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THE ARTS

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This section deals with the profound changes that took place in artistic practice and outlook in the period from the sixteenth to the eighteenth century, the three centuries that laid the foundations of our present ideas on art.

The word 'art' is current in our contemporary global village from Kansas City to Calcutta and from Anchorage to Addis Ababa. And yet, as I consider here the history of the arts of the period under review, it may be relevant to ask whether art has always meant the same thing all over the world. Although the word 'art' enjoys universal currency today, it is essentially of European origin and refers to skill. It is also generally applied to painting and sculpture, the so-called fine or high arts, as opposed to the 'low' or 'decorative' arts, and sometimes to architecture as well. The classification follows the Western hierarchy of the arts ultimately deriving from the Renaissance and is applied indiscriminately to all non-Western artistic traditions, irrespective of the fact that they may have been the products of different cultural and aesthetic norms. The reason lies in that art history as a discipline as we know it arose in Europe in the nineteenth century. Today, not only does the Western art historical approach dominate all studies of art but its essential canons remain the hidden agenda in these studies. Yet the separation of 'fine' and 'decorative' art has not been so clear-cut or extreme in non-Western cultures as in the West. Hence, we must exercise caution in applying the term 'art' cross-culturally in order not to distort the specific experience of each culture.

However, with this caveat in mind, when we glance at the history of the arts globally during our period we cannot fail to be impressed by the emergence of an entirely new outlook on art and artists in certain parts of the world, notably in the West during the Renaissance (c. 1400-1600), in Mughal India (1526-1757), in Edo Japan (1600-1868) and in Ming dynasty China (1368-1644). Obviously, there were significant differences between these cultures but what they shared between them singled them out from the rest of the world. They, as secular, urban societies with new forms of art, broke away from the traditional arts prevalent in the rest of the world. In contrast to them, the traditional arts were inspired by great religions, for instance, Christianity in medieval Europe, Islam in Spain, Western Asia, Central Asia, Persia and India, Hinduism in India, and Buddhism in South-East Asia. On the other hand, the rise of secular art was intimately linked with a growing interest in the external world. In the sphere of art, the secular tendencies may be termed realism, expressing a lively and engaging concern with nature. The word 'realism' is used in different senses in the history of the

arts. Renaissance 'mimesis' or illusionism is most commonly associated with the movement but parallel developments can be discerned in Mughal painting and in the *Ukiyo-e* (the art of low-life) prints of Japan. My aim here is to consider these significant changes in art by focusing on three key areas, Renaissance Italy, Mughal India and Japan of the Edo period. However, for the purposes of comparison and contrast other areas of the world would be mentioned where relevant. Realism is also used in literature to denote the factual treatment of the secular aspects of life and it is in this sense that the term will be used in this chapter to delineate a worldwide historical movement concerned with the secular world and its activities.

These changes in artistic outlook were products of changing social and economic conditions. It is significant that those countries which were not exposed to the new forces were, for a time, able to retain intact their traditional religions and social structures. The changes had much to do with the break-up of old orders - a phenomenon that can be described generally as the transition from the feudal age to one where rich merchants moved to the centre stage, a period that saw attempts at centralization and consolidation of power by ambitious rulers. Perhaps no prince embodied these worldly attributes more strikingly than Cesare Borgia during the Renaissance - a remarkable political figure immortalized by Machiavelli. At the end of the Middle Ages a powerful oligarchical government in Florence was able to establish its supremacy by crushing all opposition. In Japan, the successive Shōguns engaged in curbing the old nobility and breaking the power of the Buddhist orders. The 'separation of warrior and farmer' is the phrase commonly used to describe the transition from medieval to modern Japan. In the sixteenth century General Hideyoshi banned peasants from carrying arms and the Samurai from changing masters. The separation reduced social mobility and created rigid hierarchical classes controlled by the Shōgun. In this, the so-called Edo period, the reconstruction of the state blended well with the emerging realism and secular outlook in Japan. In the Mughal Empire, the Emperor Akbar (1556-1605) created a centralized bureaucracy based on merit by replacing the earlier rather loose quasi-feudal system of *Jagirdars* introduced by the Delhi Sultanate (1210-1526). The *Mansabdars* of Akbar were drawn from both Hindus and Muslims. They owed personal loyalty to him, and were promoted irrespective of their religious origins, a revolutionary development that pointed the way to a secular society in India.

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The second related development seen in these parts of the world was the rise of cities and of urban cultures that contributed much to the growth of secular interests in life and art. Though the earliest and most vivid expression of this worldliness and objectivity was the Italian Renaissance centred on the city of Florence, it was by no means confined to Italy or even Europe. The cities began to break away from the domination of the feudal lords who were gradually replaced by prosperous merchants and bankers, the most celebrated of whom were the Medicis of Florence. Florentine prosperity rested on its woollen industry. The origins of the rise of Florence lay in its eastern trade with Pisa but soon Florence outstripped Pisa. One of its revolutionary acts was to reform the coinage, which created the conditions for capitalist enterprise. As feudal nobles sank into ever greater debt, Florentine merchants thrived on the interests paid, eventually buying up lands of the nobility. The surplus enjoyed by the traders was spent on woollen industries and on land. The wealth of the Florentine merchants, organized in guilds, was to pay for the cultural life of the city during the Renaissance. Gradually this urban culture became the model of civilization in the West with its intellectual activities and its free life-style encouraged by the Humanists. An example may be offered: strikingly, unlike the rest of Europe where one dressed according to one's social position, according to the great cultural historian Burckhardt, Florentines had the freedom to dress as they pleased, a freedom that is easily comprehensible to our age.

In Japan, the stability attained during the Edo period favoured economic growth, as agricultural and industrial production multiplied and communication and transport systems expanded. Nobles required new castles. Builders and carpenters gained in prestige as they perfected a new form of urban architecture. By now the status of the *chōnin* (townsmen) was confirmed, while towns increased in size and prosperity by the concentration of commercial operations in them. By the Genroku period (1688-1704) many lords were heavily in debt through extravagance. Merchants who lent them money profited from high interest rates. Members of powerful town guilds, they stepped forth as creditors of the *daimyō* (the ruling class). In 1603 the most powerful impetus to urban life was given by the Shōgun, Tokugawa Ieyasu, when he forced his 250 feudal lords to move to the new capital city of Edo (later Tokyo). When the *daimyō* visited their own provinces their families were kept hostages by the Shōgun in the city. The Shōgun and his nobles were followed to Edo by artisans, tradesmen and servants who served their needs. In addition, a particularly large number of builders and carpenters were employed in building castles for the resident lords. Since the retainers of the *daimyō* were forced to reside in Edo in addition to the *chōnin*, the population soared to a million by the eighteenth century. Shops, department stores and arcades sprang up, as well as the so-called 'night-less city' where courtesans entertained. Edo was connected by a network of elegant bridges and possessed one of the earliest urban fire-fighting services in the world. The *chōnin* emerged as fervent patrons of artists, actors and the *geisha*, the urban sub-culture known as the *ukiyo* (the floating world). This does not mean, however, that the aristocracy did not participate in the sub-culture which blended the old and the new. But for the first time in Japanese history the thriving merchant class became the most numerous and generous patrons. Their own taste went for colourful new ceramics of Kyōto but by now taste ceased to be confined to any particular class. The arts of the theatre and prints of

actors and the related arts of the pleasure quarters catered to a wide urban public.

The Samurai, having lost their military vocation, now embarked on different professions, developing as intellectuals, while Buddhism merged with Confucian secular ethics. Literacy spread as more books were printed and an early form of newspaper made its appearance. Popular entertainment also turned secular. The difference between the secular drama, the *Jōruri* puppet play, and the ritualistic *No* drama was remarkable. The great Genroku puppet-master, Gidayu, elaborated the secular tales of warriors and their unrequited love. The *Kabuki* theatre which followed *Jōruri* was even more realistic. Contemporary romantic tales were unfolded on vast stages with special lighting effects and moveable sets. Mechanical devices created convincing illusions with simulated fires, hurricanes and snowstorms. Even ordinary residents of Edo and other cities came to enjoy a graceful, urbane life rare in the world of the time. In spring, for instance, families set out with their picnic hampers to contemplate a large variety of flowering cherry trees in the countryside. Restaurants, set up in picturesque spots, afforded their customers good food with magnificent views, so brilliantly recorded in Hiroshige's *One Hundred Views of Edo* (see Plate 16).

The arrival of the Mughal dynasty in India in 1526 witnessed parallel developments of secular attitudes, especially expressed in art and literature. The great contribution of the Emperor Akbar (1556-1605) was, as we have seen, to create a united empire by placing merit above religion and offering equal status to Hindus and Muslims, hitherto unimaginable. Yet urban life, though begun at this time in India, did not take firm roots and secular interests remained confined within the imperial court. Part of the reason lay in the complex rituals advocated by the Hindu caste system which forbade free intercourse between different strata of society. Second, in the Mughal empire the personal acquisitions of the *Mansabdar* reverted back to the emperor on his death. Hence, there was no incentive for him to save but rather to live a life of aimless extravagance.

The implications of the emerging urban culture in different parts of the world for the development of the arts were significant. Previously, in most traditional societies, either the absolute monarch or the whole community was responsible for ambitious architectural and artistic projects. In the case of Hindu India, for instance, the whole community contributed to the building of massive temples as well as to their sculptural decoration. Even today, temples such as that of Madurai in South India are the wealthiest institutions in the community as well as being its pivot. In medieval Europe, the Church was the foremost patron of art and architecture. The great cathedrals headed by bishops in the thirteenth century were planned on a vast scale with magnificent decoration of stained glass and sculpture. The sculptures, mosaics and paintings served to teach the illiterate laity the precepts of the faith. The lofty heights of Notre-Dame in Paris or of Cologne cathedral were the visible symbols of 'the church triumphant'.

During the Renaissance in Italy the nature of patronage underwent changes even though the Church as an institution did not for a while lose its importance as an employer of architects and artists. But much had changed. Now the Popes, for instance, directly negotiated with individual artists to produce monuments that would glorify them as individuals as well as the Church. One of the best known was Pope Julius II who, in 1506, made plans to rebuild St Peter's basilica

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on the architect Bramante's (1444-1514) model and assigned Michelangelo the task of decorating the Sistine Chapel. This attitude to patronage can be characterized as a new phenomenon, connoisseurship — art as a reflection of the taste of the individual patron — and not as part of a communal effort. None exemplified this new attitude more than the *condottieri* and the despots of Renaissance Italy. Being of uncertain pedigree but of great wealth and power as well as education, a family such as the Medici lavished large sums on building libraries, supporting Humanists and commissioning architects, sculptors and painters. Lorenzo in particular made his collection available to artists and scholars. Undoubtedly the greatest patrons of artists in this period, Botticelli's *The Birth of Venus* was painted for a Medici who had wished to adorn his villa with a Classical subject. He, and his teacher, the Humanist Ficino, who delved deeply into Greek mythology, furnished the artist with the theme of the painting.

Of course, alongside the major paintings and sculptures produced during the Renaissance that adorned the churches and other public places, Renaissance Italy saw the rise of private collections. Oil paintings flourished not only in Italy but also in Flanders and Germany. The collecting habits of the period were not confined to paintings either; they included natural and artificial objects from different parts of the world which were eagerly displayed in cabinets of curiosities. Philip II had acquired 20,000 items for his *Wunderkammer*. The Habsburg Emperor Maximilian I collected both *curiosa* and contemporary art. Archduke Ferdinand's collection at Ambras was one of the greatest while Rudolf II had turned Prague into the *Wunderkammer* of Europe. One of the first private collectors was Dr Lorentz Hofmann of Halle (1625). The cabinets of curiosities were the precursors of public art galleries and museums in that the public was allowed to visit them and marvel at the objects.

The practice of collecting paintings had been helped by an earlier development when painting became portable. In late medieval Europe, in the Islamic world and in India wall-paintings yielded place to illustrated manuscripts. With the discouragement of the graven image by Islam, figure sculptures and wall paintings ceased to exist in countries under its sway but there was no similar opposition to illustrating religious texts. We marvel at the painting of *Two Warriors Fighting in a Landscape* (1396) in a Persian text now in the British Museum. In the West, some of the finest early manuscripts on vellum were produced in Ireland and England, most notably *The Lindisfarne Gospel* (c. AD 700). But in the course of the Middle Ages secular works also began to make their appearance. The lavishly illustrated *Book of Hours* for the Duc de Berry and the *Book of Marvels* (now in the Bibliothèque Nationale) (see Plate 17) with most illustrations by the Boucicaut Master, are two of the finest examples of this *genre*. The latter brought to life the literary descriptions of early travellers, Marco Polo, Odoric da Pordenone, Sir John Mandeville and others. In China, too, scrolls could be carried from one place to another and collected. They were made of silk or paper and were kept in precious containers (see Plate 18).

In India, from the tenth century onwards, illuminations of religious texts took over from fresco painting. In Eastern India they were carried out in the *scriptoria* (writing workshops) of Nalanda and other famous Buddhist universities during the Pāla period. One such text, the *Prajñāpāramitā* (Perfection of Wisdom), contains illustrations on palm leaf (22" × 2.5") of Bodhisattvas, flanked by deities.

When the region was overrun by the Muslims, the scribes and painters, many of whom were monks, moved north to Nepal and thence to Tibet where they carried on the tradition.

On the West Coast of India (Gujarat, Malwa and Rajasthan) illustrations of Jain texts such as the *Kalpasūtra* (1370) came into fashion in the fourteenth century. The Jains were wealthy merchants and bankers. With the establishment of Muslim rule they were increasingly prevented from commissioning ambitious temples and turned to patronizing artists who produced small-scale manuscripts (12" × 4"). With the introduction of paper and the generous use of gold and ultramarine, the paintings gained in richness of decoration in the fifteenth century. Many of these texts, still to be found in Jain libraries (*Bhaṅḍāras*), show links between Gujarat and the Islamic world beyond India. In north India, the Islamic Sultanate, established in Delhi in 1206, did not discourage painting but nothing survives from the period. Interestingly enough, the earliest Islamic paintings in India come from Malwa and they are secular. They belong to the *Nimat Nama*, (Book of Recipes) executed for the ruler of Malwa, Ghyas al-din (1469-1500). This secular illustration of a text was followed by others for which the rise of a new *genre* of romantic literature was largely responsible.

In Italy, as part of the process of secularization, the dominance of Latin waned with the rise of vernacular literature, the greatest example of which is Dante's *The Divine Comedy* in Italian. The development of Italian continued with the poetry of Petrarch and the prose of Boccaccio. In India, sacred and classical courtly Sanskrit was replaced finally around AD 1600 with vernacular languages — a process that gave birth to a new form of romantic poetry, in part the result of the synthesis of Islamic sufism and the Hindu *bhakti* (religion of devotion). To be sure, some of the pioneers of the romantic *genre* still wrote in Sanskrit but there was a world of difference between classical Sanskrit and the great twelfth-century poem of Jayadeva, the *Gīta Govinda* (the Song of the Lord) for instance. In India the immediate context and concern remained religious but love mysticism became the pretext for exploring the whole language and emotions of worldly love. When poets spoke of the passion of Rādhā (soul) for Kṛṣṇa (God) they couched it unmistakably in this-worldly terms, in terms of profane love mirroring the divine. The gods were not only brought down to the human level but they also formed the subject of passionate love. There are, of course, purely secular love poetry as well such as the classic, *Caurapañcāśikā* (Fifty verses of a love-thief) dating from the twelfth century. Not only does the text describe the affluent life-style of the hero Vilhana and the heroine Campavati, it also probes deeply the inner emotions of the characters. This psychological element occurs in another romantic poem, *Laur Chanda*, a tale of two Hindu lovers treated by a Muslim poet, Maulana Da'ud (1370).

But what about painting? The traditional rulers, the Rajputs had re-emerged in Rajasthan under the leadership of Rana Sanga (died 1528) after their setback at Muslim hands in the previous centuries. It was in courts such as these that painters were engaged to illustrate romantic poetry rather than the austere lives of Jain monks. These developments provide the background to the arrival of the Mughals in India in 1526, the dynasty that contributed much to the development of a secular society in India in the sixteenth century.

The case of Japan is more complex. As early as AD 1000 the Japanese had developed secular literary forms such as the novel that dealt with the complexities of human relationships. Lady Murasaki's *Tale of Prince Genji*, gives us as much a

profound insight into human character as into the refined courtly culture of the period. The realistic tendency is further expanded in Saikaku's novels in the later period. On the other hand Bashō's (1644-94) *Haiku* verses reflect a high level of intellectual sophistication in their remarkably economic expression.

In keeping with the changes in patronage during the period under review, there were changes in artistic practices and the social status of the artist. Here again, a contrast can be drawn between the three above mentioned societies and more traditional ones: unlike the anonymous artists of the previous periods, in these worldly cultures the artist acquired as much renown as the works he produced. The background to this was the social transformation that led to the elevation of artists as a class; it can be described as the rise of individualism which eventually freed them from the constraints of artistic guilds. In the West, during the late Middle Ages, artistic guilds began to break up, as painters and sculptors set up their own private studios and sold their products directly to their clients. Competition among artists for commissions, the fragmentation of artistic practice and the consequent proliferation of artistic styles replaced the earlier universal artistic canons such as the Gothic, prevalent in medieval Europe. Each master painter offered clients works done in a unique manner, a tendency taken to its extreme limits by such a sculptor/goldsmith as Benvenuto Cellini. His remarkable autobiography bears witness to bitter rivalries between artists in an age of fierce competition. Along with extreme claims to individualism and demands for artistic freedom emerged the cult of the artistic personality - the melancholic genius who only lived for his work.

The changes in artistic practice were followed by an improvement in the social status of artists who now claimed to be intellectuals and not artisans. Scientific principles such as the laws of linear perspective and human anatomy explored by Renaissance artists offered them an intellectual and scientific basis to their work. As early as the end of the Middle Ages, artists had begun to resent their craftsman status. For example, however great a medieval master painter was, he would be treated as a servant by his patron and was certainly not allowed to sit at the same table with him. The case was different with scholars. Even though they did not enjoy a high economic standing, society made a distinction between those who worked with their brain and those who were manual workers. In the fifteenth century, for the first time, a high status was accorded to Brunelleschi, the builder of the Pazzi chapel in Florence, who was well-versed in Classical architecture. Leonardo da Vinci perceived himself both as a scientist and an artist (see Plate 19). He wished to place painting on a scientific footing with his experiments in order to elevate it to the level of an intellectual and gentlemanly pursuit. By the time we reach Michelangelo we note that he felt offended to be addressed as a mere sculptor: 'Tell him . . . that . . . here I am known only as Michelangelo Buonarroti . . . I have never been a painter or sculptor, in the sense of having kept a shop'. The German painter Dürer (see Plate 20), who felt at home in Venice, remarked ruefully that 'here I am a lord, at home a parasite'. Countless such stories confirm the Renaissance artists' claims to a higher status as an intellectual rather than as a skilled craftsman. Finally, it was Giorgio Vasari who moved to found the first art academy in Florence. His aim was to emancipate artists from the control of the guilds and confirm their elevated social standing.

In the Mughal period, Indian artists were, for the first time, mentioned by their patrons. I had described the social

and cultural changes taking place on the eve of Mughal conquest. When Akbar, the greatest Mughal emperor, took the throne his reign brought transformations in Indian artistic practices. The Mughal dynasty was nurtured in Persian culture. On his return to India from exile, Akbar's father, Humayun, brought two leading Persian painters with him. Abd-al Samad and Mir Sayyid Ali laid the foundations of the Mughal School during Akbar's reign. The studio illustrated manuscripts on Muslim epics, chronicles and the history of Akbar's reign (see Plate 21). Each painting was a collaborative effort with artists specializing in certain aspects, such as foundation drawing, background, portraiture, figures, and so on but significantly each painting, for the first time, bore names of the collaborating artists. Even more important, Abū'l Faḡl, the chronicler of Akbar's reign and his close friend, critically discussed the merits of each artist. Among a hundred or so painters belonging to the workshop, about a dozen gained prominence as individual masters with distinct styles. No one was more striking among them than Daswanth who, as a child, was discovered drawing on walls by Akbar and placed under the two Persian masters. He quickly rose to fame but took his own life at the age of thirty in a state of depression. The lore of the 'melancholic genius' so extolled in Renaissance literature seems to occur in late sixteenth-century India even though the *topos* did not seem to exist in the subcontinent. Paintings in the *Razm-nama* (now in Jaipur) attributed to Daswanth embrace a remarkable panorama of brilliant drama, violence and complex arrangements of multiple figures unprecedented in Indian painting and seldom again to be repeated. The other painter who displayed great individualism was Basawan. But his style was quiet, severe and Apollonian in contrast to the Dionysiac frenzy of Daswanth. In Akbar's son Jahāngīr's reign (1605-27) master artists gained further confidence and social status because of the emperor's personal encouragement. He elevated the painters Mansur and Abul Hasan to the level of courtiers. However, even if individual artists occasionally reached the pinnacle of fame, artists as a group remained on the level of craftsmen. This can be explained by the fact that unlike Italy or Japan no large middle or professional class ever emerged in the empire.

In Japan, where the situation was similar to China, the most influential Far Eastern civilization, the status of the artist was exalted from the very outset and certainly by the sixteenth century. Painting in Japan was closely connected with Buddhist philosophy and with calligraphy. Painters were scholars as well. As in China with its tradition of Zen Buddhism, painting was an extension of meditation where the painter became one with his object of contemplation: the artist was taught, for instance, that it was not enough to learn all about a bamboo, one had to become a bamboo. If nature was the most important subject to both Western and Chinese artists, as opposed to Western scientific scrutiny of nature, the Chinese aim was to capture its essence. The Chinese and Japanese intellectual approach separated the artist from the craftsman. We know the names of famous artists of East Asia. In Japan, artists were invariably monks associated with powerful monasteries and belonged to privileged groups. Taiko Josetsu and his pupil Tensho Shubun (c. 1426-65) and Tenyu Shokei were the earliest known Zen ink painters of landscapes, the greatest of whom was Shesshu Toyo (1420-1506). The mystical tradition was carried on by the *Kano* school led by Masanobu (1454-90) and Motonobu (1476-1559). Even though the Momoyama period ushered in the age of secular urban culture (1569-1600), realistic

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portraiture began as early as the twelfth century, as evinced by the famous portrait of the Shōgun Yoritomo by Fujiwara Takanobu (1142–1205). By the fifteenth century the *Tosa* school had challenged the mystical *Kano* artists. The *Tosa* artists believed in representing human beings as realistically as possible; that had parallels with the novelist Chikamatsu's own realistic literary theories. The importance of the novel originated with Lady Murasaki who had placed the literary truth of fiction above historical objectivity. Men simply spoke more truly in the artistic realm.

Given these developments, it is interesting to observe how different interpretations of realism grew roots in each of the three societies. In Renaissance Italy, there was the most powerful tradition of scientific realism based on concepts of 'mimesis' ultimately harking back to ancient Greece. It was in fifth century BC that Greek sculpture and painting began to move away from a conceptual mode of representation to a perceptual one, a change described by E. H. Gombrich as the Greek Revolution. Greek illusionism can partly be attributed to the growth of Greek science and its application of knowledge based on observation (empiricism) to all spheres of life, whether in art or in science. Significantly, not only scientists but artists, too, applied scientific anatomy in their representation of the human form.

Mimesis, illusionism, mastery of representation – these objectives once again became the essential tricks of the artistic trade in the Renaissance artist's quest for a new form of narrative art. It began in the fourteenth century with Giotto (1266?–1337) who provided the first essential ingredient for the creation of illusion in a painting when he depicted scenes in natural light by means of consistent lighting. His aim was to tell a religious story more convincingly, for he was no longer satisfied with what he saw as the rather artificial mode of representation in the Christian art of his time. 'Chiaroscuro' or the solid representation of objects by means of consistent light and shadow was further developed in succeeding centuries. The next technological break-through was the architect Brunelleschi's discovery of the laws of perspective. The culmination in the process of creating an illusion of the visual world in a painting was attained with Leonardo's discovery of the sfumato technique (the smudging of outlines in a painting to approximate objects in a natural atmosphere).

Mention, however, must be made of the fact that artists in Northern Europe, especially in Flanders, had quite independently created their own version of illusionism through the systematic amassing of details in their oil paintings. The pioneer was the Flemish painter, Jan van Eyck (1390?–1441) whose masterpiece, the Ghent Altarpiece, is still a marvel of meticulous rendering of a slice of reality. In Italy the three greatest artists, Leonardo da Vinci (1452–1519) (see Plate 19), Michelangelo (1475–1564) (see Plate 22) and Raphael (1483–1520) (see Plate 23) brought illusionist narrative art to perfection. The next stage in the development of Renaissance art took place in Venice. Whereas Florentine artists aimed at a convincing representation by means of design and arrangement of objects in space, the Venetians, Giorgione (1478?–1570) and Titian (1485–1576) (see Plate 24) made effective use of colour and brushwork to create their versions of illusion.

The play of light and shadow and perspective were employed in Renaissance painting in order to tell a religious story more convincingly. In other words, technical devices were placed in the service of religious narrative art. The next process, namely, secularization of art in the West, took place, not in Italy, but in the Low Countries where the spread of

Reformation led to a ban on images in churches. This initially had a detrimental effect on artists in Germany and Holland. Losing the Church as the most important patron, Dutch artists turned to *genre* scenes, portraits and landscapes. One needs to add that portraits were already an established branch in Italy, Germany and Flanders and landscapes had appeared in the backgrounds of pictures as in Giorgione's *Tempest*. But being forced to give up religious painting altogether, Dutch artists were forced to specialize in landscapes and still lifes to make a living.

These changes brought about by the Reformation favoured, albeit indirectly, the growth of the art market, as art objects increasingly became a purchasable commodity. Unlike in Renaissance Italy, the Dutch artists had first to produce their works and then look for a buyer. This gave them a certain independence but at the same time they had to rely on an impersonal buying public. Artists were now obliged to visit market places and public fairs to sell their paintings. They generally employed agents, the picture dealers, to sell on their behalf. Since dealers needed to make a profit, the laws of demand and supply came into force. Competition also became fierce as a number of artists tried to sell their wares in public market stalls. Less successful ones turned to specialized *genres* in order to create a niche for themselves in the market.

Artists became known for their special strengths and economic necessity led some to produce the same subjects over and over again. An unforeseen outcome was that a painter specializing in fruits, flowers and vegetables, for instance, would develop unparalleled precision and skill in rendering details in works. As Gombrich calls them, they became mirrors of nature, in that they studied closely minute aspects of visual representation. To take the case of Willem Kalf, for example, he closely observed in his canvas the refraction of light in coloured glass. Such visual tricks by Dutch artists brought a new revelation that even trivia could be a fit subject for art. The American art historian, Svetlana Alpers, has called this Dutch approach 'the art of describing' in contrast to the Italian narrative tradition. She also suggests that Dutch map-making and scientific researches belonged to the same tradition that gave rise to these *genre* artists.

Before we turn to the East once again, one factor needs to be borne in mind: the global effect of the enormous expansion of communication from the sixteenth century onwards, the outcome of European activities overseas and the founding of the Portuguese, Spanish, Dutch, French and English Empires. It is well known that colonialism spread Western ideas of progress, technology and the illusionist art of the Renaissance. What is less known is that the West, too, learnt from the East, as acknowledged in a series of sixteenth-century prints, *Nova Reperta*, inspired by Johannes Stradanus attached to the Medici court. The Renaissance Humanists were aware that important inventions such as the compass, gunpowder, paper, printing press and stills were of Chinese origin, while less obvious but equally momentous was the fact that the 'place-value' or Arabic number system came from ancient India. These elements contributed much to the growth of the Western scientific tradition that culminated in the eighteenth-century scientific revolution. In the field of the arts the technology of the Chinese porcelain and the Indian chintz continued to puzzle Europeans until the eighteenth century. However, of all the societies, it was the profound social changes in Europe in particular, including a population explosion, that provided a powerful impulse to overseas expansion. Prince Henry the Navigator of Portugal

despatched Vasco da Gama to seek a sea route to India to bypass the Arabs who had hitherto dominated Mediterranean trade. In 1498 Gama reached Calicut in India while, on a similar quest, Columbus had already stumbled upon the New World (1492). But it was the Jesuits in the sixteenth century who confronted great Eastern civilizations – the Mughal and the Chinese – during their attempts to spread Christianity. The result was an intense exchange of Eastern and Western viewpoints and modes of thinking. Giuseppe Castiglione (1688–1766), the Italian Jesuit who studied Chinese painting by imperial command, combined Chinese brushwork and Western realism in his painting. His portraits, court scenes and military expeditions were much appreciated by the Chinese.

The Jesuits exerted considerable influence on the Chinese emperors and the nobility who were keen to learn of the new marvels of Western science and technology. And yet, Western ideas made very few inroads into actual Chinese thinking and social behaviour, remaining on a superficial level. Most significantly, the Chinese tradition of the *literati* artists – gentlemen, scholarly painters to whom nature was an object of mystical contemplation – saw no reason to adopt Western illusionist innovations in art even though the Chinese were deeply impressed with perspective. But the West had a greater impact on Japan and especially on Japanese artists. Christianity exerted a far-reaching effect when Francis Xavier arrived at Kagashima in 1549 under Portuguese protection. By the end of the sixteenth century, however, Christianity was viewed by the rulers as a threat and banned. Meanwhile, a Europeanizing art (*namban*) showing Portuguese influence flourished in Japan. In the eighteenth century, individual painters began to experiment with perspective and other European artistic inventions. Dutch books on anatomy played an especially important role in this. Hiraga Gennai (1726–79) was largely responsible for disseminating the new knowledge of perspective as part of *rangaku* (Dutch knowledge). Shiba Kokan produced water-colours based on the vanishing point and experimented with copper-plate engraving. Western techniques continued to spread among Japanese artists and were most effectively and inventively employed in the *Ukiyo-e* prints of Hiroshige, Hokusai and Utamaro.

In India, the Jesuits who were impressed with the pomp and circumstance of the Court of Akbar were keen to convert him to Christianity. Akbar came to know of European arts and sciences through the gifts offered by the Jesuits and foreign ambassadors; he was particularly dazzled by illusionist art. His chronicler Abul Fazl readily acknowledged that European painters were famous for their representational skills. Mughal artists began copying the engravings in the illustrated Bibles presented to Mughal emperors and thus gained knowledge of Western approaches to painting (see Plate 25). Mughal copies include several striking ones such as a composite picture based on the crucifixion (c.1598) in a beautiful range of colours and the master painter Abul Hasan's youthful copy of a Dürer St John. Skills in European naturalism learnt from such copies enabled painters to tell a story more convincingly, as they explored the psychological relationships between figures in a painting. Since the Mughal painters were already adept at representation, they readily rose to the challenge of European art. The technique of representing consistent lighting by means of *chiaroscuro* was easily comprehended, as Persian formal harmony of colours was given up. Foreshortening and the suggestion of distance by making background objects smaller than the foreground were also

successfully tackled. But the laws of perspective posed the greatest challenge and continued to do so even in the eighteenth century.

In the period under review, the architecture, sculptures and paintings of Spanish America are some of the earliest examples of arts under the impact of colonialism that afford us a glimpse of the tendencies of cultural assimilation and hybridity to which Western colonial empires gave rise. These developments in Latin America foreshadowed what were to be the crucial problems during the imperial meridian in the nineteenth century. Artists in countries as far apart as India and Japan wrestled with the cultural impact of the West and had to define their own works against the backdrop of Renaissance naturalism.

The pre-Columbian societies encountered by the Spanish *Conquistadores* – the Mayans, the Aztecs and the Incas – had evolved complex forms of architecture and monumental sculpture related to their religious beliefs. A literate people, the Mayans had produced illustrated texts made of bark-paper dealing with astrology, astronomy, history and rituals, four of which have survived the depredations of the invaders. Seeking to supplant the indigenous system of thought with European ideas, the first bishop of Yucatan destroyed Mayan books in 1520 as springing from the devil. The Indians continued to record their history in defiance of the Inquisition, but now in Roman script. Indigenous architecture went into decline as Catholicism was imposed on the population. The project of mass conversion of the New World included flooding the area with Christian imagery imported from Spain. However, such drastic measures failed to remove traces of earlier Indian art. The Catholic Church pressed a new religious art of the Americas into the service of Christianity. Indian craftsmen were taught Christian iconography by means of European prints which had consequences for the evolving art of Latin America. The murals in churches emulated Renaissance illusionism while incorporating Indian motifs, an early case of colonial synthesis. In fact, the sixteenth-century murals drew copiously not only upon Indian imagery but also upon indigenous stylistic conventions. For instance, the paintings in the churches at Ixmiquilpen and Cuautinchan depict the eagle and the jaguar as present at the Annunciation (see Plate 26). Since the Indian craftsmen were already skilled in stone-carving and mural painting, they adapted their skills to the conqueror's needs. The new art quickly spread to the Indians and the growing community of mixed people, the *Mestizos*. While the guilds formed by European professional painters in search of work in the colonies were pale shadows of the Western art world and served the needs of expatriate Iberians, the indigenous artists opened workshops under Indian and *Mestizo* patronage. Creators of a mixed style, the *Mestizo* artists of Cuzco, for instance, produced rigid full-frontal figures in bold colours and with strong decorative patterns in gold leaf. Bolivian artists drew upon Cuzco models; Melchor Perez de Holguin (1660–1724) blended Western depth and contour with details of Indian inspiration. In Spanish America Christian iconography was radically simplified. The Virgin, the life and death of Christ and a few saints were chosen for representation. The Virgin abandoned her blue garment for a multicoloured feathered skirt, while archangels sported contemporary vestments and the latest firearms.

If portraiture was practised by immigrant painters from Europe, religion remained the dominant subject of Latin American colonies. Among local artists, none encapsulated

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the colonial experience more strikingly than Antonio Francisco Lisboa (1738-1814), a Brazilian mulatto better known as 'O Aleijadinho'. Greatly adept at deploying space in architecture and sculpture, he is best remembered for his grim Old Testament prophets adorning the church of Bom Jesus in Congonhas do Campo.

In contrast to these developments that pointed the way to the nineteenth and twentieth centuries, large segments of the globe continued to hold on to traditional values. In South India, for instance, Muslim penetration had not gone deep enough to prevent Hindus from continuing to build enormously complex temples with towering *gopuras* (gate towers). If one were to choose a continent that was relatively untouched by Western ideas until recently that would be Africa. I have chosen this continent to examine the traditional art produced in the world during the period under review. Traditional arts in Black Africa - predominantly metal and wooden sculpture and some amount of masks and body and house decoration - were not regarded as works of art in the sense of being a collector's item but had certain well-defined functions. Many of them were produced to wrest power from or seek protection against natural and supernatural forces. Masks were widely used in rituals in which the participants developed a symbiotic relationship with the spirits evoked (see Plate 27). Powerful secret societies such as the Poro commissioned masks pertaining to their ceremonies. Similarly, fetishes, images which were meant to control malevolent forces of nature, were produced for those who practised witchcraft. For the fetish or the mask to be effective, it had to be produced according to prescription - a prescription whose significance was fully known to the artist and his client. Hence the success of the artist depended on satisfying certain criteria. However, one must remember that within these constraints, there was much scope for skill and choice for the artist. Several problems are faced by modern art historians in studying African art. There is an absence of linear progress in the European sense and a uniformity of style over long durations in the arts of peoples of Africa. Yet there is a wide variety among African works of art, depending on the individual mastery of the medium. Many of them show remarkable skill in carving and a deep insight into nature.

However, social and religious requirements did not demand a strict adherence to the appearance of things as often stories were told in art in a symbolic form. One of the problems of appreciating African art for art historians has been the inability or unwillingness to seek the meaning and significance of the complex symbolism behind these artefacts. These objects often represented multiple functions - to entertain, to frighten, to commemorate or as carriers of fertility. The last factor is of undoubted significance in a land where people are predominantly agricultural. While acknowledging the social and religious functions of African art, it would be misleading to hold that aesthetic considerations did not enter into the equation of African art. Because African norms of beauty are so different from the Western, they have often been misread by art historians. And yet, in many cases the African sculptor is moved by aesthetic appeal. For instance, the beauty of the *Tshokwe* female masks for the *poro* dance were meant to appeal to the participants in the ritual. Equally, some of the female masks of the Dogon were fashioned because the women had appealed to the artist.

In the larger kingdoms of Africa with surplus wealth and a powerful ruling class the artists were organized in guilds. Abundant wealth, indicated by the lavish use of precious

metals, led to the flowering of art in the kingdoms of Dahomey and Ashanti: the royal courts became the focus of a rich culture.

Goldsmiths in Ashanti, a kingdom that prospered on the slave-trade with the West, were a privileged group that fashioned ceremonial objects and portraits, the most famous of which is the gold mask of King Kofi Kakari. There are other examples of artistic production: among the Bamileke, the artists were directly in the employ of the ruler who also controlled the sale of their works. Portraits were especially demanded by kings, icons that confirmed royal authority.

The exquisite Benin bronzes, made to commemorate deceased kings, go back to the twelfth century. Benin artists practised the *cire perdue* method of producing bronze sculptures. Their guild was directly under the control of the *Oba* or ruler. Between the fifteenth and nineteenth centuries Benin bronze heads progressed from a modest naturalism to triumphs of delicacy and observation in depicting human beings, making Benin bronzes some of the finest achievements of humanity (see Plate 28). Clearly, in the powerful kingdom of Benin, where the ruling class could afford to pay for art works, the monarchs were keen to glorify themselves through art.

Not only Benin bronzes, but much of African sculpture has fascinated with its radical simplifications and an assured comprehension of organic forms. Its abstract elegance drew artists like Picasso to it. Among the most striking wooden sculptures are the *tellem* pieces made by the Dogon in Mali, whose precise function seems to have been lost in obscurity. Such artistic confidence was often the product of long training in the craft.

Finally, as we reach the end of the eighteenth century the contrast between 'traditional' and 'secular' societies begins to disappear. The secular and 'realistic' tendencies in art first noticed during the Renaissance now come to fruition as they gradually spread to the rest of the world. The year 1789, the year of the French Revolution, may be taken as ushering in the modern age, when the universalist ideas of the Enlightenment and nationalism were borne across the seas, especially to the emerging European colonies. The full effects of these ideas were not, however, felt until the middle of the next century.

In European art the late eighteenth century witnessed the collapse of the dominant universal canon as permanent revolution became the order of the day. Even though we noticed the rise of individualism among artists during the Renaissance, until the late eighteenth century, artists continued to depend on the restrictive patronage of the wealthy. There existed a consensus as to what was required of an artist. It was in the eighteenth century that artists were able to proclaim freedom from all restraints. For the Romantic movement encouraged the artist to seek self-fulfilment above everything else. Artists developed acute self-consciousness about artistic styles. Romanticism brought a new awareness of history and of the past. The Renaissance artists, for instance, had seen themselves as direct heirs to the Graeco-Roman heritage after a short break in the Middle Ages. When the eighteenth-century Neo-classicists engaged in reviving ancient Greek Doric architecture they, as 'archaeologists', no longer perceived the cultural continuum. The Neo-classical, Gothic and other revivals were merely a confirmation of the rupture with the past. Artists now felt free to draw upon any style that pleased them or appealed to their sense of the past, a phenomenon described by modern historians as artistic historicism. Such 'archaeologizing' was not confined to Western art. In time, the net was cast wider to bring in

exotic arts. The world, to the 'armchair artist', became a museum from which to select a style that took his fancy.

In short, art, like many other aspects of modern life, became an 'object' to be taken out of its cultural context and placed in a rarefied atmosphere to be contemplated at leisure. Among factors that helped turn art into an 'object' or 'commodity' the artistic market was a major one. Dutch artists had started selling their works in an open market in the seventeenth century but the process was greatly accelerated in the eighteenth century with a growing vogue for old masters. The development had much to do with the notion of the 'authenticity' of a work of art which sought to fix a work of art within the context of its time as the product of individual genius. Already by the end of the Renaissance pictures had begun to change hands at ever higher prices. During the reign of James I an international market had appeared in London. But the 1760s became a turning point in the history of English taste when competition between the art markets of London and Paris sprang up. Gradually, London outstripped Paris as a centre for trading in Renaissance paintings. Part of the reason for London's prominence lay in the fact that money acquired in the East and West Indies circulated freely in the city. Art prices had the same interest to the informed public in the eighteenth century as they have today. No Renaissance master had a greater reputation in the eighteenth century than Raphael whose *Sistine Madonna* was bought for an enormous sum by Augustus III of Poland in 1754 (see Plate 23).

The other late eighteenth-century development that takes us into our own age was the phenomenon of annual exhibitions which was fast replacing the earlier practice of direct transactions between the artist and the individual aristocratic patron or an institution like the Church. The artist came to rely progressively on a new impersonal patron – the informed, art-loving public. Public exhibitions of works of art were regular events in Paris and London in the eighteenth century. As Jacques Louis David, the French painter, informs us:

In our time this custom of showing the arts to the public practised in England is called 'Exhibition' . . . introduced . . . by Van Dyck: the public came in crowds to admire his work: he gained by this means a considerable fortune.

The period of the French Revolution saw the nationalization of art objects and opening of museums for the people. With a regularly held competitive salon open to all nationalities after 1793 Paris emerged as the international art exhibition centre. Art reviews accompanied art exhibitions and art notes became a regular feature of newspapers and journals, the most famous early critic being the French encyclopedist, Diderot. The rise of art exhibitions and art criticism as mediators between the artist and his public led to a revolution in art patronage as the critic became a powerful arbiter of contemporary taste.

And yet, it is a remarkable paradox that the 'uniqueness' of a work of art so assiduously nurtured in these developments

was seriously undermined by the final development in the modern age, the age of mechanical reproduction, as described by the German critic, Walter Benjamin. Of course, with the rise of printing during the Renaissance it became possible to reproduce a work of art but the mechanical reproduction of a work of art was a new phenomenon (see Plate 29). Lithography invented in the late eighteenth century enabled works of art to be duplicated with ease, a process taken to great lengths by photography in the next century. The reputation of academic artists in the Victorian period, notably Edwin Landseer, rested primarily on the cheap prints of their works. And yet prints attacked the very 'authenticity' of a work of art, intimately connected with the rise of artistic individualism. The 'attack' on authenticity jeopardized the historical context in which the work was produced and hence its 'authority'. Landseer was one of the celebrated beneficiaries as well as a victim of the reproductive process – the enormous quantity of prints of his works which had made him so famous also led to his downfall as a debased artist.

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INFORMATION AND COMMUNICATION

Peter Burke

The purpose of this chapter is to offer a general survey of the major changes in the systems of information and communication in the early modern world. It aims at comparing and contrasting the stocks of knowledge available in different parts of the globe at this time, and at analysing the acquisition, distribution and criticism of that knowledge. It is obvious that a survey of this kind cannot claim to be more than provisional. Global comparison and contrast is the essence of the enterprise, but the specialized secondary works (histories of science, histories of universities, histories of the book and so on) on which it requires to be based are reasonably numerous only in the case of one region, the West (see Plate 30).

The task of synthesis is rendered still more difficult by the fact that the basic concepts 'information' and 'communication' are extremely problematic. It is no longer possible (as it might have been a generation ago) to work with positivist notions of 'hard facts' and of intellectual 'progress' measured in terms of the accumulation of information. Information is necessarily organized in categories which vary from place to place as well as from period to period. One person's 'information' is another person's 'superstition', 'sedition' or 'propaganda'. Both the Church and the State in early modern Europe – like the 'Literary Inquisition of Qing China – ordered the burning of books to destroy what they regarded as false information, while missionaries in the New World virtually eliminated entire writing systems in Mexico and Peru.

In order to make a vast subject manageable, it will be necessary to privilege change. To privilege change makes sense in an age of increasing intensity of communications, of what might be called a 'communications revolution', a result not only of the invention (or re-invention) of printing in the West, but of the increase in political and economic contacts between different parts of the world. However, the decision to privilege change has its price and its problems.

In the first place the problem of periodization. For the history of Europe, the early modern period makes an appropriate framework, at least if we define it for the purposes of this chapter as the period which runs from the rise of printing with moveable type in the later fifteenth century to the introduction of the steam press in the early nineteenth century. For the Americas, too, this period makes sense, since a new writing system was introduced to that continent after 1492. On the other hand, a historian of information and communication in the world of Islam or in East Asia would not be likely to begin or end his or her study around

1500 or 1800. In the case of China, the most obvious turning-point is the change of dynasty in the middle of the seventeenth century. In the case of Japan, 1600 (the rise of the Tokugawa shogunate) and 1868 (the imperial restoration) might seem more appropriate than 1492 or 1789. All the same, these last two dates do have a global significance. The period between them is that of the rise of what the American historian William McNeill, linking the increasing exchange of information with the growth of intercontinental trade, has called the rise of the 'ecumenical exchange system'.

In the second place, privileging change involves an emphasis on literary as opposed to oral or visual communication, on the information available to élites at the expense of the knowledge current among ordinary people, and on the West rather than Africa or Asia (it is for this reason that each section will begin by discussing Europe). Although the world of oral communication involved far more people than the world of writing, let alone print, there will be no discussion of the 'drum history' of West Africa, for example; no treatment of rumour or gossip; no discussion of the oral information available on the *piazza* or in the *suq*, the coffee-house or the tea-house, the western tavern or the Turkish *boza-hâne*; no discussion of preachers (Christian or Muslim), professional story-tellers, or reciters of oral poetry, who have been described as fulfilling the role of broadcasting information in traditional societies as effectively as the press or radio in modern ones.

Another necessary omission from this survey is the history of education; the European universities, the Muslim *madrasa*, the Chinese 'academies' (*shuyuan*), and of course the many types of school to be found all over the world. These institutions were of course central to the process of communicating information. However, their main concern was the transmission of cultural traditions (with 'cultural reproduction', as sociologists call it) rather than the encouragement of change. Exceptions to the rule are the colleges founded to teach mathematics, science and technology, from Gresham College in London, founded in the late sixteenth century, to the Naval, Engineering and Artillery Academies in St Petersburg founded by Peter I, and the engineering school opened in Istanbul in 1734.

Today, intellectual innovation is considered one of the major functions of institutions of higher education, and candidates for higher degrees are normally expected to have made a 'contribution to knowledge'. In the early modern period, on the other hand, the assumption – in all parts of the world – was, on the contrary, that most important

discoveries had already been made, so that even institutions of higher education ought to concentrate on passing on information rather than discovering it. In similar fashion, it was generally assumed that the opinions and interpretations of the great scholars and philosophers of the past could not be equalled or refuted by posterity, so that the task of the teacher was to expound the views of the authorities (Aristotle, Hippocrates, Ibn Sina, Aquinas, Confucius, and so on).

There were of course exceptions to this general acceptance of intellectual authority. In sixteenth-century Europe, traditions were openly attacked by such university lecturers as Paracelsus (on medicine) and Ramus (on logic and rhetoric). The so-called 'Scientific Revolution' of the early modern period (discussed in Chapter 8), was associated with a repudiation of intellectual authority, summed up in the motto of the Royal Society of London ('on no-one's word', *nullius in verba*), and made most powerfully explicit by the English philosopher John Locke.

In China too there was something of a revolt against orthodoxy in this period (the timing appears to be coincidental). Confucianism was denounced by the sixteenth-century scholar Li Chih, while the essays written by candidates taking the civil service examinations are said to have become less conventional around the year 1600. The early years of the Qing dynasty continued the tendency to question traditional ideas. From the late seventeenth century onwards, however, the intellectual trends in Europe and China diverged. The Manchus re-imposed intellectual orthodoxy. In the world of Islam, the Sufis rebelled against what might be called the 'scholasticism' of formal *madrassa* teaching.

On the principle of privileging the areas of most rapid change, this chapter will concentrate on a limited range of topics, six in particular: archives, libraries, reference books, popular literature, censorship and the postal service.

## ARCHIVES

Governments have been interested in collecting and preserving information about the governed from the time of the ancient Assyrians, if not earlier. The documents (mainly rolls) produced by a relatively small medieval monarchy, the kingdom of England, fill an impressive number of shelves in the Public Record Office in London. However, the increasing centralization of administration required early modern European governments to know much more about the lives of the governed than had been the case in the Middle Ages. Officials in church and state were coming to realize the administrative uses of censuses and other social surveys. Questionnaires were issued to local informants such as parish priests or civil servants, dealing with the assiduity with which parishioners performed their 'Easter Duties' of confession or communion, the physical state of churches, the numbers of trees in a particular province, the quality of the land, and so on. It was increasingly necessary to know not only how many people lived in a particular state, but also how many adult males were available for military service, how many mouths there were to be fed in times of famine, and so on. Hence information about births, marriages and deaths began to be collected, and the national census became a regular event.

As they increased in volume, these records needed to be housed in special repositories, the archives, with special keepers, professional archivists. In the course of the sixteenth and seventeenth centuries, a number of archives in Florence,

Venice, Rome, Paris, London and elsewhere were set up or at least re-organized, inventoried and indexed to allow information to be retrieved without too great a delay. Among the Counter-Reformation popes, Pius IV, Gregory XIII and Paul V took particular interest in the Vatican archives. In Britain, King James I created the post of Keeper of the State Papers. In France, Louis XIV's minister Jean Baptiste Colbert insisted on the making of inventories of older archives as well as collecting new information. These archives were not created for the convenience of historians (though official historians of the period were sometimes granted access to them). They existed for the sake of the administrators. Only with the French Revolution was the principle of public access to archives proclaimed, making 1789 a turning-point in the history of this domain.

From a Chinese point of view, these western developments (with the exception of public access) are not particularly impressive. The census had long been an instrument of government (the first known census goes back to the year AD 2). Attempts by the administration to control economic life led to the registration of merchants and boats. Police and tax records were in no way new in the early modern period. Official history based on official records also goes back a long way – it was in the seventh century AD that the Bureau of Historiography was set up. All the same, it is interesting to note that a generation or two before the rise of archives in the West, the Chinese government had begun to think about rehousing its records. In 1492, the Grand Secretary proposed the construction of a special building for this purpose, and the building (known as the Imperial Historical Archives) was in fact constructed in the 1530s.

Official records had an important function in the administration of the three great Muslim empires of the period, those of the Ottomans, the Šafavids and the Mughals. The financial efficiency of the Ottoman Empire, for example, depended on its income from land and taxation, so it is not surprising to learn that land surveys were made every thirty years or so and filed in the *defterhane* archive in Istanbul from the late fifteenth century onwards, or that the name of every adult subject to taxation was recorded. In similar fashion, the military efficiency of the empire depended on the keeping of muster-rolls of soldiers. Many thousands of registers from the early modern period still exist in the Istanbul archives, complete with tables of contents and coloured silk bands to facilitate consultation. Like their western and Chinese colleagues, the sultans encouraged the writing of official history; in the middle of the sixteenth century, Süleymān established the post of court historian or *sehnameci*. In the Mughal Empire, at the end of the sixteenth century, the *Ain-i Akbari* was compiled, a compendium of information about prices and wages in the imperial establishment, about crop-yields, revenue rates, tax-income, land grants, numbers of armed men and so on in different parts of the empire.

Although European city-states such as Florence and Venice were pioneers in the creation of archives, the link between the rise of this kind of information deposit and the rise of empires deserves to be stressed. It was Philip II, ruler of a vast empire, who was nicknamed by his subjects 'the king of paper' because of the number of documents generated by his attempt to learn about and control the lives of his subjects, but the epithet would have been equally appropriate for a Chinese empire or an Ottoman sultan. The empire of the Incas in Peru also had its official archivist, the *qillqakamayuc*.

## LIBRARIES

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## LIBRARIES

Archives generally contained confidential information, available only to a few servants of the state. It is time to consider the information available to a wider public, beginning with libraries, more especially public libraries or private collections to which there was some measure of public access.

In Renaissance Italy, the public library was already an important institution before the invention of printing, and storehouses of books became all the more necessary thereafter. Cardinal Bessarion left his books to the city of Venice in order to encourage the establishment of a public library, although the *Biblioteca Marciana* was not begun till 1537. The *Laurenziana* in Florence, named after Lorenzo de' Medici, opened in 1571. Another great library, the *Ambrosiana* of Milan, was founded at the beginning of the seventeenth century by the archbishop, Federico Borromeo. A few years later, an English visitor remarked with some surprise that it 'opens its doors to all comers and goers, and suffers them to read what book they please', as if this practice was still unusual.

Elsewhere in Europe, the university libraries which had developed in the later Middle Ages were increasingly supplemented by princely libraries, which were more or less open to scholars. The imperial *Hofbibliothek* in Vienna goes back to 1493, the library of the Escorial to 1557, the library of Berlin to 1661. The rebuilding of libraries became increasingly necessary, not only to hold more books but to hold more readers. In Paris, the *Bibliothèque du roi* was made increasingly accessible to the public in the 1690s, and again in the 1730s, soon after its move to the rue Richelieu. By the late eighteenth century, printed forms for borrowers were in use. In London, however, the historian Edward Gibbon was still complaining about the lack of library facilities in the middle of the eighteenth century. The classical scholar Richard Bentley had proposed the construction of a Royal Library in 1697, but it was only in 1753 that George II presented his books to the British Museum.

Founding a library and opening it to the public was obviously not enough to make information accessible. What was needed was a steady flow of new accessions. It was in 1537 that King François I gave orders that a copy of every book printed in France should be sent to the royal library. The emperor followed his example in the late sixteenth century. Thomas Bodley was granted a similar privilege for the library he founded at Oxford in 1610. Stockholm received such a privilege in 1661, Berlin in 1699. However, few libraries were so fortunate as to receive books regularly from major centres of production without paying for them.

As libraries became larger and larger, cataloguing and classifying became more and more of a problem. Distinguished scholars gave this problem their attention - reasonably enough, given the influence of such category-systems on intellectual life. It was the celebrated humanist Benito Arias Montano who devised the classification system for Philip II's great library in the palace of El Escorial. In Vienna, Hugo Blotius took more than twenty years to catalogue the imperial library. In Wolfenbüttel, the intellectual scheme underlying the system of classification was the work of the philosopher Gottfried Leibniz. A further step towards greater accessibility came with the printing of library catalogues, beginning with the university of Leiden in 1595. By 1688, the printed catalogue for the French Royal Library had itself become a ten-volume work.

China too possessed great libraries. The imperial library in Beijing was founded in 1238, while four major libraries

were constructed at the orders of the new imperial dynasty of the Qing. In the late eighteenth century, the Qianlong emperor launched an ambitious project for collecting books and bringing them to the capital. The academies too had their own libraries.

In the world of Islam, on the other hand, libraries were relatively small because printed books were virtually non-existent. The American scholar Marshall Hodgson has described the Ottoman, Safavid and Mughal states of this period as the 'gunpowder empires'. It might be equally illuminating to call them the 'manuscript empires'. As in the medieval West, manuscript books were often beautifully written, and sometimes illustrated. Calligraphy was highly prized by collectors. The role of scribe (*warrāq*, *nakkāsh*) was an honourable one. Booksellers' quarters had a privileged location in the great bazaars in major cities like Istanbul, Fez, or Cairo. However, handicraft technology made books expensive. Only rulers (like the Mughal emperors) or wealthy private individuals (bureaucrats, for example) could afford to collect books on a large scale. Public libraries existed, attached to mosques, but they housed only religious books. Some Europeans were well aware of their technical superiority in this respect and used it to impress their neighbours. When an envoy from Tripoli visited Louis XIV in 1704, he was taken to the Louvre in order to see the royal press (like the Siamese envoys in 1687).

The chequered history of printing in the Ottoman Empire reveals the strength of the obstacles to this form of communication. According to the imperial ambassador Ogier Ghiselin de Busbecq, writing in the middle of the sixteenth century, the Turks thought it a sin to print religious books. At the end of the century sultan Murad III allowed the sale of non-religious printed books in Arabic characters, but these were imported from Italy (where the first such book had been printed as early as 1514). The scribes, whose status and livelihood were threatened by the new invention, did their best to resist its spread. This resistance to print attracted the attention of some western scholars like the scientist Henry Oldenburg, who as secretary of the Royal Society was much involved in the business of communication. His explanation was cynical and reductionist in the seventeenth-century style. 'No question', he wrote in 1659,

but the Great Turk is an enemy to learning in regard of his subjects, because he finds it his advantage, to have such a people, on whose ignorance he may impose. Whence it is, that he will endure no printing, being of this opinion, that printing and learning, especially such as is found in universities, are the chief fuel of division among Christians.

The first Turkish press was established only in the eighteenth century, over two hundred years after the first Hebrew press in the Ottoman Empire. It was founded on the initiative of Ibrahim Müteferriqa, a Hungarian convert to Islam, at a time, the reign of Ahmed III, when the empire was more open than it had been to ideas from the West. However, it printed only a handful of books, including works by the scholar-bureaucrat Kâtib Çelebi (in 1729 and 1733), and the historian Naima (in 1734), and it did not last very long.

## ENCYCLOPAEDIAS

The development of the encyclopaedia both summarizes and symbolizes the main themes of this survey. The encyclopaedia is not of course an early modern invention. It formed part

of the manuscript culture of the Middle Ages (to say nothing of the ancient world). Printing, however, made encyclopaedias more easily available, just as it made them more necessary as a response to the problems of the information explosion.

Sixteenth-century European encyclopaedias were relatively small, taking up one or two volumes, and they were organized thematically, the main categories generally corresponding to the organization of knowledge in universities. Examples include Giorgio Valla's *De expetiendis rebus* (1501), and P. Scalich's *Encyclopaedia* (1559). This thematic arrangement made the books unsuitable for rapid consultation, but at the same time allowed them to show the links between different disciplines, the various branches of the tree of knowledge, much more clearly than modern encyclopaedias can. It is not easy to imagine a scholar in a hurry consulting Scalich. On the other hand, it is not easy to imagine anyone (apart from the late Aldous Huxley) sitting down to read a twentieth-century edition of the *Encyclopaedia Britannica*. The communications theorist Harold Innis once noted 'the extent to which encyclopaedias may tear knowledge apart and pigeonhole it in alphabetical boxes'. The new form of encyclopaedia – the multi-volume work with entries in alphabetical order – developed in the seventeenth and eighteenth centuries and corresponds to a new way of using this type of book. Among the seventeenth-century examples may be cited d'Herbelot's *Bibliothèque Orientale* (1697), devoted to the Islamic world; it is interesting to see the editor apologizing in advance for the alphabetical arrangement, and explaining that it 'does not produce as much confusion as one might imagine'. Famous examples from the eighteenth century, when the principle of alphabetical arrangement was firmly established, include the second edition of the *Encyclopaedia Britannica* (10 vols, 1777–84), the *Encyclopédie* compiled by Diderot and his collaborators (35 vols, 1751–77), and Zedler's *Lexicon* (64 vols, 1732–50).

In the eighteenth century, encyclopaedias were frequently revised and expanded to take account of new information. It came to be taken for granted that knowledge could become 'out of date', and that the latest edition (or even the latest book) was the best. Hence the need for a new *genre*, the learned journal, such as the *Journal des Savants* of Paris (founded in 1665) the *Acta Eruditorum* of Leipzig (1682), and the *Nouvelles de la République de Lettres* of Rotterdam (1684). The title of the last-named journal sums up the functions of the *genre*. They spread news about the Republic of Letters by printing obituaries of scholars, intellectual projects, and above all, reviews of recent books.

The rise of western encyclopaedias, like the rise of western archives, would have been unlikely to impress a Chinese scholar of the period, supposing that he had heard of this development. The Chinese encyclopaedic tradition goes back to the third century AD. In the fifteenth century, 2,000 contributors compiled an encyclopaedia of more than 10,000 volumes, the *Yong-huo da-dian* or 'Great Handbook', too expensive to be printed but still available to some scholars. As in the Renaissance west, encyclopaedias of this kind were not works of ready reference (it goes without saying that alphabetical arrangement was unthinkable in China). They tended to offer quotations arranged by topic, the main categories being the following: celestial phenomena, geography, human nature and conduct, arts and sciences, philosophy, political economy. As far as the period 1500–1650 is concerned, change is not easy to discern. New encyclopaedias, such as Chang Huang's *Dushu Bian* (1562–77) made their appearance, but the basic categories and functions

remained the same. It was an emperor of the Qing dynasty who commissioned the most ambitious of the printed encyclopaedias, perhaps the longest printed book in the world, the *Dushu Jicheng* or 'Collection of Pictures and Writings' (1726), which had more than three quarters of a million pages.

In India, a large Sanskrit encyclopaedia was compiled at the orders of raja Todermal, a Hindu minister to the Muslim emperor Akbar. Islam too was a culture of encyclopaedias – indeed, the Arab encyclopaedic tradition goes back to the tenth century AD. Among the most important compilations of the early modern period are the *al-Hanafi* (1524, in Persian); Tashköprüzade's early sixteenth-century encyclopaedia (composed in Arabic but translated into Turkish by the compiler's son); and Haji Khalifa's *Kashf az-zunun*, or 'Dissipation of Doubts', (c.1650, in Arabic), which was a bibliography of all works in Arabic, Persian and Turkish known to the compiler, together with summaries of the contents and notes on the authors. However, these works of reference circulated only in manuscript. Ironically enough, Haji Khalifa's work reached its widest audience in the west, since d'Herbelot drew on it heavily for his printed *Bibliothèque Orientale*.

## POPULAR LITERATURE

A history of information centred on archives, libraries and encyclopaedias runs the danger of placing too much emphasis on bureaucrats and scholars and overlooking the information available to the rest of the population. The increasing availability of cheap and simply-written forms of printed literature was an important trend in Europe in the early modern period. Books, or rather booklets of this kind (often with only twenty-four or even fewer pages), were produced in Venice and other Italian cities in the sixteenth century, in England, France and The Netherlands in the seventeenth century, and in most parts of Europe in the course of the eighteenth century. They were most easily available in cities but they were also distributed in the countryside by pedlars. Many of these books were works of entertainment, such as poems and stories (romances of chivalry were particularly popular). Some recounted the lives of the saints, or conveyed various kinds of practical information (how to write a love-letter, for example, or how to cure a sick horse). The almanac, already mass-produced in the seventeenth century, if not before, was more of an encyclopaedia than an annual weather forecast. It normally included medical, astrological and agricultural information, and not infrequently a table of the most important dates in world history as well.

Another major development in popular communication in early modern Europe was the spread of printed news-sheets and pamphlets. They provided information on current events available to some proportion, at least, of ordinary people. Since the news-sheets sometimes took the form of ballads which could be sung aloud, it is clear that this kind of information was not restricted to the literate.

In the sixteenth century, the news was generally printed in the form of pamphlets produced for a particular occasion – a battle, an execution, an earthquake. These pamphlets did not disappear in the seventeenth century, but they were supplemented by a new printed *genre*, that of news-sheets, appearing at regular intervals, often once or twice a week. Amsterdam was probably the most important centre of news-sheets in the early seventeenth century, producing for export (with texts in English and French) as well as for the home market. These papers were criticized by some moralists for

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pandering to vain curiosity, and by others for revealing political secrets and encouraging ordinary people to criticize the actions of rulers, but they were an economic success. By the eighteenth century, the newspaper had become an important institution in Europe and in the Americas. As a French visitor observed after noting the frequent reprinting of Thomas Paine's pamphlet *Common Sense* in the periodical press, 'Without newspapers, the American Revolution would never have succeeded'.

These developments had few parallels in Western Asia until the nineteenth century (the official Ottoman gazette was founded in 1831, and the first private newspaper established in 1840). Although the coffee-house (which ought to be regarded as an information centre) was originally a Middle Eastern institution, exported to Europe in the seventeenth century, the association between coffee-houses and newspapers seems to have been a purely western phenomenon. A popular literature existed, and in the Ottoman empire almanacs, epics and simple religious books circulated widely in villages as well as towns, but only in manuscript. In the Mughal Empire, the 'Court News' *Akhbarat* circulated in manuscript from bazaar to bazaar, thanks to the bankers in particular.

In East Asia, however, the rise of printed popular literature was an important early modern trend. In the case of China, scholars formerly assumed that a writing system based on ideograms rather than the alphabet prevented literacy spreading widely, on the grounds that to learn 2,000 or more Chinese characters would require more years in school than ordinary people could afford for their children. Recently, however, historians have begun to stress the spread of 'rudimentary literacy' in late Ming and Qing China, in other words the knowledge of relatively few characters. There was a rise of relatively cheap publications around the 1570s, and various types of popular literature developed, including forms of non-fiction such as encyclopaedias and guides to letter-writing, ritual and astrology. Books such as *The Female Analects* and *The Womens' Classic of Filial Piety* were obviously intended to reach a female public.

It has also been pointed out that publishing costs were lower in China than in Europe (thanks to the dominance of a single language), so that books should have been relatively cheaper and so accessible to more people. The Italian Jesuit Matteo Ricci, whose long stay in Beijing put him in a uniquely favourable position for making comparisons with Europe, remarked on 'the exceedingly large number of books in circulation' in late sixteenth-century China, and also 'the ridiculously low price at which they were sold'.

In Korea, the rise of popular literature was aided by the invention of printing with moveable type in the thirteenth century, and of an alphabetic script, *han-gul*, in the fifteenth. In Japan, a similar development of popular literature began in the later seventeenth century, with the rise of the so-called *kana-zoshi*, booklets printed not in the Chinese characters used by the educated élite but in *katakana*, a simple syllabic script. These booklets included almanacs and guides to becoming rich (such as the so-called *Millionaire's Gospel*). It was possible to borrow as well as to buy these booklets, which circulated not only in shops but on the backs of pedlars.

## CENSORSHIP

The religious and political authorities were far from happy with the increasing availability of books in the early modern period. As information became more widespread, geographi-

cally and socially, it was obviously more difficult to control. In Europe, the invention of printing undermined what has been described (with some exaggeration) as the 'information monopoly' of the medieval Church. The printing of Bibles in vernacular languages encouraged the laity to ask awkward questions about the faith. Thanks to the printing press, it was impossible to suppress the ideas of Martin Luther in the way in which the ideas of late medieval heretics like Jan Hus and John Wycliffe had been suppressed. What was to be done?

The solution adopted by the Catholic Church in the middle of the sixteenth century was the so-called 'Index', in other words a printed catalogue of titles (arranged in alphabetical order, according to the most up-to-date principles of information retrieval), of the books which the faithful were not allowed to read because they were judged to be heretical or immoral (as in the case of Boccaccio's *Decameron* and Machiavelli's *Prince*). From now on, ecclesiastical censors would read books before publication. The Inquisition took considerable interest in the books read by persons suspect of heresy.

Like the Church, the State attempted to keep the dangerous new medium of communication under control. In Elizabethan England, for example, printing was confined to three cities (London, Oxford and Cambridge) in order to bring it under more effective supervision. In similar fashion, Louis XIV's minister Jean-Baptiste Colbert tried to concentrate French printing in a few hands. Although there was no secular Index of Prohibited Books, 'seditious' works, like heretical ones were often publicly burned. Printers were generally required to submit their books to the authorities for approval before publication. Despite Milton's famous appeal, in 1643, for the freedom of the press, the British government continued to censor books until 1695. The French had two systems of state censorship, administered respectively by the chancellor and the lieutenant-general of police.

There were various means of evading censorship. Books might be printed in one country (such as Switzerland or the Dutch Republic) and smuggled into another. Dangerous books, such as Spinoza's *Tractatus*, might be printed without the name of the author or publisher. The place of publication might be falsified, while the books themselves might be printed on underground presses. Alternatively, prohibited books might circulate in manuscript (the *samizdat* of the early modern period). Authors might write in an allusive or allegorical way to ensure that the censors missed the point. The risks were high, but the chances of being detected were probably low. At all events, a large amount of underground literature was in circulation, above all in the eighteenth century.

Official anxieties about seditious, blasphemous or heretical literature were not, of course, confined to Europe. The Index and the Inquisition operated in Mexico, Peru and Brazil. In the Islamic world, the fear of heresy underlay the opposition to printing and western learning. It is surely significant that Murad III allowed only non-religious books to be imported into the Ottoman Empire. Oral and manuscript communication was also subject to censorship, and the Turkish poet Nef'i was executed in 1635 for satirizing the government.

In East Asia, on the other hand, the reasons for control were political rather than religious. In China, a good deal of information was restricted to the mandarins. The official newspaper (printed in moveable type after 1640) was for them alone. Encyclopaedias were compiled primarily for the

sake of civil servants or for students taking the civil service examinations. From the middle of the seventeenth century onwards, the censorship of literature became increasingly strict, because the new dynasty of 'foreign' (Manchu) emperors felt insecure. This trend culminated in the so-called 'literary inquisition' in the reign of the emperor Qianlong, when more than 10,000 books were prohibited and over 2,000 destroyed.

In the case of Japan, the control of information became very much stricter after 1640, when the country was officially isolated from the rest of the world as a reaction to the spread of Christianity. Henceforth little information about Japan would be available to western visitors (who were now virtually confined to the island of Deshima) and little western learning (known as 'Dutch studies', *Rangaku*) would be available to Japanese. The import of foreign books dealing with Christianity or with military matters was forbidden. Chinese books were also subject to censorship, especially from the 1680s onwards. These restrictions began to be relaxed after 1720, however, and an interest in western science (among a small group of scholars, at least) soon became apparent. The Japanese 'discovery of Europe' (more exactly a rediscovery) took place long before the arrival of the famous American ships in the 1850s.

## POSTAL SERVICES

A discussion of censorship is in danger of giving the false impression that governments did little more than obstruct the flow of information. In fact they also facilitated it, notably by the construction or improvement of roads and the establishment of postal systems. In sixteenth-century Europe, the development of a postal service (in the sense of an organization for the delivery of letters) was closely associated with a single family, Tasso (or Tassis), who were given a monopoly of mail deliveries in the Habsburg Empire in 1545. Their couriers departed at regular intervals, by night as well as by day. Ordinary couriers took about eleven days from Madrid to Paris, and twelve or thirteen days from Madrid to Naples. Special couriers, on the other hand, were much faster. For example, the news of the massacre of Protestants in Paris in August 1572 (the 'Massacre of St Bartholomew') arrived in Madrid only three days later.

The rapid transmission of news was obviously a matter of concern to governments, so that it is not surprising to find them increasingly concerned with the maintenance and repair of roads. In France, a new official position, that of *Grand Voyeur*, was created for this purpose at the beginning of the seventeenth century. Primarily intended for the use of the state, the official postal system was increasingly employed by merchants and other private individuals. International trade depended on the regular transmission of letters giving information about supply, demand and prices in different parts of Europe. Letters were also an increasingly important method of communication between scholars in different parts of Europe in the seventeenth century, allowing them to learn about current researches and new discoveries before they were published and so helping to create the so-called 'Commonwealth of Learning' (*Respublica Litterarum*). Mersenne in Paris and Oldenburg in London both sat in the centre of a network of scientific communication, mainly conducted by letter.

In the Ottoman Empire, the state postal service (*menzil* or *ulak*) was carefully organized, with stations on the main roads with fresh horses ready for the couriers (who also had

the right to confiscate horses on the way if necessary). The news of the death of Mehmet II reached Bayezid in Amasya in eight days. The Mughal Empire too had an official postal system. In China, the postal service went back as far as the thirteenth century, doubtless facilitated by the lack of frontiers within the empire. In Japan, the new dynasty of shoguns, the Tokugawa, improved the highway system and established regular post stations, especially on the road from Edo to Osaka. However, to transmit information about prices with the maximum speed the brokers in the money market at Osaka made use of fires, flags and carrier pigeons (pigeons had been used for similar purposes by Jacques Coeur, a leading French merchant of the fifteenth century).

## NON-VERBAL INFORMATION

This essay has concentrated on the written and printed word. However, visual information, from book illustration to map-making, also became more widely available in this period. The printed image was possibly as important as the printed text. The illustrations to European treatises on astronomy (*On the Revolutions of the Heavenly Orbs* by Copernicus, for example) or anatomy (Vesalius's *On the Fabric of the Human Body*) and above all, perhaps, on botany (the many herbals of the period) communicated more effectively than the text. Their numerous illustrations gave the leading eighteenth-century encyclopaedias – especially the great *Encyclopédie* – a great advantage over their predecessors. As for European map-making, its development can be charted by comparing and contrasting the atlases of Mercator (1585–95), Blaeuw (1662) and D'Anville (1737–80).

Maps and illustrated books were of course known in other parts of the world. Blaeuw's maps of China were derived from a Chinese atlas (via an Italian Jesuit, Martino Martini), and his *Great Atlas* was translated into Turkish c. 1685. Among the most famous examples of non-western maps are those made by the Turkish admiral Piri Reis in 1513 and 1528, including information about America; the world map printed in China in 1602 by another Italian Jesuit, Matteo Ricci (showing the 'Middle Kingdom' in the centre); and the Peruvian Guaman Poma de Ayala's map showing Cuzco as the centre of the world. In China, the seventeenth century was an important epoch in the history of geography, the epoch of Zhang Xie (who concentrated on South-East Asia) and Xu Hongzu (who studied China itself).

In cartography as in other domains, however, long trends over time are most visible in the history of the West. The same point might be made about illustrated books, an old tradition in China (where printing developed so much earlier than in the West). The early seventeenth century has been described as a crucial period for 'the progress of practical knowledge'. Important treatises were published on such subjects as machines, medicine, botany and agriculture (the *Tiangong káiwū* of 1637, for example). In all these cases, the woodcut illustrations had an important function. The development of the colour woodcut in seventeenth-century China and Japan increased the effectiveness of communication in this medium. In the Muslim world, despite Muhammed's famous statement that 'All those who make an image go to hell', miniature painting flourished at court and illustrated the deeds of the ruler, as in the case of the famous 'Book of Kings' *Shāh-māmah* completed in the reign of Shāh Tahmāsp of Iran. Mughal painters also represented plants, animals and scenes from everyday life.

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A more detailed study than this one would also have to discuss statistics. The Ottoman, Mughal and Chinese Empires made considerable use of quantitative information. However, it is in Europe that we see a trend over time most clearly, the increasing tendency to present information in numerical form, from price figures to star tables. The seventeenth century was the first time when systematic demographic estimates were made, whether of the whole world (from Isaac Vossius to Benedetto Riccioli), the population of a single city (William Petty on London, for example) or the mortality rate (calculated by the astronomer Edmund Halley from information about the city of Breslau). This concern with quantitative information reflected both the rise of natural science and the rise of the centralized state (it is altogether appropriate that the English came to call numerical information 'statistics').

Other forms of non-verbal information must not be forgotten. In the case of early modern Europe, the list of newly founded institutions and locales where non-verbal information was collected and transmitted is a substantial one. It includes the anatomy theatre, the botanical garden, the clinic, the laboratory, the astronomical observatory, the museum (the *Wunderkammer* or cabinet of collections, ranging from shells to coins). To these one might add the new instruments for discovering and recording information, including the terrestrial and celestial globes, the telescope and the microscope.

In the case of astronomy, in particular, there are some parallel developments outside Europe. An Ottoman observatory was established at Galata in 1577 (though it was destroyed by janissaries only three years later, apparently because the study of the stars was considered to interfere in the affairs of God). In India, the Rajput ruler Jai Singh II founded no fewer than five observatories in the early eighteenth century. In China, the mandarins took considerable interest in the western-style astronomy expounded to them by the Jesuit missionaries, despite, or because of, their own tradition of astronomical studies (there was an imperial Bureau of Astronomy in Beijing). Once again, however, it is clear that change was most rapid in the West.

## CONCLUSION

The example of Jesuit astronomy is one among many illustrating the trend in this period towards the exchange of information at an intercontinental (or as McNeill would say, an 'ecumenical') level. Among the unintended consequences of the encounters between different civilizations (discussed in Chapter 9) was the diffusion of information about the 'other'.

I am not suggesting that all cultures were equally interested in this kind of information. Some were more or less indifferent, like the Chinese, who took less interest in maritime exploration in the early modern period than they had done in the fifteenth century. They showed a polite interest in what Christian missionaries told them about the West but they were in no hurry to learn more. There were even attempts to resist the invasion of alien information, notably in Japan, where the inhabitants were forbidden to travel abroad and the country was virtually closed to foreigners after the Shimabara revolt of 1637 (for which the Portuguese were held responsible).

All the same, there was a good deal of enthusiasm for knowledge of other cultures. Herbelot's *Bibliothèque orientale*

(1697) was a western encyclopaedia entirely devoted to information about the east. Engravings spread the knowledge of western art (Chapter 12.3) to India, the Ottoman Empire, China, Japan, Mexico and Peru, and also made Europeans aware of oriental art (the fashion for *chinoiserie* in the eighteenth century is only the most obvious example). European governments tried on occasion to follow the example of the Chinese, from civil service examinations (in Prussia), to imperial ploughing rituals (in the Austria of Joseph II). The seventeenth-century Ottoman writer Kâtib Çelebi wrote about the Christians so that his compatriots would better understand this danger to the Empire, and eighteenth-century Ottoman rulers took an increasing interest in western technology, from printing presses to firearms. Mehmed Said Efendi was sent to France in 1721 with instructions to visit fortresses and factories and to report on what he saw. Even the rulers of Japan, who had tried to cut their country off from the outside world, took an increasing interest in *Rangaku* ('Dutch knowledge', in other words, western science) in the eighteenth century. We may conclude that the early modern period offers a spectacular example of the creative role of the periphery, of the invasion of many cultures by new information and sometimes by new forms of communication from outside.

It may be useful to end this chapter with a few general considerations on the changing place of information in everyday life in the early modern world, together with some attempts to explain the major differences between Europe, Western Asia, East Asia and America.

One might begin with the spread of clocks and watches, which made increasing numbers of people conscious of the exact time. This made it possible to establish a network of synchronized communications – the postal service organized by the Tassis family, stage-coaches, Dutch canal-boats and so on – all with their printed timetables. The rise of the weekly and the daily newspaper is another illustration of the penetration of everyday life by new media of information. So is the advertisement, whether it took the form of a poster (notably the famous posters of actors and courtesans in eighteenth-century Japan) or a paragraph in a journal.

Another general theme which deserves to be explored in detail is that of the secularization of information, at least in the case of Europe. The communications theorist Harold Innis may have exaggerated when he spoke of the 'information monopoly' of the medieval church, but one might at least speak of an information 'hegemony' at a time when the major libraries were monastic, the majority of university students and teachers were clerics. In Russia, this hegemony lasted until the end of the seventeenth century, when 95 per cent of the few printed books were still works of theology or devotion. Although *madrasa* were attached to mosques and Buddhist monasteries were important centres of learning, there was nothing comparable to this clerical dominance of European organs of information either in the Islamic world or in East Asia.

When the hegemony of the Church declined in the early modern period, it was replaced to some extent by the hegemony of the state, in the France of Louis XIV, for example, or the Russia of Peter I with their academies and official presses and journals (in Russia until 1711, the only printing press of any importance was the Tsar's press near the Kremlin). All the same, a comparison of the situation at the beginning and end of our period suggests that another trend was still more important. This trend may be described as the rise of the market in information, which became more

and more of a commodity. The rise of advertising in seventeenth-century newspapers is one example of this general trend. By the end of the century it is even possible to find advertisements for branded commodities. Another example of the rise of the market is the ending of printing monopolies. In Britain, for example, the lapsing of the Licensing Act in 1695 ended the control of printing through the Stationer's Company. In Russia, printing was decontrolled in the eighteenth century.

The information broker or information entrepreneur is also a phenomenon of the early modern period. The best-known of such brokers is probably Théophraste Renaudot, founder of the *Paris Gazette* (1631) and also the *Bureau des adresses* (which arranged meetings between potential buyers and sellers, employers and employees, and so on). In London, there was a similar 'Office of Public Advice' established in 1657. Edward Lloyd, a London coffee-house owner of the late seventeenth century (and the ancestor of Lloyd's the underwriters), specialized in information about shipping. The regional correspondents of newspapers were another kind of information broker, including the men who followed the armies on campaign in order to be first with the news of a battle. In a broad sense of the terms one might also describe publishers, particularly the publishers of newspapers and encyclopaedias, as buyers and sellers of information. Obvious names to mention are Elzevier of Leiden, who commissioned a famous series of volumes on the leading states of the world; Leers of Rotterdam, who financed Pierre Bayle's *Dictionnaire*; Longman of London, who was the biggest shareholder in Chambers' *Cyclopaedia*; and Pancoucke of Paris, who bought the right to publish the *Encyclopédie* after its first edition. It is surely no accident that seventeenth-century Amsterdam became both a leading intellectual and commercial entrepôt, a centre of publishing and news as well as a centre of trade and finance. Its Stock Exchange (built 1609) offers a vivid example of the economic importance of information. The literary agent, another kind of entrepreneur of information, can be found in the Dutch Republic by the

early eighteenth century; Charles de la Motte in Amsterdam, for example, or Prosper Marchand in The Hague.

Thus a comparison between East Asia and the West reveals the contrast between the bureaucratic organization of knowledge in China, compared to the more entrepreneurial organization of knowledge in the West, above all in the eighteenth century. On one side the hegemony of state patronage (the Bureaux of Historiography, Astronomy and so on), and on the other the hegemony of market forces. Where the French *Encyclopédie* was a commercial enterprise, the great Chinese encyclopaedias were produced under imperial patronage to aid the mandarins in their work. The closest parallel to the Chinese system in Europe was to be found in Russia under Peter I, and even in Russia the book market became more important in the second half of the eighteenth century.

The different information and communication systems were at once expressions of dominant values in the different cultures, and a potent means of cultural reproduction – though not so potent as to prevent change, in the course of this period and still more rapidly in the nineteenth and twentieth centuries.

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