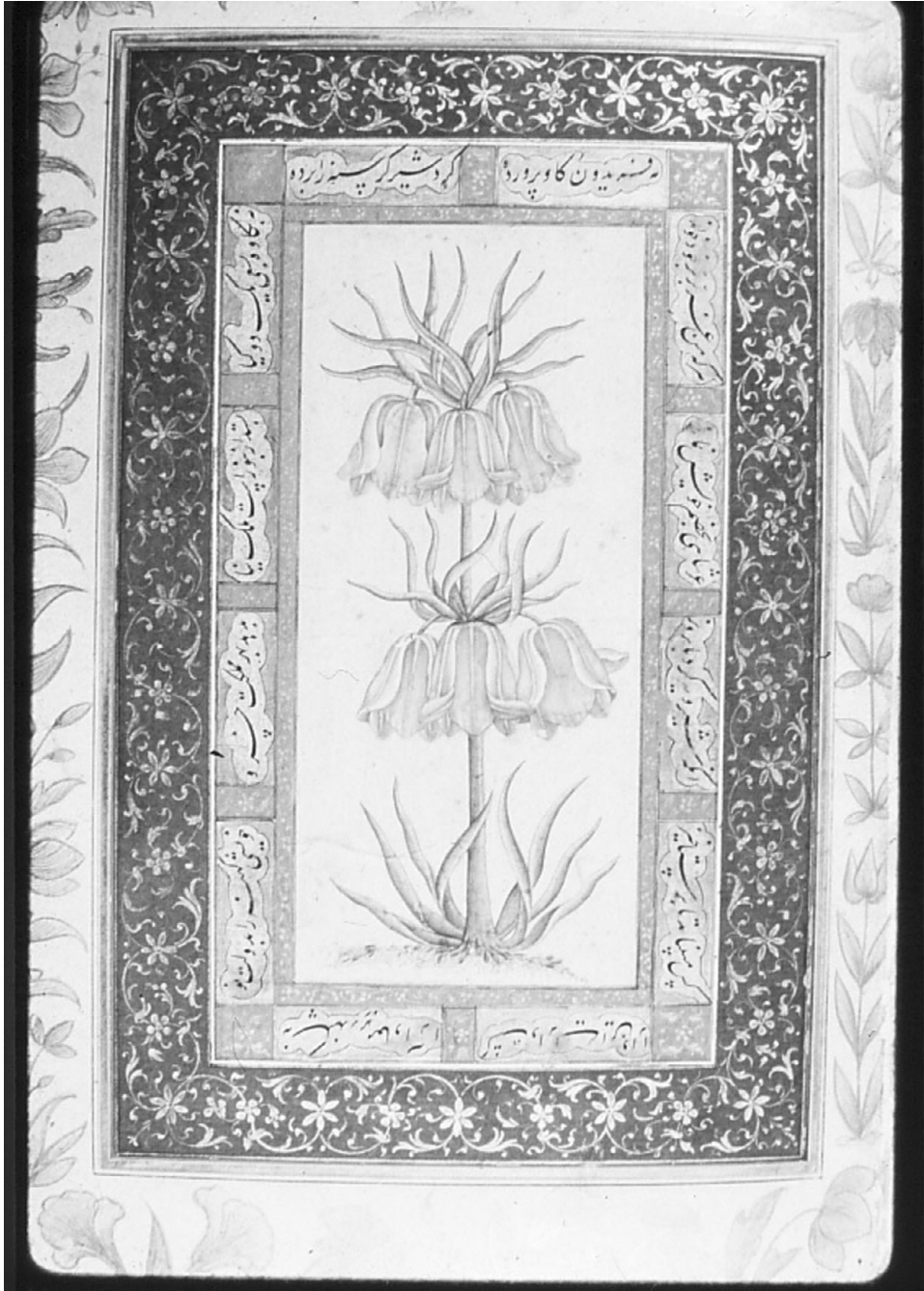


Fig. 13. *Fritillaria imperialis* (double tiered), Dara Shikoh Album, 1641–42, opaque water colour on paper, c. 1635, British Library Add. Or. 3129, fol. 62a, London

**Lilium siue Corona Imperialis. L.86. T.210.**

Fig. 14. *Tusai* or *Lilium persicum* (single tiered) from Carolus Clusius (Charles de l'Écluse), *Rariorum plantarum historia*, Antwerp, 1601.



female stretched her legs straight and then bent them slightly . . . First the male lifted one of his legs off the ground and put it on her back, and then the other. The instant he was seated on her back they mated. Then he got down, stretched out his neck, put his beak on the ground, and circled once around the female. It is possible that they have produced an egg and young will be brought forth.<sup>54</sup>

There are other reports about birds in the *Jahangirnama*, complemented by numerous bird studies. Several appear to be, and this does not seem to have been fully studied by ornithologists, like Mansur's Tulips, the first representations of their species. They, too, follow the Europeanising style of scientific representation. The connection is obvious when we look, as has been suggested by Robert Skelton, at the carefully observed engravings of Adrian Collaert, *Avium vivae icones* (1580, probably Antwerp, with several later editions)<sup>55</sup> and compare them with Mughal paintings. Moreover, the Flemish artist placed several of his birds on small trees in a landscape and Mansur did exactly that with his famous Bluethroated Barbet (*Megalaima asiatica*), ca 1615 in the Victoria & Albert Museum, London (Fig. 15)<sup>56</sup> which has a close relative in Collaert's *Picus cinereus* (tree creeper) of *Avium vivae icones* (Fig. 16).<sup>57</sup>

Later, under Shah Jahan the motif of birds sitting on trees was translated into a hard stone inlay in the *pietra dura/ parchin kari* decoration of Shah Jahan's throne wall in the Red Fort of Delhi (1639–48) where they featured as observed in nature, identifiable ornithological species in an artistic symbolic setting (Fig. 17).<sup>58</sup>

In several instances we can match Jahangir's description of birds with surviving images. One is of a falcon which he got as a present from the Shah 'Abbas of Iran in October 1619.

What can I write of the beauty of the bird's colour? It had black markings, and every feather on its wings, back and sides was extremely beautiful. Since it was rather unusual I ordered Master Mansur the painter who has been entitled Nadirul' asr Rarity of the Age to draw its likeness to be kept.<sup>59</sup>

One would like to think here of the portrait of a falcon in the Museum of Fine Arts, Boston, attributed with an inscription to Nadir al-Asr, Ustad Mansur (Fig. 18). The 'Boston' bird shows again a great resemblance to a "Falco" of Collaert (Fig. 19).<sup>60</sup> Yet the painting far surpasses the generic treatment of the engraved model and by grasping the psychology of the bird it gives us the portrait of an individual. This, and the masterful detailed treatment of the texture of the feathers, supports the attribution to Mansur.

<sup>54</sup> *Jahangirnama*, trans. Thackston, p. 266.

<sup>55</sup> There were several printed editions with varying numbers of plates. I thank Robert Skelton for referring me to this work and for letting me use his facsimile of the Antwerp edition of 1640 (in which the plates are not numbered) (Brussels, 1967).

<sup>56</sup> I. M. 137–1921; see S. Stronge, *Painting for the Mughal Emperor: The Art of the Book 1560–1660* (New Delhi, 2002), pl. 101

<sup>57</sup> Unnumbered plate of the 1640 edition, facsimile reprint 1967.

<sup>58</sup> E. Koch, *Shah Jahan and Orpheus: The Pietre Dure Decoration and the Programme of the Throne in the Hall of Public Audiences at the Red Fort of Delhi* (Graz, 1988) (repr. without intro. in E. Koch, *Mughal Art and Imperial Ideology: Collected Essays* (New Delhi, 2001), pp. 61–129. See also below.

<sup>59</sup> *Jahangirnama*, trans. Thackston, p. 314.

<sup>60</sup> Museum of Fine Arts, Boston, No. 14.683. Verma, *Mughal Painter of Flora and Fauna Ustad Mansur*, Pl. VIII, p. 114. Collaert's "Falco" is placed to the left of another bird on an unnumbered plate of *Avium vivae icones*, 1640 edition, facsimile reprint 1967.



Fig. 15. Himalayan blue throated barbet (*Megalaima asiatica*) by Mansur, c. 1615, opaque water colour on paper image area, 14.3 × 7.7 cm, by courtesy of the Trustees, Victoria and Albert Museum, London, I. M. 137–1921 bequeathed by Lady Wantage.



Fig. 16. *Picus cinereus* (tree creeper), detail, from Adrian Collaert, early 17th century, illustration of his *Avium vivae icones*, Antwerp 1640.

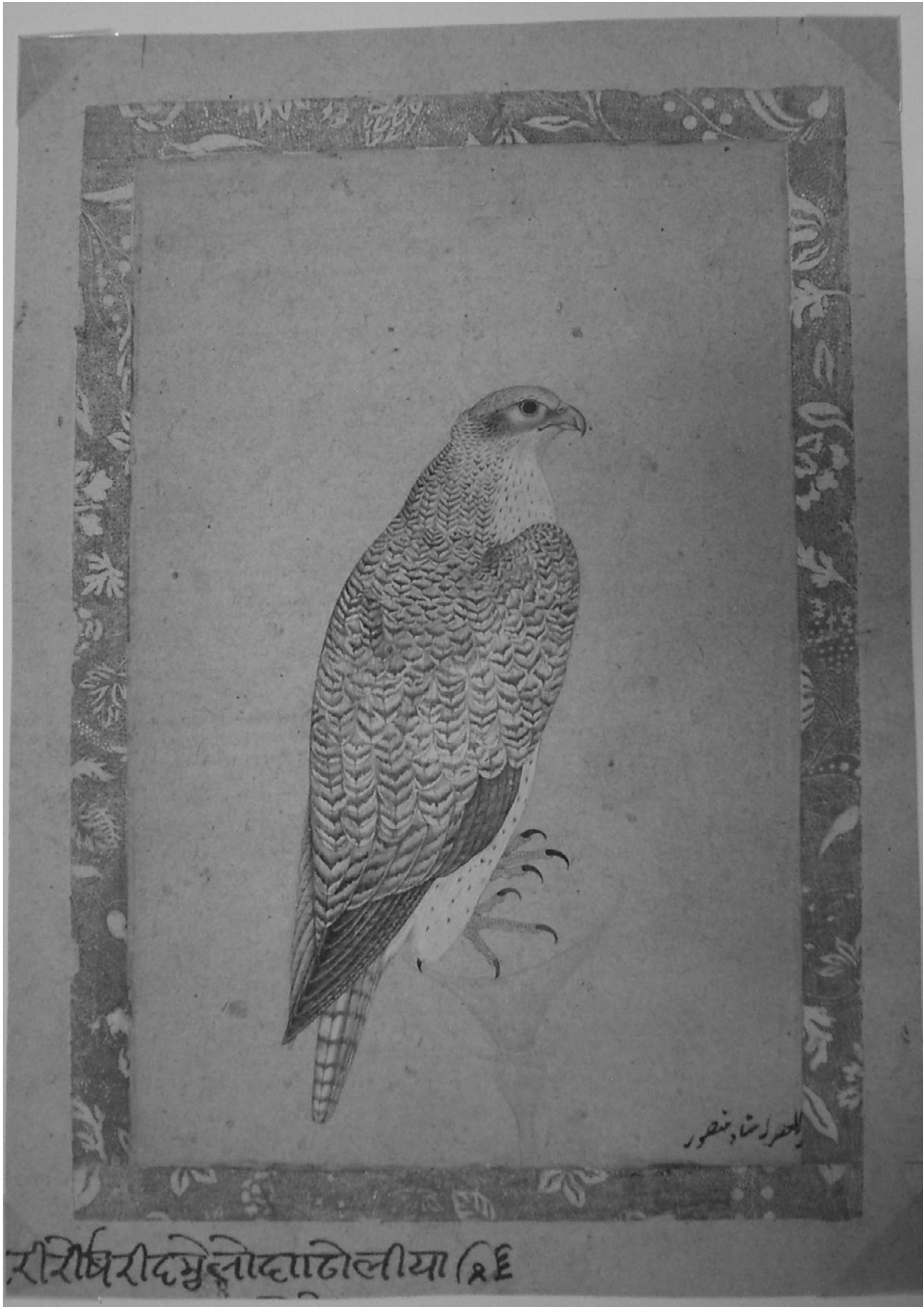


Fig. 17. *Falcon* ascribed to “Nadir al-Asr, Ustad Mansur”, early 17th century, opaque water colour on paper, Museum of Fine Arts, Boston, No 14.683

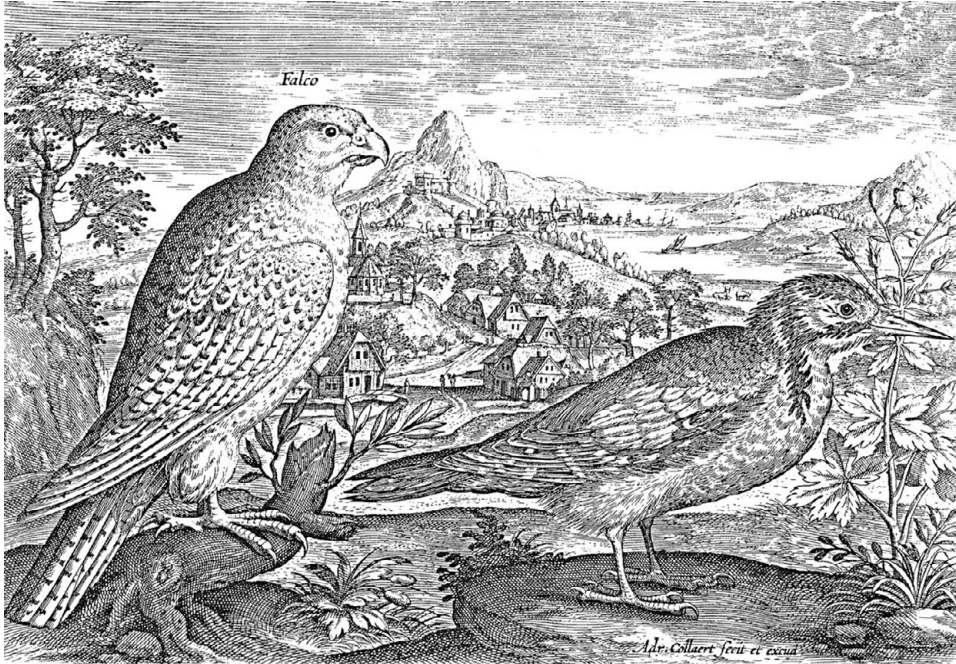


Fig. 18. *Falco*, detail, from Adrian Collaert, early 17th century, illustration of his *Avium vivae icones*, Antwerp 1640.

The picture of a spotted fork-tail (*Enicurus maculatus*) in the Metropolitan Museum of Art, New York, a bird of the Himalayas living by running stream, has an explanatory text directly on the painting. An inscription on one of the rocks tells us that it was caught at a place called Jangespur and that Jahangir ordered Abu'l Hasan, Nadir az-Zaman to draw it.<sup>61</sup>

The ornithological studies done for Jahangir included, as I have mentioned, one of the earliest depictions of the Mauritius dodo (*Raphus cucullatus* Linnaeus 1758). The bird appears among several other bird studies pasted together on a page of the St Petersburg Album, St Petersburg. Welch ascribes it to Mansur and dates it 1615 (Fig. 20).<sup>62</sup> The painting created quite a sensation at the XII International Ornithological Congress at Helsinki in 1958 because the bird, extinct since about 1670, was supposed to have been taken from a living model.<sup>63</sup> There is a rich body of literature on the dodo and to the present day scholars have not been able to establish with certainty whether Jahangir's dodo was taken from a

<sup>61</sup>S. C. Welch, A. Schimmel, M. L. Swietochowski, W. M. Thackston, *The Emperor's Album: Images of Mughal India* (New York, 1987), cat. no. 40. For other bird and animal studies of Mansur in this splendid album see cat. nos 41 (Great Hornbill), 44 (Diving Dipper and other birds), 45 (Vultures), 47 (Nilgai). Cat. no 50 shows a Black Buck probably by the artist Manohar.

<sup>62</sup>S. C. Welch, in *The St. Petersburg Muraqqa': Album of Indian and Persian Miniatures from the 16th through the 18th Century and Specimens of Persian Calligraphy by 'Imad al-Hasani*, (Mailand and Lugano 1996), p. 98, pl.147, fol. 80a.

<sup>63</sup>Salim Ali, "Dodo" in Alvi and Rahman, *Jahangir the Naturalist*, pp. 15–17.



Fig. 19. Bird (Myna?) from the back wall of Shah Jahan's throne *jharoka*, Red Fort Delhi (see Fig. 30), semi precious stone inlaid in marble (Photo Ebba Koch).

living model,<sup>64</sup> from a stuffed bird, or from a picture.<sup>65</sup> There is a general consensus among ornithologists that Jahangir's dodo gives us the most exact and trustworthy image of the bird, and thus it is quite likely that it was taken from a living specimen, "sensitively, knowingly drawn, and painted with finesse".<sup>66</sup>

<sup>64</sup>A remark of Peter Mundy that he had seen in 1633 or 1634 two dodoes at Surat which had been brought there from Mauritius was adduced as evidence that Jahangir's dodo was taken from a live bird kept at Surat. P. Mundy, *The Travels of Peter Mundy in Europe and Asia, 1608–1667*, ed. by R. C. Temple, 3 vols (London, 1911–19); vol. 2 1914, (repr. Nendeln, Liechtenstein, 1967), (new repr. 1991) p. 318.

<sup>65</sup>I have consulted: H. E. Strickland, and A. G. Melville, *The Dodo and Its Kindred or the History, Affinities, and Osteology of the Dodo, Solitaire, and Other Extinct Birds of the Islands Mauritius, Rodriguez, and Bourbon* (London, 1848) and I thank Andrea Kourgli, director of the library of the Naturhistorisches Museum, Vienna for very kindly taking photographs of the pages of Introduction and Part I (dealing with the historical descriptions of the bird) of the fragile Book; V. Ziswiler, *Der Dodo: Fantasien und Fakten zu einem verschwundenen Vogel*, exhib. cat. Zoologisches Museum (Zürich, 1996), a thorough study of the depictions and reconstructions of the bird; H. Haupt, Th. Vignau-Wilberg, E. Irlich, M. Staudinger, *Le Bestiaire de Rodolphe II*, pp. 244–349; and Rajith Dissanayake, "What did the dodo look like?" *Biologist* 51/3 (2004): pp. 165–168; he undertakes also a digital reconstruction of the dodo, mainly informed by the Mughal dodo, see his Fig. 2.

<sup>66</sup>Salim Ali, in Alvi and Rahman, *Jahangir The Naturalist*, p. 17; Ziswiler, *Der Dodo*, p. 22; Dissanayake; the citation is from Welch, *The St Petersburg Muraqqa'*, p. 98.

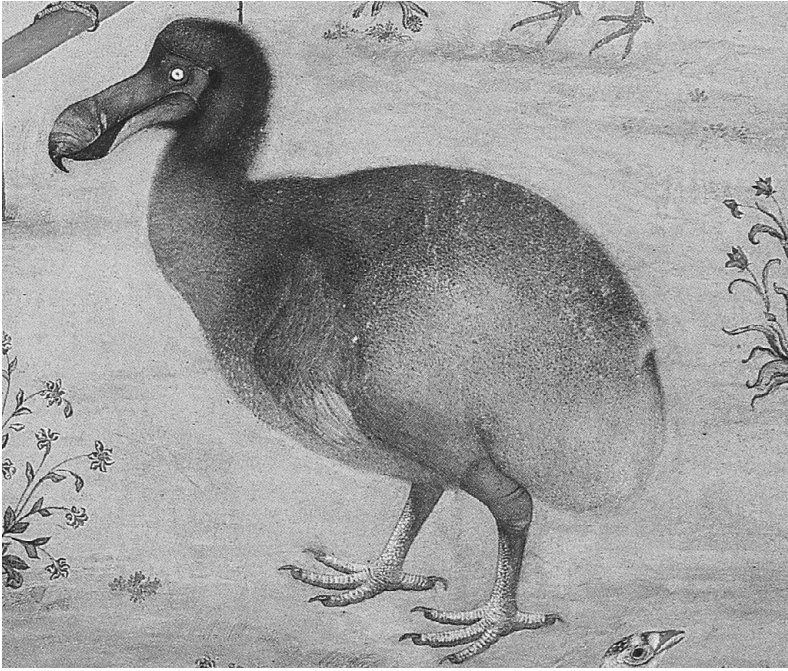


Fig. 20. Dodo, attributed to Mansur, detail of a collage with bird studies, opaque water colour on paper, entire painting 15, 3 × 26 cm, St Petersburg album, Academy of Sciences, St Petersburg, f. 80a.



Fig. 21. Dodo, from the *Museum of Rudolf II*, early 17th century, 40.1 × 30.3 cm., Österreichische Nationalbibliothek, Vienna, Codex miniatus 130, fol. 31a.

The other early depictions of the extinct bird were made at the court of Rudolf at Prague, one appears on a page in the *Museum of Rudolf II* (Fig. 21).<sup>67</sup> Between 1626 and

<sup>67</sup>Österreichische Nationalbibliothek Vienna, Cod. Min. 130, fol. 31a. The authorship of the painting is still unresolved, it has been attributed variously to the Hoefnagels, Froeschl and Dirck de Quade van Ravesteyn. See



Fig. 22. Dodoes by Roelandt Savery, drawing in black and red chalk and light brown wash. Crocker Art Museum, Sacramento, California, E. B. Crocker Collection, 1871.102.

1628 Roelandt Savery and Andriaen Pieterszoon van der Venne did a couple of studies of the dodo and especially those of Savery were blamed for having distorted the image of the entire species because the model of both artists was an overfed specimen held in captivity in Amsterdam in 1626 (Fig. 22).<sup>68</sup> The bird appears also in Savery's paradisiacal and Orphic landscapes.<sup>69</sup>

Jahangir's scientific attention was also directed to the human condition. When he saw in October 1618 the wretched agonising condition of his noble Inayat Khan, he was fascinated described him, and had the dying man drawn and painted (Fig. 23). The artist whose identity is disputed produced a gripping clinical study of the physical and mental state in the final stage of opium addiction – Inayat Khan died several days after his likeness was taken.<sup>70</sup>

From text and image we also learn how Jahangir went about collecting his data. In 1617 near Ujjain in central India Jahangir he noted a strangely shaped palm tree the trunk of which

Da Costa Kaufmann, *The School of Prague*, pp. 212–213, cat. no. 10.4; H. Haupt, Th. Vignau-Wilberg, E. Irlich, M. Staudinger, *Le Bestiaire de Rodolphe II*, Planche 120, pp. 344–349; Paula Findlen, "Cabinets, Collecting and Natural Philosophy", p. 216, Fig. 15.7; Ziswiler, *Der Dodo*, p. 44; Dissanayake, Fig. 1.2.

<sup>68</sup> See e.g. Dissanayake, Fig. 1.7; Ziswiler, *Der Dodo*, pp. 24, 26–31, 47–50.

<sup>69</sup> J. Bialostocki, "Les bêtes et les humains de Roelant Savery", *Bulletin des Musées des Beaux Arts de Belgique* 7, 1958, pp. 69–92; Ziswiler, *Der Dodo*, pp. 51–55; Ute Kleinmann, cat. no. 111 in *Die flämische Landschaft 1520–1700*, exhib. cat. Vienna 2003–2004.

<sup>70</sup> *Jahangirnama*, trans. Thackston, pp. 279–281. The drawing is in the Museum of Fine Arts, Boston, Frances Bartlett Donation of 1912 and Picture Fund, 14. p. 679, the painting in the Bodleian Library, Oxford University, Ouseley Add. 171b, fol. 4 a. For the attribution to Balchand see Ellen Smart, "The Death of Inayat Khan by the Mughal Artist Balchand" *Artibus Asiae*, 58, 3/4 (1999), pp. 273–276.





Fig. 23. The dying Inayat Khan, 1618, opaque water colour on paper, 9.5 × 13.5 cm, Museum of Fine Arts, Boston, Francis Bartlett Donation of 1912 and Picture Fund, 14.679.

had forked into two branches, and, as the imperial scientist he was, he had it measured and painted. It is worthwhile quoting the full passage of the *Jahangirnama* which again testifies to Jahangir's scientific approach and thoroughness in observing detail:

At this station I saw a palm tree [*dirakht-i khurma*] that had a very strange shape. It originally had only one trunk, but when it had grown to a height of six *ells* [*gaz*, one *gaz* is a Mughal measure of length which corresponds to about 32 inches or 81.28 cm] it had forked into two branches, one ten *ells* and the other nine and a half *ells*. The distance between the two branches was four and a half *ells*. The distance from the ground to the place where the branches and the leaves came out was sixteen *ells* for the larger branch and fifteen and a half *ells* for the other. From the place where the branches and the green leaves were green to the top of the tree was two and a half *ells*, and the circumference was two an eighth *ells*. I ordered a terrace [*chabutara*, rather platform] three *ells* high made around it. Since it was so very straight and harmonious [well shaped], I told the painters to draw a picture of it for the *Jahangirnama*.<sup>71</sup>

And indeed, one of the illustrations of the *Jahangirnama*, an unfortunately badly-damaged painting in the Raza Library at Rampur, visualises this scene (Fig. 24). In a grove of palm

<sup>71</sup>Thackston, *Jahangirnama*, p. 208; the additions in square brackets are my own. See also Alvi and Rahman *Jahangir the Naturalist*, pp. 119–120.



Fig. 24. Jahangir has a palm tree with a forked trunk measured in 1617 near Ujjain, illustration of the Jahangirnama, opaque water colour on paper, 34.3×22 cm, Rampur, Raza Library, Album 1, fol. 8a.

trees Jahangir supervises, on his horse, the measuring of the forked tree in the foreground. That Jahangir puts a platform around the tree belongs to a Mughal phenomenon which can be described as the imprinting of nature. The Mughal *padshah* claims nature as his own by making a permanent imprint on it with architectural features, sculptures and dynastic inscriptions. Thus he marks his territories with artistic means. With this will to dominate nature through art Jahangir shows himself, in India, as a true patron of the Mannerist age and it is difficult to decide whether this represents a parallel development or is motivated by direct connections.<sup>72</sup>

Jahangir also assesses his dominions scientifically and this is reflected by his general concern with measures and weights. He had, for instance, the valley of Kashmir re-measured, to check the measurements of Abu'l Fazl in the *Akbarnama*.<sup>73</sup>

### Jahangir's Experiments

Jahangir comes particularly close to Bacon's ideas of science when he resorted to experimentation to increase his knowledge, to give a natural explanation for unusual phenomena or to test out traditional beliefs.

With experimentation he followed in the footsteps of Akbar, though his father had employed empirical research in another cause, to find out about true religion, natural to all men. In the late 1570s Akbar started a Kaspar Hauserian experiment and had children brought up in a secluded house with nurses who were not allowed to talk to them, to find out whether they would speak on their own and in what language, and "what religion and sect these infants would incline to and above all what creed they would repeat".<sup>74</sup> The project failed tragically because "after three or four years they all turned out dumb" and some of the children even died. This experiment bespeaks the Mughal empirical approach which took a turn towards natural history in Jahangir, but it also has a long tradition with kings and made its appearance in different times and cultures. The Hohenstaufen Frederick II (1194–1250), Holy Roman Emperor, King of Sicily and Jerusalem, and in many ways a kindred spirit of Akbar, is credited with having undertaken a similar venture (with similar results), to establish which was the first language of mankind, Hebrew, Greek, Latin, or Arabic.<sup>75</sup>

But back to Jahangir; in the *Jahangirnama* he describes a number of his empirical procedures of which I mention a few, such as the dissection of the body of a lion to find out what would be the physical origin of the proverbial bravery of lions and tigers, or the skinning of two sheep and the exposure of their carcasses at two different places to see which one would rot faster and "what the difference in the air was". And to test out an often reported belief,

<sup>72</sup>Koch, "My Garden is Hindustan", especially pp. 165–166, Fig. 11.

<sup>73</sup>*Jahangirnama*, trans. Thackston, p. 331.

<sup>74</sup>c Abd al-Qadir Bada'uni, *Muntakhabu-t-Tawarikh* by 'Abdu-l-Qadir-ibn-i Muluk Shah known as Al-Badaoni, vol. 2, trans. W. H. Lowe (2nd edn Calcutta, 1924; repr. Delhi, 1973), p. 296; Abu'l Fazl 'Allami, *The Akbar Nama of Abu-l-Fazl*, trans. by H. Beveridge, (Calcutta, 1902–39, 2nd repr. Delhi, 1979) vol. 3, pp. 581–582.

<sup>75</sup>Herodotus reports at the beginning of the second book of his *Histories* that the Egyptian King Psammetichus had children raised in isolation to find out which race and language was older, Egyptian or Phrygian. I have discussed Akbar's experiment and its antecedents in "The Intellectual and Artistic Climate at Akbar's Court", in J. Seyller, *The Adventures of Hamza: Painting and Storytelling in Mughal India*, exh. cat. (Washington, D.C./London, 2002), pp. 23–24.

Jahangir applied bitumen on a chicken's leg which he had broken to find out whether the substance had indeed a healing effect – it had not, as he observed.<sup>76</sup>

Jahangir also carried out zoological experiments and was particular interested in cross-breeding different species. In 1619 he ordered that two wild male *markhor* goats he had in his establishment be mated with seven female Barbary goats from Arabia, and was so delighted with the offspring that he kept the kids around him and even gave them names.<sup>77</sup>

If we consider Jahangir's methodology we note that, as a scientist, he has a selective approach; he records, depicts, measures, enumerates and tests what he considers as noteworthy and outstanding. He fails to feed the results of his empirical research into a theoretical framework and his observations do not lead to a systematic body of knowledge. If we compare him with Rudolf II we note that Jahangir's was something of a one man show, he did not have a circle of scientists and scholars at his disposal. His personal involvement and his achievements thus deserve more admiration and, so I feel, come closer to what Francis Bacon saw in practiced science as a means to sharpen the faculties of a ruler to see through things and evaluate behaviour and situations, "to rule with a clear understanding of nature and mankind".<sup>78</sup> Jahangir is remarkably self-reflective and, as a seeker of knowledge, he speaks to us with his own voice. The imperial attention becomes the measure of all things and behind it is the will to dominate the nature of his territories.<sup>79</sup> It is also a manifestation of his universal power.

### Nature Studies and Science in Allegory and Symbolism

This leads us to the role of science and nature studies in allegory and symbolism about which Bacon also reflects. And, also here I can not resist presenting Rudolf II as Jahangir's European alter ego.

According to DaCosta Kaufmann, Arcimboldo's composite heads were allegories meant to glorify Habsburg rule, and the concept would culminate in the portrait of Rudolf as Vertumnus (1591), the emperor as god of the seasons who is also comparable to Jove, god of the elements (Fig. 25).<sup>80</sup> In our context the question arises whether Arcimboldo was inspired by Indian or Persian sources for the idea of composite figures,<sup>81</sup> but for the present discussion

<sup>76</sup>Jahangirnama, trans. Thackston, pp. 207, 274–275, pp. 143–144. My attention to this passage was drawn by Lefèvre-Agrati in *Pouvoir et élites*...

<sup>77</sup>Jahangirnama, trans. Thackston, pp. 302–303. Cf. Ali and Rahman pp. 23–24 who describe the *markhor* goat as *Capra megaceros* Hutton.

<sup>78</sup>"In Bensalem –the model of scientific destiny –the natural scientists labour in the shadow of secrecy whose roots they do not grasp and whose master they do not recognise. The scientists' oath of secrecy points beyond the scientists' knowledge to someone learned in political science and thus able to rule with clear understanding of nature and mankind". J. Weinberger in his introduction of Francis Bacon, *New Atlantis and the Great Instauration*, pp. xxx–xxxii.

<sup>79</sup>See C. Lefèvre-Agrati, *Pouvoir et élites dans l'empire Moghol de Jahangir*, p. 125.

<sup>80</sup>DaCosta Kaufmann, at. no IV,38 in *Arcimboldo 1526–93*.

<sup>81</sup>There is quite a body of literature on the issue of composite figures/heads and where they occurred and where they might have had their origin. J. Zykan, "Der Tierzauber", *Artibus Asiae*, 5 (1935), pp. 203–212 gives an overview and traces composite heads back to Hellenistic gems and Persian seals of the fourth century B. C.; C. W. Welch, "Composite elephant with demons", cat. no 11 in *Indian Drawings and Painted Sketches: 16th through 19th Centuries*, exhib. cat (New York, 1976), pp. 40–41 mentions *tao tie* masks of ancient China of the second millennium B. C., the "animal style" of the first millennium B. C., Seljuk sculpture from Anatolia, fifteenth-century drawing of Turkman Tabriz, south Indian wall painting and sixteenth-century miniatures from Khorasan. R. J. Del Bonta, "Reinventing Nature: Mughal Composite Animal Painting" in Verma, *Flora and Fauna in Mughal Art*,



Fig. 25. Emperor Rudolf II as Vertumnus by Guiseppe Arcimboldo, ca. 1591, Skokloster Castle, Skokloster, oil on panel, 68 × 56 cm. Redrawn.

pp. 69–82, focuses on Indian examples and draws attention to a life size stone sculpture of Rudra Paśupati of the sixth century excavated at Talagaon in Madhya Pradesh (published in *Indian Archaeology 1987–88 A Review*, pl. 52, p. 137) which, because it is made up of human heads/masks, animal heads and birds, reminds him of Arcimboldo. For the debate about whether India or Iran inspired Arcimboldo, or whether it was the other way round or whether these were independent parallel phenomena see J. Strzygowski, *Asiatische Miniaturenmalerei im Anschluss an Wesen und Werden der Mogulmalerei* (Klagenfurt, 1933), pp. 223–224, who suggests Asian sources; and DaCosta

it is of more immediate interest that he assembled his symbolic heads from individual nature studies.<sup>82</sup>

This inspired me to take a fresh look at one of Jahangir's political allegories, where he stands on a globe shooting at the head of his enemy Malik 'Anbar, painted by Abu'l Hasan in ca. 1620, in the Chester Beatty Library, Dublin.<sup>83</sup> The old Islamic cosmological concept of the world fish on which the earth rests through the intermediation of the cosmic bull (Fig. 26)<sup>84</sup> is here newly expressed with components representing the latest European scientific achievements and related to Jahangir as world ruler (his name literally means "World-seizer") (Fig. 27). He stands on a terrestrial globe of the kind done at Antwerp around 1600;<sup>85</sup> the globe on its stand is placed in turn on the back of a naturalistic bovine with its head turned in Europeanising foreshortening, and both man and bull stand on a fish, a nature study in the manner of Giorgio Liberale from Udine (1527–1579/80, an artist sponsored by the Habsburgs) (Fig. 28).<sup>86</sup>

Sumathi Ramaswamy has perceptibly analysed Jahangir's preoccupation with the European scientific instrument of the globe which he adopted and appropriated in his pictorial representations as an imperial attribute. Jahangir and his artists fully understood the potential of manipulating the globe as a symbol of territorial dominion:<sup>87</sup> While globes, when they feature in Western paintings, are most often Europe-centred and the rest of world marginalised,<sup>88</sup> on the depiction of Jahangir's globe India appears larger and in the middle. Ramaswamy does not include the territorial distribution of the globe of the Chester Beatty

Kaufmann, "Arcimbaldos Kompositköpfe" in *Arcimboldo 1526–93*, pp. 97–101 who tends to see here independent developments. In an e-mail of 20 January 2008 Robert Skelton has kindly given me his views on composite figures.

<sup>82</sup>See especially S. Ferino-Pagden, "Arcimboldo as contereiter der Natur", *Arcimboldo 1526–93*, pp. 103–111.

<sup>83</sup>For a basic discussion of this painting and a reading of its inscriptions (based on Sir Thomas Arnold who first studied them) see L. Y. Leach, *Mughal and Other Indian Paintings from the Chester Beatty Library*, 2 vols (London, 1995), vol. 1, cat. no. 3.25, though she ignores the meaning of the bull standing on the fish. For a detailed analysis see Robert Skelton, "Imperial Symbolism in Mughal Painting", in *Content and Context of Visual Arts in the Islamic World*, papers from a colloquium in memory of Richard Ettinghausen, Institute of Fine Arts, New York University, ed. by P. Soucek (University Park/London 1988), pp. 177–187.

<sup>84</sup>For a discussion of this cosmology see Skelton, "Imperial Symbolism", pp. 177–187, p. 182, he refers to what Farid ad-Din Attar has to say about it in *The Conference of the Birds: Mantiq Ut-tair* (trans. C. S. Nott, London 1954), p. 3 "At the beginning of the centuries God used the mountains as nails to fix the Earth; and washed Earth's face with the water of the Oceans. Then he placed Earth on the back of a bull, the bull on a fish, and the fish on the air"; see also Sumathi Ramaswamy, "Conceit of the Globe in Mughal Visual Practice", *Comparative Studies in Society and History* 2007, XL/4, pp. 751–782, especially p. 779. I thank Karin Rührdanz for kindly drawing my attention to the medieval picture of the cosmic bull supporting earth and standing on the world fish, from at-Tusi Salmani, *Aja'ib al-makhlūqat*, 1388, Département des Manuscrits, Division orientale, Bibliothèque Nationale de France, Paris, supplément persan 332, fol. 249a; and for his advice on Islamic cosmology.

<sup>85</sup>See e.g. the terrestrial globe by Jacob Floris and Arnold Floris van Langren, 1589/1614, University Library, Innsbruck, in *Die Entdeckung der Natur*, cat. no. 4.25 by Peter Zerlauth.

<sup>86</sup>The fish studies attributed to Giorgio Liberale, undertaken for Archduke Ferdinand II of Tyrol (1529–95) are in the Oesterreichische Nationalbibliothek, Vienna, Cod. Ser. n 2669. See V. Sandbichler, cat. nos. 5.2 and 5.3 in *Die Entdeckung der Natur*; M. Staudinger, cat. nos. IV.23 in *Arcimboldo*.

<sup>87</sup>As a symbol of rule, his artists made the terrestrial globe "his own" and rendered it Mughal, and it became a leitmotif of his portraits, where he quite literally appears as world-gripper, world-seizer, world-holder, the world-king. S. Ramaswamy, "Conceit of the Globe in Mughal Visual Practice", *Comparative Studies in Society and History*, 2007, XL/4, pp. 751–782.

<sup>88</sup>K. Lippincott, "Globes in Art: Problems of Interpretation and Representation", in *Globes at Greenwich: A Catalogue of the Globes and Armillary Spheres in the National Maritime Museum* (Oxford, 1999), ed. E. Dekker, p. 83, observes that in a large number of sixteenth and seventeenth-century Dutch paintings, "artists tend to position the globe in their compositions so that the northern hemisphere faces the viewer". My attention to this publication was drawn by Ramaswamy, especially p. 755, note 8.

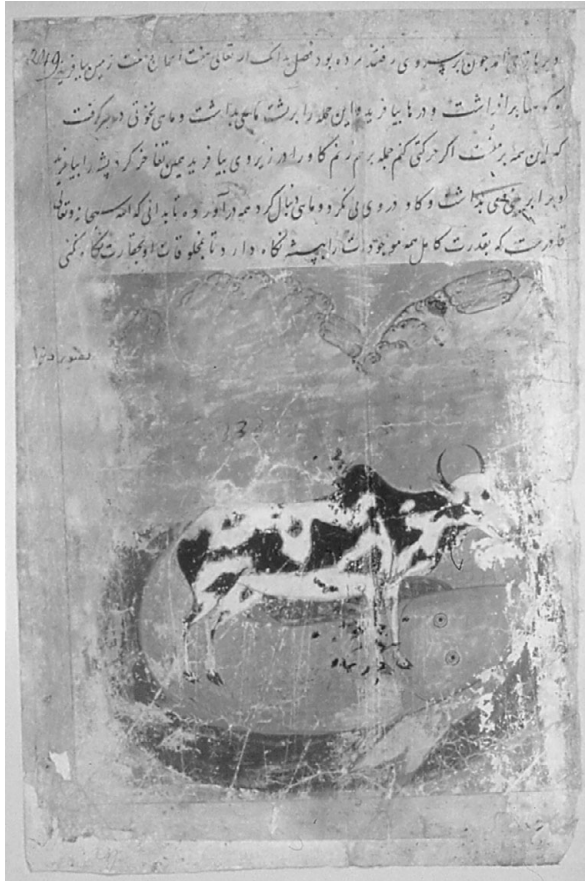


Fig. 26. Cosmic bull supporting earth (indicated by mountains) and standing on the world fish, from Atusi Salmani, *Aja'ib al-makhluqat*, 1388, Département des Manuscrits, Division Orientale Bibliothèque Nationale de France, Paris, supplément persan 332, fol. 249a.

painting in her discussion but an enlargement of it shows that it is a particular striking example of this manipulation (Fig. 29). The northern hemisphere is not on top under the elegantly-shoed feet of Jahangir (where China is now situated) but shifted to the “west”, to the left side, which brings the Indian subcontinent in full view in the centre and, in a wild contradiction to all European cartographic conventions, in alignment with the equatorial axis. Moreover the Mughal peaceable kingdom, where lions socialise with goats, oxen and bears is projected over most of Asia, spreading out from India into Iran and China.

Abul Hasan thus manipulates the terrestrial globe in three ways. First, he alienates it, in its full identity as a European scientific instrument, and appropriates it to make it a player in the Islamic cosmological concept of the universe. Second, he uses the globe to place India in the centre of the world. Third, he populates the globe with Mughal symbolic imagery, with wild beasts and their potential prey, weak and tame animals, in Persian called *dam-u-dad*, which coexist peacefully together to testify to the Great Mughals’ justice and ideal kingship. This



Fig. 27. Jahangir standing on a terrestrial globe supported by the cosmic bull and the world fish shooting at the head of his enemy Malik. 'Anbar, c. 1620 opaque water colour on paper, image area 25.8 × 16.5 cm. ©The Trustees of the Chester Beatty Library, Dublin, 7A.15 (Photo Ebba Koch).



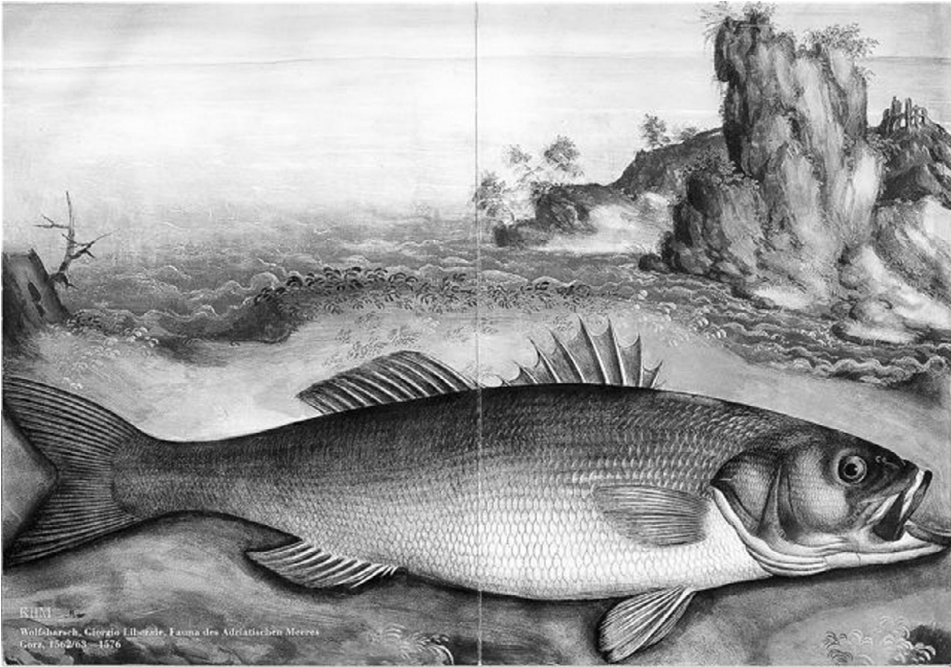


Fig. 28. Adriatic fish by Giorgio Liberale(?) (1527 Udine – 1579/80 Udine) from a collection of animal studies commissioned by Archduke Ferdinand II of Tyrol, 1562–79 Österreichische, Nationalbibliothek, Cod. Ser. no. 2669

triple manipulation puts the globe entirely into Mughal service and literally under the feet of Jahangir – it has to give the emperor’s own allegorical concept of universal rule more weight.

The foreign was assimilated, as the French archaeologist and historian Paul Veyne proposes, it is to bring one’s own identity up to date.<sup>89</sup> The Mughals had no problem with selectively taking from Central Asian, Persian, older Indian and European traditions whatever served their purposes.<sup>90</sup> After all, nobody forced them to do so. And in the area of naturalistic representation and allegorical symbolic construction in the arts, Europe for them had to offer the best solutions – they did not realise (and in any case would not have been bothered) to what extent they were to irritate modern Indian art historians who out of post colonial resentment often try to ignore or explain away this interest. Akbar’s historian and conceptualist Abu’l Fazl openly appreciated the European artists for these very faculties in

<sup>89</sup>I am adducing here the interpretation of P. Veyne in his introduction to G. Degeorge, *Palmyre, métropole caravanier* (2001) to explain the “Hellenisation” of the Palmyrenian elite. Veyne suggests that those concerned always felt like themselves (“ils se sentaient toujours eux-mêmes”), and, in assimilating the foreign and becoming modern they still remained themselves (“rester soi-même tout en devenant soi-même, c’ était se moderniser”). My attention to it was drawn by A. Schmidt-Colinet, *Palmyrenische Grabkunst als Ausdruck lokaler Identität(en): Fallbeispiele, Lokale Identitäten in Randgebieten des römischen Reiches: Akten des internationalen Symposiums in Wiener Neustadt*, 24. – 26. April 2003, ed. A. Schmidt-Colinet (Vienna, 2004), p. 194. I have cited Veyne’s French quotations from Schmidt-Colinet because I was only able to consult the German translation where the passage appears on p. 14.

<sup>90</sup>If they refer to artistic borrowing they represent it as offering, a tribute from another culture which they deigned to accept See Koch, *The Complete Taj Mahal*, p. 68, p. 267, note 207.

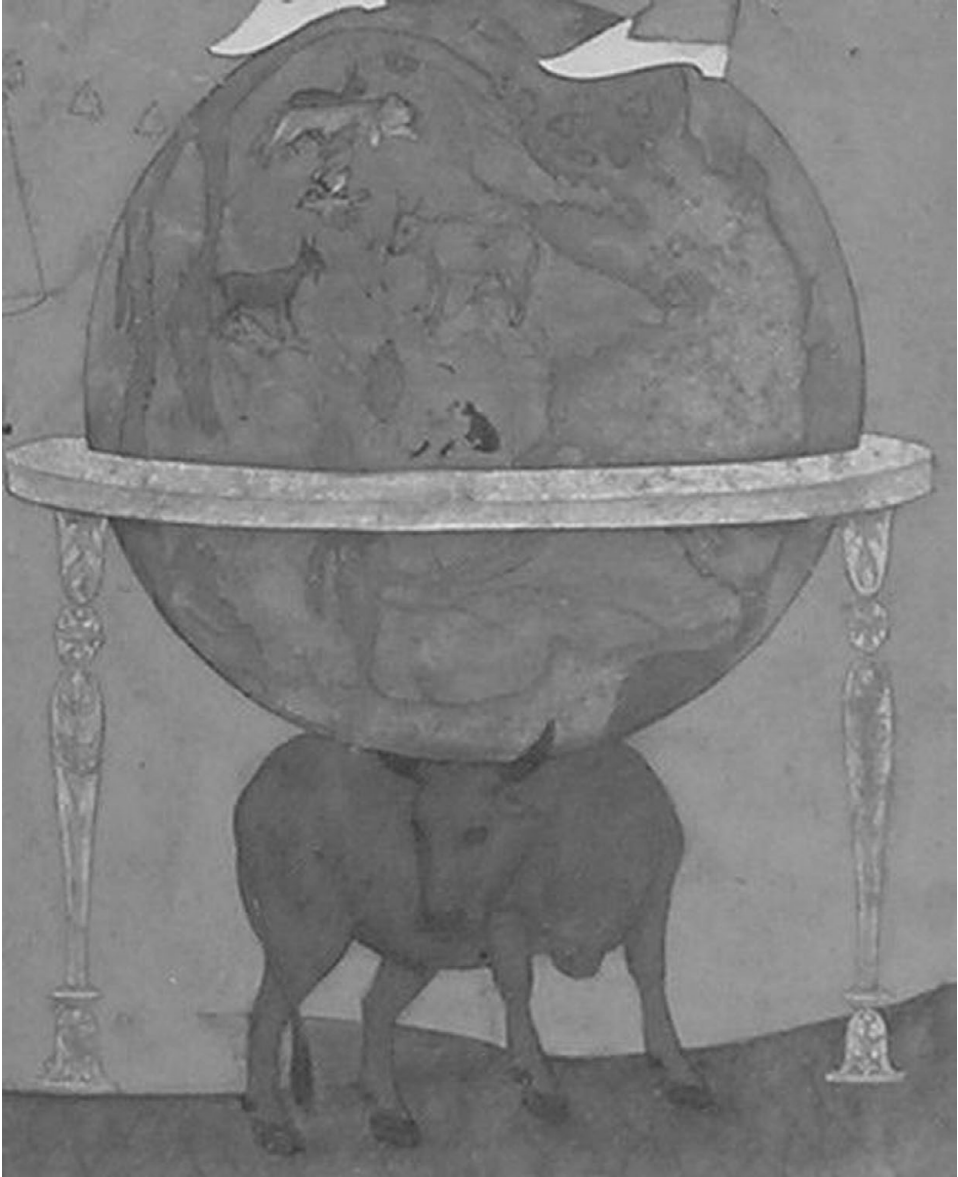


Fig. 29. Terrestrial globe with India in the centre and in alignment with the equatorial axis, detail of Fig. 27.

an intriguing argument (written at the end of the sixteenth century) which begins in almost post-modern philosophical terms, anticipating Saussure's notions of 'sign', 'signifier', and 'signified', continues on a neo-Platonic post-Tridentine note in pointing out that painting, especially European naturalism, may serve as a means to recognise a higher truth:

A picture (*surat*) leads to the form it represents [*khudawand-i khud*, lit. its own master] and this [leads] to the meaning (*ma`ani*) just as the shape of a line (*paikar-i khati*) leads one to letters (*harf*) and

words (*lafz*) and from there the sense (*mafhum*) can be found out. Although in general they make pictures (*taswir*) of material appearances (*ashbah-i kauni*), the European masters (*karbardazan-i firang*) express with rare forms (*ba-shigirf surat-ha*) many meanings of the creation (*basa ma'ani khalq*) and [thus] they lead those who see only the outside of things (*zahirnigahan*) to the place of real truth (*haqiqatzar*).<sup>91</sup>

As I pointed out earlier, it is not always possible to make out whether we can speak of direct connections or independent parallel developments. But is remarkable that in using scientific elements to produce a political allegory, both Arcimboldo and Abul Hasan emerge as case studies of a hybrid in the sense of the French sociologist of science Bruno Latour, of a system that mixes politics, mythology, science and nature.<sup>92</sup>

### Solomon and Orpheus as Bacon's and Jahangir's Models of Ideal Kingship

The concept of universal and ideal rule leads us also to Solomon. For Bacon, as I have pointed out at the beginning, the biblical Solomon was to be the ruler's model on which he patterns Solomona the king of the *New Atlantis*. Still, Solomon does not seem to play a major role in the symbolism and allegories of European rulers. On the other hand, many a Muslim ruler presented himself in one way or the other as a second Salomon who features as the ruler *par excellence* in the Quran.

I have repeatedly drawn attention to the Solomonism of the Mughals strongly promoted by Jahangir in his artistic schemes, and he is in this followed by Shah Jahan.<sup>93</sup> Jahangir's pictorial programmes show that he identified with Salomon especially in his aspect as the just law giver who rules over the animal world and brings inimical nature to a peaceful coexistence. The globe with the pacified animals (*dad-u-dam*) in the Malik Anbar picture is an application of this idea and we have other Jahangiri pictures with this theme,<sup>94</sup> and a number of Mughal texts to explain the image:

An early voice is Khwandamir who eulogises in 1533/34 the rule of the second Mughal Emperor Humayun (r. 1530–43, 1555–56) with the following verses:

Under the protection and shelter of his justice deer sleep carelessly in the lap of panthers, and fish fearlessly take rest near crocodiles; pigeons become friends of falcons and sparrows chirp fearlessly in front of eagles

Under his just administration deer in the forest  
Go abreast with the male lion  
The waterfowl tells its secrets to the hawk  
The pigeon relates its story to the falcon

<sup>91</sup> Abu'l Fazl 'Allami *The A'in-i Akbari (Persian text)* vol. 1, 2nd ed. by H. Blochmann (Calcutta, 1872), p. 111.; trans. vol. 1 by H. Blochmann, 2nd edn rev. and ed. by D. C. Phillot (Calcutta, 1927; repr. New Delhi, 1977–78), pp. 102–103. I retranslated the full passage in *Mughal Art and Imperial Ideology*, p. 35, because (as I explained there in more detail) the often quoted translation of Blochmann misses an important point, namely the argument of Abu'l Fazl considering the potential of paintings as a means to recognize a higher truth. I retranslated it again and discussed it in E. Koch, "The Intellectual and Artistic Climate at Akbar's Court," *The Adventures of Hamza: Painting and Storytelling in Mughal India, exhibiton catalogue*, ed. J. Seyller (London and Washington DC, 2002), p. 30. I discuss it again in my forthcoming "The Mughal Emperor as Solomon, Majnun and Orpheus", Muqarnas (2009).

<sup>92</sup> B. Latour, *We have never been modern*, trans. C. Porter (Cambridge MA, 2007).

<sup>93</sup> E. Koch *Mughal Art and Imperial Ideology*.

<sup>94</sup> Discussed in the literature cited in note 19 above.

If injustice is indicated in the actions of any government officers  
They receive from the hands of the subjects a slap on the face.<sup>95</sup>

The concept of pacified animals (in Persian *dad-u-dam*) as a symbol of the ruler's Solomonic justice was powerful and flexible enough to absorb related ideas, the Biblical image of the peace among the animals under the just rule of the Messiah; the image of Majnun, the ultimate lover of Arabic and Persian lore who flees into the wilderness where the animals, tamed by the power of his emotion, surround him peacefully; and even the European image of Orpheus, the mythical hero who pacifies the beasts with his music.<sup>96</sup> The connection was worked out visually in the albums of Jahangir and Shah Jahan. On one of the Gulshan album pages (p. 248) three images of Majnun and Laila surrounded by the animals of the desert enclose the copy of a European Orpheus; in an album of Shah Jahan in the Bodleian Library, Oxford, Majnun residing among the animals is juxtaposed with Salomon on his throne surrounded by his animal subjects. And in the same album Jahangir appears as a new imperial Majnun among the animals of the wilderness, and becomes thus a Solomonic figure.<sup>97</sup>

It appears that at the European courts Orpheus was more popular than Salomon though the significance of the mythical musician as a political symbol is as yet not sufficiently understood. Karla Langedijk who undertook decipherment of the meaning of Baccio Bandinelli's Orpheus in Medici Florence (c. 1518) was the first to argue that the statue was meant as an allegory of good rule. She based her hypothesis on indirect evidence, on impress and emblematic literature, and on contemporary neo-Platonic philosophy, about the cosmic harmony brought about by music.<sup>98</sup>

It is Sir Francis Bacon who makes it clear that the "Orpheus theatre", as he puts it, in the early decades of the seventeenth century was indeed understood as a metaphor of a society pacified by civilising achievements, a process which would meet with more success under the good government of a learned king:

VII.2 . . . the Orpheus' theatre, where all beasts and birds assembled; and forgetting their several appetites, some of prey, some of game, some of quarrel, stood all sociably together listening unto the airs and accords of the harp; the sound whereof no sooner ceased, or was drowned by some louder noise, but every beast returned to his own nature: wherein is aptly described the nature and condition of men, who are full of savage and unreclaimed desires, of profit, of lust, of revenge; which as long as they give ear to precepts, to laws, to religion, sweetly touched with eloquence and persuasion of books, of sermons, of harangues, so long is society and peace

<sup>95</sup> *Qanun-i Humayuni (Also Known as Humayun Nama) of Khwandamir*, trans. and annotated by B. Prasad (Calcutta 1940), p. 7. Cited E. Koch, "The Influence of the Jesuit Mission", in *Mughal Art and Imperial Ideology*, pp. 2–5.

<sup>96</sup> E. Koch, *Shah Jahan and Orpheus*, reprint in *Mughal Art and Imperial Ideology*, pp. 112–129, for the Mughals as new Messiahs, see p. 128, for Majnun as Solomonic figure, see p. 116, for Majnun as iconological bridge to introduce Orpheus into Mughal Solomonic imagery, see my forthcoming "The Mughal Emperor as Solomon, Majnun and Orpheus".

<sup>97</sup> Bodleian library, Douce Or. a.1 fols 51b, 58 a, 36b. Of these, only the last mentioned image has been published, namely Salim with a shaikh and animals in the wilderness, ascribed at the border to Muhammad Sharif ('Amir ul-Umara') by A. Topsfield, *Paintings from Mughal India* (Oxford, 2008), pl. 24, pp. 56–57; I discuss and illustrate all three images in Koch, "The Mughal Emperor as Solomon, Majnun and Orpheus".

<sup>98</sup> Karla, Langedijk. "Baccio Bandinelli's Orpheus: A Political Message", *Mitteilungen. des Kunsthistorischen Institutes in Florenz*, 20, 1976, pp. 34–52.

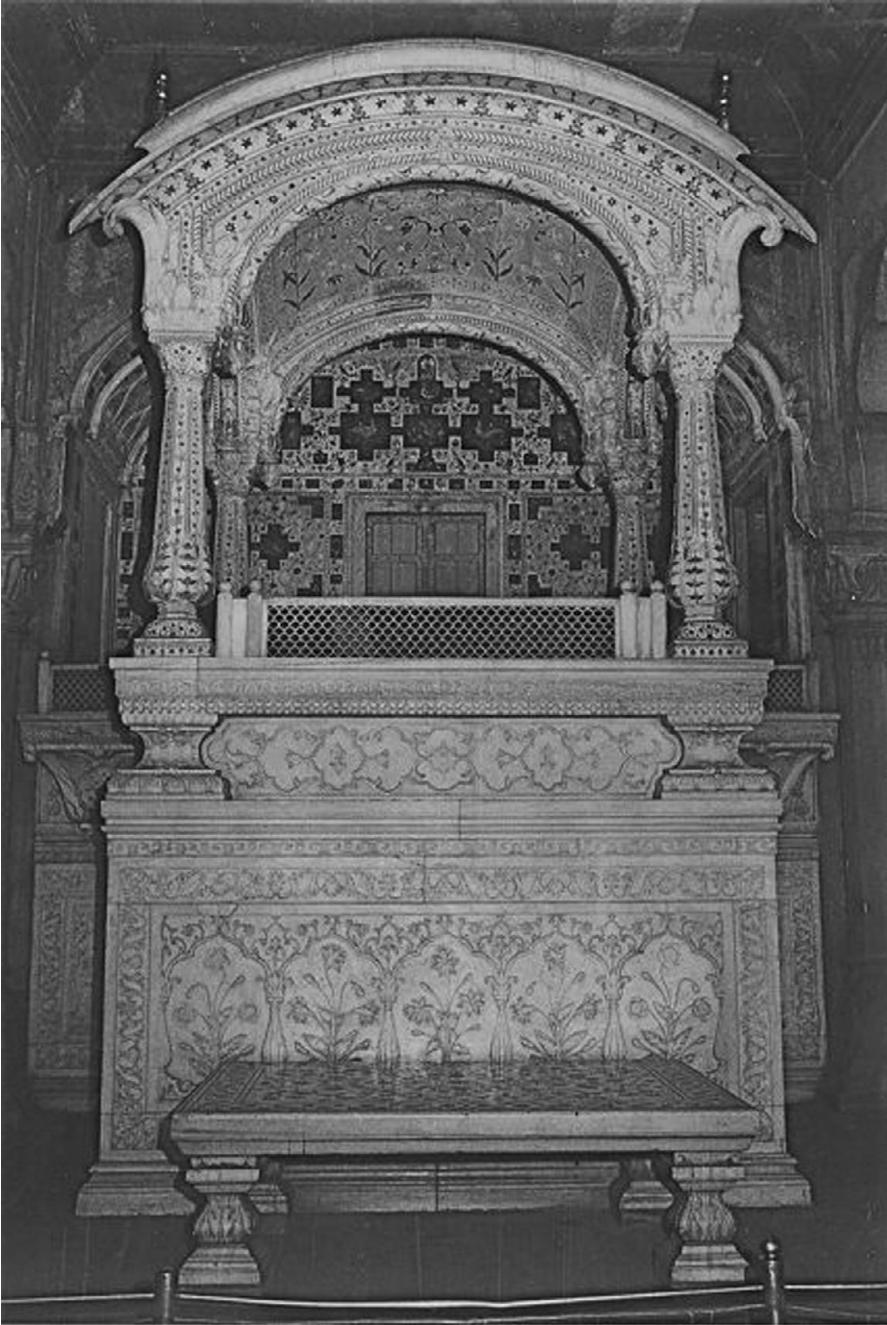


Fig. 30. Throne *jharoka* of Shah Jahan in the Red Fort of Delhi, completed 1648, marble inlaid with semi precious stones. The niche in the background is decorated by Florentine pietre dure panels and corresponding Mughal work. The Florentine panels show birds (South American parrots in the large panels), lions, flowers and vases, on top is Orpheus playing to the beasts. In the interstices are birds native to India and flowers by Mughal artists (Photo Ebba Koch).

maintained; but if these instruments be silent, or that sedition and tumult make them not audible, all things dissolve in anarchy and confusion”.

3. But this appeareth more manifestly, when kings themselves or persons of authority under them . . . , are endued with learning . . . . yet so much is verified by experience, that under learned princes and governors there have been ever the best times . . . .<sup>99</sup>

Jahangir and Bacon have the same reference models for exemplary kingship, namely Solomon and the civilising hero Orpheus. For Bacon Solomon is the exemplary king, above all because he observes and records nature and writes a natural history “of all plants (. . .) and of all things that have life and motion”.<sup>100</sup> Bacon’s “Orpheus theatre” corresponds to the animal metaphor with which the Mughal textual sources illustrated the good government of the just Solomonic ruler.

Surely, Sir Francis Bacon could not have imagined a more splendid and meaningful realisation of his “Orpheus theatre” than Shah Jahan’s throne *jharoka* at Delhi (completed 1648) (Fig. 30).<sup>101</sup> Jahangir’s ideas and works inspired his son’s *Gesamtkunstwerk* of a Mughal Solomonic throne; the major components of the throne niche, *pietra dura* birds and plants, were based on scientific nature studies and a Florentine panel of *Orpheus playing to the beasts* advertised the programme of just rule.<sup>102</sup>

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<sup>99</sup>Bacon, *Advancement of Learning and New Atlantis*, VII.2, pp. 51–52, for further citations of this passage see p. 4 above. This makes it likely that also Savery’s Orphic landscapes were intended as an allegory of harmonious rule. DaCosta Kaufmann, *The School of Prague*, p. 230, discusses J. Spicer’s views on this but is critical of his interpretation of Orpheus as an image of Rudolf II and his good government. In my forthcoming “The Mughal Emperor as Solomon, Majnun and Orpheus” I discuss further European uses of Orpheus as a symbol of the ruler.

<sup>100</sup>Francis Bacon, *The Advancement of Learning and The New Atlantis*, pp. 276–277.

<sup>101</sup>I am not sure what Francis Bacon thought of India. In a passage of *The New Organon* he refers to “the wild and barbaric parts of New India (*Nova India*)” as the opposite of cultivated Europe to show the potential of difference in the human condition, see *Neues Organon*, vol. 1 pp. 268–269.; cf. *Francis Bacon: The New Organon* (see n. 6 above), p. 100.

<sup>102</sup>Koch, *Shah Jahan and Orpheus*; and “The Mughal Emperor as Solomon, Majnun and Orpheus”.