

Leonardo da Vinci's Treatise of Painting

The Story of the World's
Greatest Treatise on Painting
Its Origins, History, Content and Influence

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VERNON PRESS

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www.vernonpress.com

In the Americas:
Vernon Press
1000 N West Street,
Suite 1200, Wilmington,
Delaware 19801
United States

In the rest of the world
Vernon Press
C/Sancti Espiritu 17,
Malaga, 29006
Spain

Library of Congress Control Number: 2014942094

ISBN 978-1-62273-017-9

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Chapter 13

Orazio Melzi and the Dispersal of the Manuscripts

After Leonardo's death, the major difficulty inhibiting compilation of the material into separate treatises and their publication, was the disordered state of the manuscripts. A more disastrous problem occurred after Francesco Melzi's death, which was the dispersal of the manuscripts before copies were made.

Francesco Melzi died in 1568, and all Leonardo's manuscripts then passed into the hands of his son and heir Orazio Melzi³³² who had absolutely no idea of their value. Sometime later, Lelio Gavardi d'Asola, a tutor to the Melzi family at Vaprio d'Adda, noticed that these manuscripts were neglected and left in the attic. At some point between 1585 and 1587, he stole thirteen of them intending to sell them to Francesco I, the Grand Duke of Tuscany³³³ in Florence, but was frustrated in his plan because of the Grand Duke's death in October 1587. Lelio Gavardi then went to Pisa to meet a fellow student called Giovan Ambrogio Mazenta who pricked his conscience about taking the manuscripts, took them from him and returned them to Orazio Melzi. Orazio then confirmed his lack of interest by letting Mazenta keep them, claiming "there are many more drawings by the same hand lying in the attic of my country house". Word of this soon got round, and the valuable manuscripts began to disperse.

³³² Orazio is sometimes referred to as Francesco's nephew. He was his son, the other siblings being Gerolamo, Marcello, Pirro and Leonida.

³³³ 1541-1587.

One person to hear of them was Pompeo Leoni,³³⁴ a sculptor working for the King of Spain. He had arrived in Spain in 1556 and worked with his father in Madrid. He worked on a number of commissions including several bronzes in 1570 of Charles V,³³⁵ Philip II,³³⁶ and his new wife Anna of Austria.³³⁷ Pompeo returned to Italy in 1582, and heard about Leonardo's manuscripts probably early in 1588. Between then and 1590, he approached Orazio Melzi for whatever original manuscripts by Leonardo he still had. Part of his offer included the claim that he could arrange a seat for him in the Senate of Milan, which was under Spanish control at the time, in exchange for manuscripts which would be offered to the King of Spain. It is very unlikely that Pompeo could have arranged that even with his royal connections, but it was heady stuff for Orazio in exchange for material that he had clearly considered worthless. It must be assumed that few of the manuscripts were still in Orazio's possession at this stage because he approached Mazenta who still had the thirteen manuscripts stolen by Lelio Gavardi and asked for their return. Mazenta returned only seven plus some loose sheets, which Orazio Melzi handed over to Pompeo Leoni. The other six stayed with Mazenta who in 1600 gave what is now known as *Manuscript C* to Cardinal Federico Borromeo. This is a manuscript on light and shade. Mazenta also gave a manuscript to the Duke Carlo Emanuele of Savoy³³⁸ which has not survived and it may have burnt in one of the fires in the Royal Library of Turin in 1667 or 1679. He gave another manuscript to the painter Ambrogio Figino.³³⁹ It passed from Figino to Ercole Bianchi,³⁴⁰ and

³³⁴ Italian sculptor (1533-1608)

³³⁵ 1500-1558.

³³⁶ 1527-1598.

³³⁷ 1549-1580.

³³⁸ 1562-1630.

³³⁹ 1548/1551-1608.

³⁴⁰ 1576-1636. He was an agent for Cardinal Borromeo.

then Bianchi sold it to Consul Joseph Smith³⁴¹ in Venice. That manuscript is also lost.

Joseph Smith was a great collector, and one of the biggest buyers of the Sagredo collection. This had been Zaccaria Sagredo's collection, sold after the death of his nephew Gherardo in 1738. Joseph Smith's collection was bought by King George III in 1762 for 20,000 pounds, and it forms an important part of the Royal Collection of Drawings at Windsor, and the King's Library at the British Museum.

The remaining three manuscripts eventually ended up in Pompeo Leoni's hands,³⁴² and he may in the meantime have acquired more from Giovan Ambrogio Mazenta or his brother Guido.

He divided his loose notes into two halves, one roughly on technology, the other on anatomy and artistic studies. The former became the *Codex Atlanticus*, so called because of its size and it is now in the Ambrosian Library in Milan; the latter were the manuscripts that finally ended up in the Royal Collection at Windsor of which about one third are the *Anatomical Manuscripts*. There are doubts as to which parts of his collection he split up and re-mounted. It was thought that he had destroyed some of Leonardo's actual notebooks to compile the *Codex Atlanticus*, but now it seems that he mounted only loose sheets in his possession effectively preserving them.

It is astonishing that Pompeo Leoni managed to collect so many of Leonardo's manuscripts. Of those that have survived, he appears to have owned the following:

Manuscripts A,B,D,E,F,G,H,I, L, and M.

³⁴¹ 1682-1770. A patron of artists supporting Canaletto and Francesco Zucarelli, he was also a renowned collector and banker. In addition he sponsored the Pasquali Press which issued collectible books in very limited editions.

³⁴² Pompeo Leoni returned to Italy from Spain in 1582, and must have acquired the manuscripts sometime between then and 1590 when Lomazzo mentioned the exchange in his *Idea del Tempio della Pittura* p.17.

Manuscript on the Flight of Birds.

Codices Ashburnham.

Codex Trivulzianus.

Codex Atlanticus.

Windsor Manuscripts.

Codex Arundel.

Codex Madrid I and II,

and possibly the *Forster Codices.*

Further detail about the dispersal of Leonardo's manuscripts at this stage is unclear but it seems that an enormous amount of material was split up and lost.

Another problem has been estimating the dates of the manuscripts and loose sheets that have survived. A few of the manuscripts have dates at the beginning, and even at the end of completion. But the way Leonardo worked has helped date the others. In his early years, he used pen and ink, but also metalpoint. This was usually silverpoint, used on paper that had been coated with finely ground bone. A coarser version was leadpoint, used on untreated paper. Around about 1492, Leo started using black and red chalk more and more in tonal studies, and then increasingly black chalk, where it had a greater tonal range than red chalk. From about 1495, he sometimes used red chalk on reddish paper, and charcoal. From 1500 onwards, he used combinations of colours, so we see black, red and white chalk drawings on a red ground, or on a blue ground. From 1510, some of his scientific drawings were in red chalk outlined and worked with pen and ink. In his last few years, he simplified his colour ranges, seldom using red chalk, and concentrated on black chalk with pen and ink on a buff tinted ground. Paolo Lomazzo claimed that Leonardo often used pastels,³⁴³ or col-

³⁴³ In Lomazzo, 1584, *Trattato dell'arte della pittura, scoltura et architettura*, Milan.

oured chalks, and there is a recipe for making them in Leonardo's notes.³⁴⁴ The paper he used also changed over the years. Before 1481 he worked with a variety of papers, pink, red, orange and buff. When he was in Milan, after 1481, he used a deep blue. In about 1487 he used a blue-green surface. From 1513 he used a blue surface (*carta azzura*), and a rough light brown paper.

These changes in media, colour, and backgrounds, and the analysis of watermarks in the paper have been essential guides in dating his various notes. Another indicator has been the size of paper he used at different times. The paper he used was folded to form different sized notebooks. The smallest he used is *Manuscript M*, which is a small pocket book of 70 x 98mm. and the largest is *Manuscript C* at 315 x 220mm, and the different sizes Leonardo used at different times has also helped date loose sheets. Another useful indicator has been the watermark on different sheets, relating sheets to each other where a particular sheet may have been dated, or where the production dates for that particular paper are known.

In his middle years, Leonardo used his drawings to record what he saw, as a better record than words, such as his anatomical drawings. But in his later years he produced more and more drawings inspired by his imagination, such as those of the deluges that he drew at the end of his life.³⁴⁵

It will never be known how many manuscripts have been lost, but there are some clues. Pompeo Leoni marked his collection with numbers, in addition to perhaps 2000 loose sheets, and the highest number on an extant manuscript from his collection is 46. There may well have been higher numbers, now lost, but there can be no certainty about this. Only nineteen of those manuscripts have survived.

³⁴⁴ *Codex Atlanticus*, 669 (was 247r), and *Codex Forster* II.2, 159r.

³⁴⁵ Probably drawn between 1515 and 1517. See Windsor 12388, 12376, 12379, 12382, 12383, 12378.

Another list of interest is in the *Codex Madrid II*. On folios 2v and 3r appear the titles of 116 books that Leonardo left in Florence when he went to Piombino in 1504, and two of them appear to be original manuscripts of his own. But on the next folio, 3v, is a list of books itemized by size, and not by title. They add up to fifty volumes, and could well refer to his original manuscripts. From inventories made in 1609 and 1613, it is known that Pompeo Leoni had 13 manuscripts in his collection in Madrid. The larger part of his collection had remained in Milan.

Another estimate of what has been lost relates to the *Treatise of Painting*. Today three-quarters of the notes in the *Treatise* cannot be traced in extant manuscripts, so the original sources have to be assumed lost. That suggests that only a quarter of his manuscripts have survived. The difficulty with this figure is that it relates only to the *Treatise of Painting*, and it has been tempting to apply the survival figure of only one quarter to all his manuscripts in general, which is bound to be unreliable.

There is another way of looking at the notes that have survived, to see whether there are any clues to the number which have been lost. A recent study has looked at the years in which Leonardo seems to have written his surviving manuscripts, and the folios in extant manuscripts. A profile of his productivity has emerged which has resulted in a figure of how many folios he actually wrote. That compared with the number of folios which have survived suggests that about 22% of his work has been lost.

The dispersal of the original manuscripts after Francesco Melzi's death did not of course leave the *Treatise of Painting* untouched. It too disappeared, and there is not even a hint of what happened to it. Nothing is known of its whereabouts for the next seventy years.

Chapter 14

The Manuscripts that have Survived

In 1603, the famous Cardinal Federico Borromeo³⁴⁶ founded the Ambrosian Library in Milan, and it became the first public library in Italy, and second in Europe only to the Bodleian at Oxford. It was intended to be an Art and Science Academy, a Library and a Museum, and was described sometime later as follows: 'Cardinal Federigo Borromeo founded the Ambrosian College, and appointed sixteen doctors to teach all the fine arts and sciences gratuitously: to this noble establishment he joined the Ambrosian Library, and opened it to the public under the title of 'Bibliotheca Ambrosiana'. It is said to contain more than 40,000 volumes and 15,000 Manuscripts.'³⁴⁷

It also became the home of an astonishing collection of Vinciana. In 1609 Cardinal Borromeo deposited Leonardo's *Manuscript C* there, the so called *Treatise of Light and Shade*, which he had received from Ambrogio Mazenta. The Ambrosian then acquired an abridged copy of the *Treatise of Painting* from the library of G.V.Pinelli,³⁴⁸ known as the *Codex Pinellianus*.

³⁴⁶ 1564-1631. Federico Borromeo was only twenty-three when he was made a Cardinal in 1587 by Pope Sixtus V. Eight years later, in 1595, he was made Archbishop of Milan by Pope Clement VIII.

³⁴⁷ The building of the Ambrosian started in 1603. However it only opened its doors to the public for the first time on 10th December 1609. It was officially opened by the Cardinal Archbishop of Milan, Federico Borromeo. See M.Burton, 1937, *Famous Libraries of the World: their History, Collections and Administration*, London: Grafton, p.254. See also *Notes and Queries*, vol. 4, 4th S. (101), 4 Dec 1869, p.472.

³⁴⁸ 1552-1601.

What happened next greatly enriched the Ambrosian. Pompeo Leoni died in 1610, leaving his collection to Polidoro Calchi,³⁴⁹ the husband of his daughter Vittoria. Calchi offered the collection to the Grand Duke of Tuscany, Cosimo II³⁵⁰ in 1614. What he offered was the *Codex Atlanticus* and fifteen manuscripts, but Cosimo declined the offer. Sometime later Polidoro Calchi died and his son, Francesco Maria, inherited the manuscripts. In 1622 Francesco Maria Calchi sold this collection to Count Galeazzo Arconati for 300 crowns. Count Arconati held it for about five years and then generously gave the collection to the Ambrosian Library in 1637, and it is now known as the Arconati Donation.³⁵¹ This consisted of eleven manuscripts written by Leonardo, and one by Luca Pacioli. Count Galeazzo Arconati's donation was to include the *Codex Atlanticus*, *Codex Trivulzianus*³⁵² and the *Manuscripts A, B, E, F, G, H, I, L* and *M*. The arrangement was that these would remain with Arconati until his death. When the donation was eventually given effect, it was found that the *Codex Trivulzianus* had been replaced with *Manuscript D*. That left a discrepancy between the earlier offer to Cosimo and the Arconati donation – a difference of three manuscripts which Arconati evidently retained. Why this occurred cannot be explained, and what happened to them is unknown. In 1674 the Ambrosian enlarged its collection further with *Manuscript K*, which it acquired from Count Orazio Archinti, and its provenance is un-

³⁴⁹ 1539-c.1616.

³⁵⁰ 1590-1621.

³⁵¹ See *Notes and Queries*, vol. 4, 4th S. (101), 4 Dec 1869, p.472, "...mentions that the most valuable treasure in the library was a manuscript collection, in 12 vols. Folio, of various works of Leonardo da Vinci, consisting of drawings, designs, etc. These had been presented to the library by a citizen of the name of Galeas Arconati, who generously refused vast sums for this precious deposit. To secure its possession to his country, he consigned it to the Ambrosian Library, as to an inviolable sanctuary. The reverend gentleman states that this collection was torn from the Milanese by the French, and 'sent off, tost and jumbled in the common mass of plunder, to Paris'."

³⁵² The *Codex Trivulzianus* which was owned by the Trivulzio family in Milan, had been sold to Don Carlo Trivulzio in about 1750 by Don Gaetano Caccia of Novara.

known. The *Codex Trivulzianus* never ended up in the Ambrosian, and its provenance is dealt with elsewhere. It is astonishing that so many of the extant manuscripts that Melzi consulted in compiling the *Treatise of Painting* ended up in the Ambrosian through the Arconati donation, and also astonishing that Pompeo Leoni had managed to collect so many of them.

Manuscripts that went to France

The Ambrosian collection was later to suffer a sudden devastating reversal. In 1796 Napoleon entered Milan, and on the amazing pretext that 'All men of genius, all who have attained a distinguished rank in the republic of letters are French, whatever the country that gave them birth...',³⁵³ he transferred the Ambrosian collection of Vinciana to France. The *Codex Atlanticus* went to the Bibliothèque Nationale in Paris, and the rest of Leonardo's manuscripts went to the Institut de France. Some recompense was made in 1815 when the *Codex Atlanticus* was returned to the Ambrosian,³⁵⁴ but the other twelve manuscripts remained in the Institut de France in Paris.

That provided the opportunity for an enterprising thief, Count Libri, to despoil several of the Vincian manuscripts in France in about 1840. The manuscripts affected were as follows.

Leonardo's *Manuscript A* was one of those that suffered at the hands of the eponymously named Count Libri. In about 1840, he tore out and stole folio 54, and then folios 65 to 114. He sold folios 81 to 114 to Lord Ashburnham,³⁵⁵ who later returned them

³⁵³ Expressed in one of his letters dated 1796.

³⁵⁴ A typical reference to the *Codex Atlanticus* being in the Ambrosian appeared in *Blackwood's Edinburgh Magazine* in 1861: 'Folio volumes contain the drawings of Leonardo in Milan; and no forms of human face, whether in beauty or caricature, seem to have escaped the keenness of his observation ...' *The Art-Student in Rome*, vol.90 (551), Sept 1861, p.386.

³⁵⁵ 1797-1878.

to France in 1891 and they are now known as the *Codex Ashburnham 2038*, in the Bibliothèque Nationale, Paris.³⁵⁶ Folios 65 to 80 and folio 54 remain lost.

Then Count Libri despoiled *Manuscript B*. In 1840, he stole folios 91 to 100, which were later recovered and became *Manuscript Ashburnham 2037*. He also stole folio 3, and folios 84 to 87 which remain lost. *Manuscript Ashburnham 2037*³⁵⁷ is now part of *Manuscript B* at the Institut de France.

Manuscript E was also a victim. It had 96 sheets and the last 16 are now lost, having been stolen by Count Libri, also in about 1840, and never recovered.

Count Libri then stole the *Codex on the Flight of Birds* which had been bound into Leonardo's *Manuscript B*.

The story of how he did this is fascinating. He gained access to thousands of valuable manuscripts, and a brief look at his background will show how he achieved this. Count Libri, or more properly Count Guglielmo Libri Carucci dalla Sommaja,³⁵⁸ was born into one of the oldest Florentine families on the first of January, 1803. He entered the University of Pisa in 1816, and proved himself to be such a gifted mathematician, that he was appointed to the Chair of Mathematical Physics at Pisa in 1823 at the age of only 20. As Professor of Mathematics; he visited Paris in the following year, and made friends with other leading mathematicians of the day. This was to stand him in good stead. He returned to Italy, but was suspected of becoming involved in a political conspiracy against the Grand Duke of Tuscany, Leopold II,³⁵⁹ and by the time he turned 27, he decided to flee Italy and return to France.

³⁵⁶ 34 sheets 9.5 x 7.5 in. - 240 x 190 mm These were the folios 81-114 that Count Libri stole from *Manuscript A. Codex Ashburnham 2038* contains mainly artistic studies.

³⁵⁷ 10 Sheets plus six additional sheets 9.5 x 7.5 in. - 24 x 19 cm and a miscellaneous group of other subjects.

³⁵⁸ 1803-1869.

³⁵⁹ 1824-1859.

He was welcomed by his scientific and mathematical friends in Paris, and within three years, in 1833, was elected to join the prestigious Institut National des Sciences et des Arts. Count Libri's great fortune in joining the prestigious Institut resulted from the sad downfall of Adrien-Marie Legendre.³⁶⁰

Legendre had joined the Académie as an adjoint member in 1783, taking the place of the famous mathematician and astronomer Pierre Simon Laplace.³⁶¹ Over the years, Legendre published many important scientific and mathematical works, and by 1824, he had been a member of the Institut for over forty years. At a meeting to vote for the next new member to the Institut National des Sciences, he rashly voted against the government's candidate. Perhaps at the age of 72, after a distinguished career, he had become overconfident of his position and felt invulnerable. Nevertheless his punishment and downfall swiftly followed. His pension was terminated, and he had insufficient capital to provide him with an income. His pension was partially reinstated in 1828 with a change in government, but it was too little too late, and he died in January 1833 in poverty. These sad events, however, opened the door for the ambitious and unscrupulous Count Libri, who took his place.

The secretary of the Institut National, Dominique Francois Jean Arago,³⁶² immediately helped Count Libri gain a further position at the Collège de France, which secured him an income. Not only had he landed firmly on his feet, but the following year gained another position, as assistant Professor at the Sorbonne lecturing on the Calculus of Probabilities. An irony of this is that Count Libri then fell out with Jean Arago who had done so much to help him, and they no longer remained on speaking terms.

After a few years, the enterprising Count Libri became known as a collector of rare books and manuscripts, from which he

³⁶⁰ 1752-1833.

³⁶¹ 1749-1827.

³⁶² 1786-1853. He was to be Prime Minister of France for a very brief period – about six weeks in 1848.

quoted in his own publications. By 1847, he had amassed an astonishing collection of about 40 000 books, and over 1800 manuscripts, many of which were rare, and thought to be lost. Then the truth gradually dawned. A few years earlier, in 1841, Count Libri had been appointed Inspector of the Libraries of France, a case of the 'fox guarding the chickens'. It was noted that valuable manuscripts and books had started disappearing, and over a few years these losses became connected with his visits to various libraries. His own library was expanding at a commensurate rate. An investigation into the losses began, and in due course, Count Libri heard that a warrant for his arrest was to be issued. It was 1848, and revolution was in the air – not a good time to be arrested in France. He fled again, this time to England, but not before audaciously arranging for 30 000 of the stolen books and manuscripts to be packed, and dispatched to London!

He was welcomed in London as a refugee from the French revolution, and convinced several influential new friends that he was the victim of political animosity simply because he was Italian. Among these new friends were Sir Antonio Panizzi,³⁶³ the Director of the Library of the British Museum, and Augustus De Morgan,³⁶⁴ who held the Chair of Mathematics at University College, London.

Any thought of returning to France was doomed when, on the 22nd June 1850, a French court sentenced Count Libri to 10 years in prison for his theft of valuable books.

Undaunted, the penniless Count staged two large sales of his manuscripts and books in 1861, the first lasting 12 days, and the second 8 days. The catalogue contained 7628 lots, and was introduced as the *Catalogue of the Mathematical, Historical, Bibliographical and Miscellaneous Portion of the Celebrated Library of M. Guglielmo Libri*. The sales raised over a million francs for the talented thief who had so abused his official positions to enrich himself. In 1868 his health began to deteriorate, and he finally

³⁶³ 1797-1879.

³⁶⁴ 1806-1871.

returned to Italy. The books and archives in his collection that remained unsold were packed into twenty crates weighing two tons, and were sent to Florence. He died a year later in his villa in Fiesole, Tuscany. A large part of his remaining library was bought for 2000 lira in gold by the bibliophile and collector Count Giacomo Manzoni³⁶⁵ from Libri's second wife H el ene de La Motte.

After some delay, the French Government appealed for the return of the books and manuscripts that Count Libri had stolen, and many of them were bought back and returned to France over a period of many years.

To revert to the other manuscripts, there are the twelve manuscripts taken from the Ambrosian in Milan by Napoleon, *Manuscripts A, B, C, D, E, F, G, H, I, K, L, and M* at the Institut de France in Paris. They are bound in parchment, leather or cardboard, and comprise 964 folios. The smallest is *Manuscript M* and the largest *Manuscript C*. Their subjects range from the military arts, optics, and geometry, to the flight of birds and hydraulics, and they date from about 1492 to 1516.

Manuscripts in Spain

Two other Codices from Pompeo Leoni's collection are in the Biblioteca Nacional in Spain, and they are the *Codex Madrid I* and *II*. These two volumes originally went to Spain in about 1590 with Pompeo Leoni who offered them to King Philip II. Philip did not buy them and they were inherited by Polidoro Calchi, Pompeo Leoni's heir, with the rest of his collection. Part of the collection was then sold to Count Galeazzo Arconati, and other volumes passed through unknown hands, finally ending up in the Royal Collection in England. These two volumes remained in Spain.

³⁶⁵ 1816-1889.

An interesting reference concerns Vicente Carducho,³⁶⁶ Court Painter to Philip III of Spain, who wrote, 'I saw there, in Juan de Espina's home, two books drawn and written by the hand of the great Leonardo da Vinci, of great learning and curiosity, which he would at no price sell to the Prince of Wales, who was at the court'.³⁶⁷ That particular Prince of Wales would in due course become King Charles I of England. These were probably the *Madrid Codices*. Juan de Espina,³⁶⁸ the famous collector, left them to King Philip IV of Spain on his death in 1642.

These two volumes were known to have been in the library of King Philip V of Spain until about 1830. Then they were transferred to the Biblioteca Nacional in Madrid when the Royal Library was merged with the National Library, and were known to have actually entered the National Library. On their reception, a cataloguing mistake occurred, before being placed in their correct position on the shelves. Thereafter, the incorrect catalogue reference was used, and as a result the volumes could not be found, and were considered lost. Scholars realized the two *Madrid codices* should be somewhere in the Biblioteca Nacional of Madrid, as they were registered there in an inventory prepared by the chief librarian, Antonio Gonzalez, in 1830. The catalogue entry again appeared in 1863 in the appendix to the book *Ensayo De Una Biblioteca Española De Libros Raros Y Curiosos* by Bartolome' José Gallardo³⁶⁹ who quoted it as '*Leonardo da Vinci, tratados de fortificacion, meccanica y geometria escritas al reve's y en los anos 1491 y 1493, 2 vols. Aa.19.20*'.³⁷⁰

³⁶⁶ 1578-1638.

³⁶⁷ Quoted from his treatise on art. See Carducho, 1634, *Dialogos de la Pintura*, Madrid, p.193. The Prince of Wales would in due course become King Charles I.

³⁶⁸ 1568 -1642.

³⁶⁹ 1776-1852. The Librarian for the Congress of Deputies in Spain, a writer, and deputy for the province of Badajoz.

³⁷⁰ L.Reti, The two unpublished Manuscripts of Leonardo da Vinci in the Biblioteca Nacional of Madrid, *Burlington Magazine*, Jan.1968, Vol.110, p.10-22; Feb.1968, Vol.110, p.81-89.

In 1898 Professor E. de Marinis of Florence checked those references, and found two different volumes in their catalogued places, being the *De Remediis Utriusque Fortunae* of Petrarch, and glosses from the *Digest of Justinian*. It was assumed that these had been exchanged for the Leonardo volumes that were now somehow stolen or lost. Subsequent searches revealed nothing, although one wonders how thorough the searches could have been. Whoever placed them on the shelves in about 1830 must have followed some sort of shelving system.

There are two versions of what happened next. The first is that André Corbeau, a French scholar, raised the possibility of a cataloguing error in 1964, and the Director of manuscripts started another search. The two manuscripts were found, but their discovery was kept very low key, and only became generally known about in 1967.

Another version claims that in 1965, Dr Jules Piccus,³⁷¹ an expert in early Spanish literature, was looking for mediaeval ballads or *cancioneros*, and accidentally 're-discovered' the two *Madrid Codices* on the shelf where they had been for 135 years.

Perhaps both versions took place, and Jules Piccus discovered the volumes when the Director of manuscripts was still dithering about announcing that they had been 'found' - when they had never really been lost, just miscatalogued and mislaid.

Manuscripts that went to England

Then there are the *Codices* in Pompeo Leoni's collection that ended up in England. These are, of course, the Drawings at Windsor in the Royal collection, which number 614 composed of 234 unbound folios of different sizes. These are the *Anatomical manuscripts A, B³⁷² and C (Dell'Anatomia Fogli A, and B, and the*

³⁷¹ 1920-1997.

³⁷² *Anatomical Manuscript B* consists of 44 folios.

Quaderni d'Anatomia I-VI), and separate sheets that passed from Lord Arundel into the Royal Library.

Anatomical Manuscript A has a note, 'in the spring of the year, 1510, I hope to have completed all this branch of Anatomy.'³⁷³

Anatomical Manuscript B contains the date April 5, 1489,³⁷⁴ but contains drawings of various dates – most 1502-1506, and his earliest anatomical drawings dated to 1487.³⁷⁵

Anatomical Manuscript C is of various dates, and contains the date January 9, 1513.³⁷⁶

These manuscripts, as their names suggest, are mainly notes and illustrations of the human figure, of anatomical studies, geography, studies of horses, sketches and caricatures, and a series of maps. Most of the folios have been dated to between 1478 and 1518. Their provenance is not clear, but it is thought that they were the part of Pompeo Leoni's collection that ended up in Spain in about 1591. It is known that some folios had come from Pompeo Leoni's collection, because one of them has a note on it which reads 'Disegni di Leonardo da Vinci Restaurati da Pompeo Leoni'. After his death, they passed into the hands of Don Juan de Espina. An agent may have bought them later for the collector Thomas Howard, Earl of Arundel,³⁷⁷ and brought them to England between 1625 and 1630. They are known to have been part of Lord Arundel's collection, as three were copied and engraved by Wenceslaus Hollar³⁷⁸ when they were still in the Arundel collection, and they bear the inscription 'Ex collectione

³⁷³ See Windsor collection 19000 to 19017 dated 1510.

³⁷⁴ on folio 42r.

³⁷⁵ See Windsor collection 19018 to 19059.

³⁷⁶ See Windsor collection 19060 to 19152.

³⁷⁷ 1585-1646.

³⁷⁸ Wenceslaus Hollar, born in Prague in 1607 - died in London in 1677. He was a famous Bohemian engraver, protected by the Earl of Arundel and Charles I and lived in England from 1637. He fled to Antwerp during the Commonwealth and returned to England after the Restoration. He was the originator of over 2400 engravings.

Arundeliana'.³⁷⁹ Hollar worked for Lord Arundel from 1636 to 1641. The drawings were in Lord Arundel's collection when he died in 1646. They subsequently entered the Royal Collection, though not all at the same time. It seems that most were part of the Royal Collection at Windsor by 1690. There are several pieces of evidence for this.

Constantine Huygens, a secretary to William III,³⁸⁰ noted in his diary on the 1st September 1690 that he was shown a book of Leonardo's drawings by Queen Mary.³⁸¹ There is an earlier reference suggesting that King Charles I of England had obtained some manuscripts of Leonardo. How he acquired them is unknown, but it goes back to about 1639.³⁸² This earliest reference is intriguing in that it appears in three sources; in the *Manuscript Ganay*,³⁸³ in *Manuscript H 227 Inf.*, and in *Manuscript H229 Inf.*³⁸⁴ Another reference was an inventory of Leonardo's drawings in the Royal Collection which was compiled after 1737. This established that by 1760, when George III became King of England, almost all the present collection was in the possession of the English Crown.

A further reference is a note that Jean Paul Richter³⁸⁵ found in the British Museum which states that some drawings of Leonardo da Vinci were delivered for Her Majesty's use in the year 1728, without any other details. He also found a note at

³⁷⁹ See Intro. to K.D. Keele and C. Pedretti, 1979, the *Corpus of the Anatomical Studies in the Collection of HM the Queen at Windsor Castle*, New York: Harcourt Brace Jovanovich.

³⁸⁰ 1650-1702.

³⁸¹ 1662-1694. See O. Kurz, Shorter Notice in the *Burlington Magazine*, Sept. 1936, Vol.68, p.135.

³⁸² I. Richter, The earliest reference to the Leonardo drawings in the English Royal Collection, *Burlington Magazine*, July-Dec 1937, vol.71, p.139-140. See also G. Uzielli, 1884, *Ricerche intorno a Leonardo da Vinci*, II, Rome, p.351.

³⁸³ fol.115v.

³⁸⁴ fol.18.

³⁸⁵ 1847-1937. An art historian.

Windsor from the early 1800's claiming that one of the Leonardo drawings had been bought in Venice from the Bonfiglioli collection. This had been transferred to Venice from Bologna when Zaccaria Sagredo bought it for 3000 sequins.³⁸⁶

A further event occurred in 1778 when Mr Richard Dalton, librarian to King George III, found a book of drawings in the bottom of a chest in Kensington Palace. They numbered 779 drawings at that time, but when later mounted in the 19th century, they amounted to approximately 614 drawings. The discrepancy has never been explained, but there is the suggestion that someone in the excessively proper Protestant Court of George III found nearly 180 of the drawings too robust, or in bad taste, and simply destroyed them.

Another valuable manuscript that was in Pompeo Leoni's collection is the *Codex Arundel* 263, now in the British Library. It consists of 285 folios of various sizes, but mainly 150 X 220 mm. They originated from every decade for the last forty years of Leonardo's life, the earliest being from 1478.

The folios from the *Codex Arundel* have been unbound since 1991, and have been glued onto backing sheets.³⁸⁷ This manuscript was bought in Spain in 1636 by Thomas Howard, Lord Arundel, an avid collector, after the death of Pompeo Leoni in 1610. His grandson, Henry Howard,³⁸⁸ inherited it, and John Evelyn,³⁸⁹ the diarist, persuaded him to present it to the Royal Society in 1667, and the British Museum bought it from the Royal Society in 1834. It is now in the British Library.

Then there are the *Codices Forster*, which are bound up as three manuscripts on paper, bound in parchment, but they were originally five manuscripts. The *Codices Forster* were bought by

³⁸⁶ A sequin or zecchino was a gold coin minted in Venice weighing 3.5 grams.

³⁸⁷ 280 x 180mm.

³⁸⁸ 1628-1684.

³⁸⁹ 1620-1706.

Lord Lytton³⁹⁰ in Vienna sometime before 1863, and he gave them to John Forster³⁹¹ in the 1860s, who in turn bequeathed them to the Victoria and Albert Museum in London on his death in 1876. It is surmised that they may have been in Pompeo Leoni's collection in Spain, before they came into the hands of Lord Lytton.

Manuscripts in Italy

The *Codex Atlanticus* is in the Biblioteca Ambrosiana in Milan, and it was originally bound together by Pompeo Leoni. He bound the technical and scientific drawings together into one volume, despite their different sizes, and the resultant large size of the bound volume inspired the name *Codex Atlanticus*. It was so named in 1780 by Baldassarre Oltrocchi,³⁹² the prefect of the Ambrosian Library, because it was so large in format or 'Atlas' sized. The drawings cover topics as varied as mathematics, geometry, botany, zoology, the military arts, astronomy, and many other subjects. The earliest material dates from about 1478, and continues through for the rest of Leonardo's life.

The *Codex Atlanticus* returned to Italy from Spain in about 1604, after the death of Pompeo Leoni. Count Arconati bought it for 300 scudi, and gave it to the Ambrosiana in 1637. Napoleon looted it for France in 1796, and it was returned to the Ambrosiana in 1815.

In 1966 a curious event occurred. A major restoration of the *Codex Atlanticus* began, and ran from 1966 to 1969. Pope Paul VI, then the Archbishop of Milan, gave his permission, because the Ambrosian Library belonged to the Vatican. But there was a con-

³⁹⁰ 1831-1891.

³⁹¹ 1812-1876. An editor, writer, historian, critic and major collector of 18000 books, several of them annotated first editions, he wrote the *Life of Oliver Goldsmith*, the *life of Sir John Eliot*, the *Life of Landor*, the *Life of Charles Dickens*, and the *Life of Jonathan Swift*, as well as other works.

³⁹² 1715-1799.

dition attached, that the restoration was to be done by monks of the 'laboratorio di restauro' of the Abbey of Grottaferrata near Rome, and no sheets were to be available to anyone apart from those restorers during the restoration.

A necessary piece of background at this point is that Pompeo Leoni compiled the *Codex Atlanticus* at the end of the 1500s, and he combined about 1300 sheets and fragments together, which meant that several of the sheets were folded in half and glued together. In 1967, when the monks of the 'laboratorio di restauro' unglued sheet 133, a picture of a bicycle was found on the back of that sheet. And it was not any bicycle, but approximated to an early design of the modern or 'safety' bicycle, where the two wheels are the same size, and it is driven by pedals and a chain.

Surely this was a hoax? Could someone have gained access to the folio, and added the bicycle at some stage to confound the experts? Or did Leonardo unbelievably invent it in about 1500?

Professor Augusto Marinoni, a great Vincian scholar, insisted it is original. If it is original, then it was almost certainly done by a student, as it was common practice for students to draw on the back of the sheets. A student, maybe Giacomo Caprotti or Salai, could have been copying a drawing done by Leonardo, from a manuscript that is now lost. Marinoni dated the sketch to about 1493. Or was it done by a student many years later? That is unlikely, as he would have been copying an invention way ahead of its time, from a source now lost, that had somehow been kept secret.

Then the *Madrid Codices* were re-discovered in 1967, and *Codex Madrid I* contained details of a chain on folio 10r that was similar to the one that appeared in the bicycle sketch. So it was now established that Leonardo had the technological knowledge to have invented the bicycle, although his drawings showed chains used for lifting heavy loads, not for propulsion and forward motion.

The next obvious question was to ask whether the sketch was on the back of folio 133 when the manuscript was assembled by Pompeo Leoni at the end of the 1500s? A chemical test would tell how old the drawing material was that was used for the sketch,

but such a test was never undertaken, and the folios are now sealed between plastic sheets. Some comments claim that the sketch was made using a pencil, but other comments refer to dark brown crayon, charcoal, and ink, but a different ink to that used for other sketches on the page. Furthermore, the other sketches show set-off on the back of the previous page, but the bicycle does not show this, suggesting it was added much later.

If the sketch is a hoax, it could have fallen into the hands of a hoaxer any time in the 300 years that the sheet was circulating. Pompeo Leoni died in 1610, and Polidoro Calchi owned the *codex* till sometime between 1615 and 1632, when it went to Galeazzo Arconati. He gave it to the Ambrosian in 1637. Then Napoleon took it to France in 1796, and it was returned to the Ambrosian in 1815.

But the invention of the modern bicycle goes back to only 1885. The invention of the 19th century bicycle was by Baron Drais von Sonnerbron³⁹³ who first invented a two wheeled velocipede that was propelled by walking or running while sitting on the frame in 1817. Further development took place, and pedals were added to the front wheel in 1863-4 by a French metalworker, which then developed into the penny-farthing. The development that created the bicycle as we know it today, with wheels of the same size driven by a chain was by John Starley³⁹⁴ in 1885 in England. It is that advanced stage of development that is reflected in the Leonardo sketch.

So, if it is a forgery, it had to have been made between 1885, and 1966 during which time the *codex* was in the Ambrosian Library. It seems hard to believe that someone in the Ambrosian gained access to sheet 133 after 1885, somehow separated it, drew the bicycle in charcoal, refixed the sheet and left. One other possibility remains, which is that the forgery was done at the 'laboratorio di restauro' of the Abbey of Grottaferrata. Carlo

³⁹³ 1785-1851. He was a civil servant who had attended the University of Heidelberg.

³⁹⁴ 1854-1901.

Pedretti was sceptical about the monks' abilities as restorers, and regarded their methods as chaotic. Nevertheless both sides of the controversy have their strong supporters, and it may never be resolved.

If it was a hoax perpetrated at the Abbey of Grottaferrata, it would explain why chemical tests were not performed which might implicate one of their restorers, but that is just surmise.

Then there is the *Codex Trivulzianus (Libro F)*.³⁹⁵ This is a folder of 55 folios, but there were originally 62 folios, and six are now missing. This is Leonardo's earliest manuscript, along with *Manuscript B* and part of *Anatomy B*. It was written in the last years of the 1480's when Leonardo was about 35, and contains notes on military and religious architecture, and on his efforts to improve his education and language skills. Owned by Pompeo Leoni, then by Count Arconati, it was exchanged with *Manuscript D* when the Arconati donation to the Ambrosian took effect at the end of 1648. It disappeared for a while, but was then owned by Gaetano Caccia from Novara, who gave it to Carlo Trivulzio³⁹⁶ in 1750. Carlo Trivulzio recorded at the time that he had in fact exchanged the manuscript for a silver watch which had cost him sixteen guilders.³⁹⁷ The manuscript became part of the municipal collections of Milan in 1935 and is now in the Biblioteca Trivulziana in the Museums of Castello Sforzesco, Milan.

Another Codex, the *Codex On the Flight of Birds*³⁹⁸ is in the Biblioteca Reale in Turin. Leonardo began his studies on flight in 1486, the last being dated 1515. It was originally bound together with *Manuscript B*, and was stolen by Guglielmo Libri just before 1848. Count Giacomo Manzoni of Lugo bought it in December 1868 when it consisted of thirteen folios, as Count Libri had

³⁹⁵ 1487-1490. 205 X 140mm.

³⁹⁶ 1715-1789. The Codex is 195 X 135mm.

³⁹⁷ A guilder was a gold coin, from 'gulden' or 'golden'. It was later replaced with silver, and metal. One and a half guilder was a 'daalder', or 'thaler', which became 'dollar'.

³⁹⁸ 1505. 213 X 154mm. *Manuscript 'Sul Volo degli Uccelli'*.

previously sold five folios. In 1894, Prince Theodore Sabachnikoff bought it from the Manzoni collection at auction. The five missing folios were dispersed, and later bought in sales, one by Sabachnikoff, and the other four by the collector Enrico Fatio in Geneva. Sabachnikoff then published the first printed edition of the folios in his possession. In 1893, Sabachnikoff gave his manuscript to Queen Margherita of Savoy,³⁹⁹ after which it entered the Biblioteca Reale in Turin. Enrico Fatio also generously returned his folios to the Biblioteca Reale.

There have been comments that the lost *Manuscript on Light and shade, Libro W*, has been seen, but this is not certain. This was another *Manuscript on Light and Shade* probably written between 1508 and 1515, and Francesco Melzi may have copied it into the *Codex Urbinas*. It was named *Libro W* by Francesco Melzi. This could have been bound together with *Manuscript C* and later separated. *Manuscript C* was the one which was given to Cardinal Borromeo, and eventually entered the Ambrosian. These sightings were claimed in Milan in 1866 and 1958. The first sighting was reported by the *Gazzetta di Milano* that a Dr Ortari had discovered a Leonardo manuscript of 112 pages dealing with light and shade, but the information did not lead anywhere. The second was a rumour that it had been seen in a library of the Borromeo family in Milan. Perhaps it still awaits further discovery.

A Manuscript in America

In America, there is the *Codex Leicester*,⁴⁰⁰ once named the *Codex Hammer*.

It contains 36 folios, and was written between 1506 and 1509. This is supported by the watermark which was common in Italy between 1495 and 1508, showing a bellflower or 'campanula'. It

³⁹⁹ She was the wife of King Umberto I of Italy.

⁴⁰⁰ 295 X 218mm.

deals mainly with Hydraulics and the movement of water, some studies on astronomy, and researches into the natural history of the earth and geophysics. Thomas Coke, who was to become Lord Leicester, bought this *Codex* in Rome from Giuseppe Ghezzi⁴⁰¹ sometime between 1713 and 1717. Its provenance seems to be that it was owned by the sculptor Giovanni della Porta, and then his son Guglielmo della Porta.⁴⁰² It seems that della Porta's heirs gave the manuscript to the painter Giuseppe Ghezzi, and he subsequently sold it to Thomas Coke in about 1717. It remained in the library of Lord Leicester at Holkham Hall,⁴⁰³ Norfolk, until it was bought by Armand Hammer⁴⁰⁴ in 1980, and was catalogued in the Los Angeles County Museum under the title *Codex Hammer*. In November 1994 it came up for sale, and was bought by Bill Gates⁴⁰⁵ of the Microsoft Corporation. Instead of renaming it the *Codex Gates*, he decided that it should revert to its previous title of the *Codex Leicester*. The *codex* is put on public display only once a year, always in a different city.

⁴⁰¹ 1634-1721. Ghezzi was a painter of the Baroque period, working mainly in Rome, and was the first 'Secretary in Perpetuity' for the Accademia di San Luca in Rome.

⁴⁰² c.1500-1577. He was influenced by Michelangelo, but should not be confused with Giacomo della Porta who actually worked for Michelangelo, and who worked on the dome of St. Peter's with Domenico Fontana.

⁴⁰³ See *Notes and Queries*, vol.8, 3rd S. (187), 29 Jul. 1865, p.89, '...the following notices of the famed Holkham library: Early in the last century, an accomplished member of a famous family, Thomas Coke, Lord Lovel, and...Earl of Leicester, collected, during his lengthened travels on the Continent, and more particularly in Italy, a choice collection of MSS... there, the elaborate treatise of Leonardo da Vinci on the movement of water, illustrated with drawings by his own hand.'

⁴⁰⁴ 1898-1990. An American oil tycoon and philanthropist.

⁴⁰⁵ 1955-

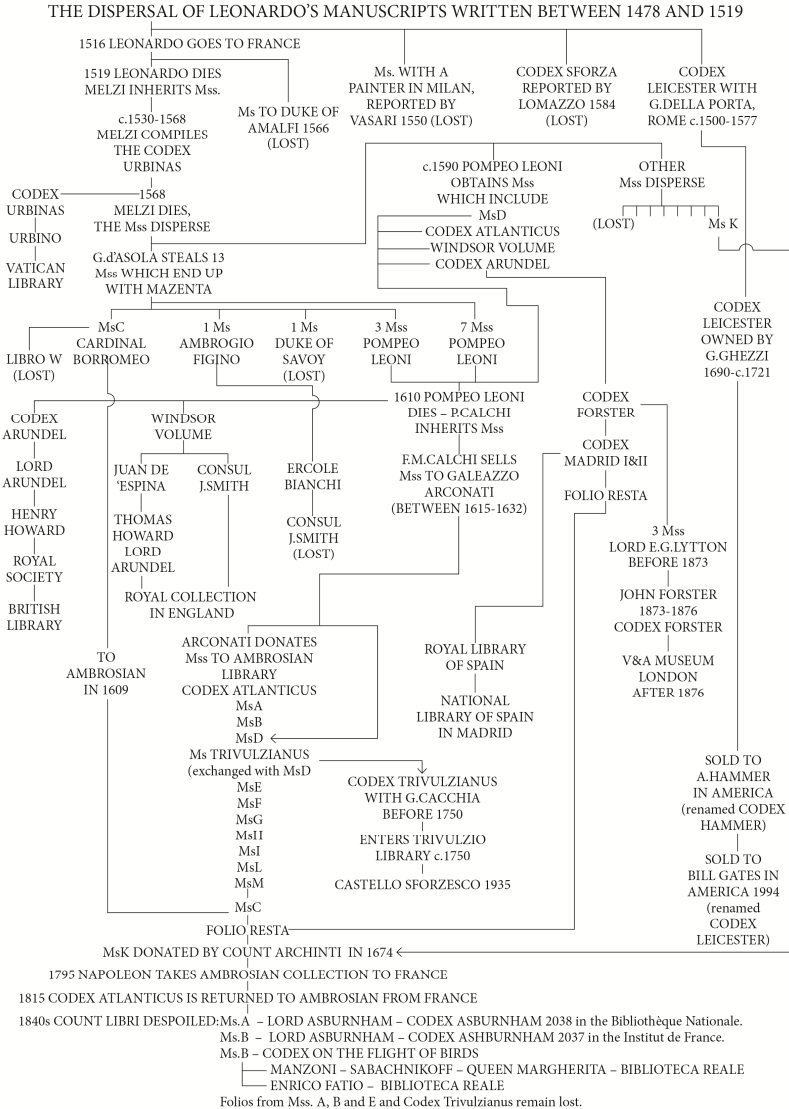
Other Collections

Another important collection of Leonardo's drawings in America is part of the Spencer collection in the New York Public library. Then there are other collections of separate sheets in various collections, such as the Gallerie dell'Accademia in Venice, the Biblioteca Reale in Turin, the Louvre in Paris, and the collection in the Uffizi in Florence. There are a few scattered sheets in collections elsewhere, such as the Musée Bonnat, the Budapest Museum of Fine Arts, the Kunshalle in Hamburg, the Clarke and Colville collections in London, the Metropolitan Museum in New York, the Boymans Museum in Rotterdam and the Albertina collection in Vienna, and a few others.

There is the possibility, however remote, that other manuscripts will be found. Recently, a lost fragment was found in the archives of a public library in Nantes, in France. It is part of a collection that was donated to Nantes in 1872 by the collector Pierre-Antoine Labouchère, and has remained unidentified in the archives for 140 years. It is too early to assess its significance.

And of course, there is the Melzi compilation, the *Codex Urbinas Latinus 1270*, in the Vatican Library in Rome.

Stemma of the Dispersal of the Manuscripts



Chapter 15

Other Treatises on Painting

It is on the importance of Leonardo's notebooks that a great part of his reputation rests. Yet none of his work was published in his own lifetime, and it was not until 1651 that any of it appeared in print. Before that, his ideas circulated in manuscript form and in copies amongst his students and other artists, and strongly influenced them. His influence began to spread through their treatises, notably those of Pacioli, Serlio⁴⁰⁶ and Lomazzo.

Leonardo seems to have been familiar with the four most important art treatises of his day, all of which influenced him. The first one was the *Il libro dell'Arte* by Cennino Cennini, which appeared in 1400. Leone Battista Alberti's *Della pittura* appeared in 1436. Then came Averlino Filarete's *De Architettura* written between 1451 and 1464 which borrowed freely from Cennini's treatise. There are differing views on whether this treatise influenced Leonardo, but there is evidence to suggest it was likely and there was a manuscript copy in the Sforza library. This was followed by Piero della Francesca's *De Prospectiva Pinghiendi* in 1485.

A surprising aspect of the Renaissance is the number of artists who compiled workbooks and wrote treatises. They read each other's manuscripts, and borrowed each other's ideas which later appeared in their own work. Leonardo developed the ideas of his predecessors, and his students and successors borrowed from him, especially as his manuscripts in circulation were regarded as important and outstanding even at that time. A selection of

⁴⁰⁶ Sebastiano Serlio completed seven books on Architecture and Perspective.

the more important treatises which appeared before and during Leonardo's time, and shortly thereafter are as follows:

- 1400 *Il libro dell'Arte* by Cennino Cennini.⁴⁰⁷
- 1436 Leone Battista Alberti's *Della pittura*.
- c.1447 Lorenzo Ghiberti's *Commentarii*, books I to III.
- 1452 The year in which Leonardo was born.
- 1452 Alberti's *De re aedificatoria* which he wrote between 1443 and 1452.⁴⁰⁸ Pedretti⁴⁰⁹ suggests that Leonardo knew of Alberti's *De re aedificatoria* through the treatises of Antonio Filarete and Francesco di Giorgio, and he acquired his own copy.
- 1464 Alberti's *De Statua*.
- 1451-64 Antonio Averlino, called Filarete, is thought to have written a *Treatise on Architecture (De Architettura)*, for Francesco Sforza. The treatise was an imaginary dialogue with Francesco Sforza and Averlino Filarete, the architect, who had been commissioned to design a city called 'Sforzinda'.
- 1485 Piero della Francesca's treatise on Perspective, *De Prospectiva Pinghiendi*, and then his treatise on Geometry called *The Five Regular Bodies (De quinque corporibus regularibus)*, which was written after 1482 and published at the end of the 15th century. This latter treatise strongly influenced Luca Pacioli, and many of its ideas appear in the *De divina proportione*.

⁴⁰⁷ Mrs. Merrifield's translation is reviewed in *Blackwood's Edinburgh Magazine*, and his techniques are compared with Leonardo's, see vol.57 (356), June 1845, pp.727, 728.

⁴⁰⁸ The *De re Aedificatoria* was influenced by and based on the *De Architectura* of Vitruvius. See also R.Wittkower, 1973, *Architectural Principles in the Age of Humanism*, London: Academy Editions, p.3.

⁴⁰⁹ In his *Leonardo da Vinci, The Royal Palace at Romarantin*, Harvard University Press, 1972.

- 1486 Vitruvius' *De Architectura*, first edition in Rome, followed by an Italian edition in 1521, a French edition in 1547, English and German in 1543, followed by others.
- 1482-90 Francesco di Giorgio wrote his *Treatise of Architecture, Engineering and the Military Arts, (Trattato di architettura civile e militare di Giorgio Martini)*. Leonardo met Francesco di Giorgio in 1490 and they rode together from Milan to Pavia to advise on the building of the new Cathedral. Leonardo had his own copy of di Giorgio's unfinished treatise and annotated it, and it is now in the Laurentian Library known as the *Codex Ashburnham 361*.⁴¹⁰ It contains plans of churches and drawings of machinery and weapons, and may have been the inspiration for Leonardo's own volume, *Manuscript B*.
- c.1500 Bramante completed his *Pratica*, which has not survived but was referred to by Antonio Doni in his *Disegno, la seconda Libreria*⁴¹¹ and was also referred to by Vasari in his *Lives*.⁴¹²
- 1503-04 Pomponius Gauricus wrote his treatise *De Sculptura* which was published in Florence in 1504, in which he mentions that Leonardo was taught by Verrocchio.
- 1505 Jean Pelerin's *De artificiali perspectiva*.
- 1509 Luca Pacioli⁴¹³ completed his treatise, *De Divina Proportione*, which was illustrated by Leonardo. In the foreword to this treatise dated 9th Feb 1498, Luca Pacioli mentions a debate or 'duel of words' which occurred in the Castello Sforzesco. This could well

⁴¹⁰ R.Wittkower, 1973, *Architectural Principles in the Age of Humanism*, London: Academy Editions, p.17.

⁴¹¹ Venice 1554, p.44.

⁴¹² Milanesi edition, IV p.164. See R.Wittkower, 1973, *Architectural Principles in the Age of Humanism*, London: Academy Editions, p.13.

⁴¹³ Luca Pacioli was at one time a pupil of Piero della Francesca.

- have been the basis for the *Paragone* in Leonardo's *Trattato della pittura*.⁴¹⁴
- 1519 The year in which Leonardo died.
- 1525 Albrecht Dürer completed his *Underwysung der Messung*,⁴¹⁵ his *Vier Bucher von Menschlicher Proportion* was published after his death in 1528. Dürer wrote a letter on the proposed dedication in this book in which he said, '...I give praise to the Italians for their pictures of nudes, and most of all for their perspective...'.⁴¹⁶
- 1537 Sebastiano Serlio started publishing his volumes on Architecture and Perspective and incorporated many of Leonardo's theories of perspective in them, which he had read in manuscript copies, one of which was owned by Benvenuto Cellini. Serlio's second volume, *On Perspective*, appeared in 1551.
- 1546 Benedetto Varchi's *Disputa della maggioranza della arti*.
- 1548 The *Dialogo della Pittura* of Paolo Pino.⁴¹⁷
- 1549 Antonio Francesco Doni's *Disegno partito in più ragionamenti ne' quali si tratta della pittura*.
- 1549 Michelangelo Biondo's *Della nobilissima pittura*.
- 1550 Only in this year did Vasari complete his *Lives*, which did so much to re-establish and perpetuate Leonardo's reputation.

⁴¹⁴ K.T.Steinitz, 1958, *Leonardo da Vinci's Trattato della Pittura*, Copenhagen: Copenhagen University Library, p.43.

⁴¹⁵ Dürer explained the new theory of perspective that he had learnt in Italy in Book IV of his *treatise on Geometry*, publ. 1525.

⁴¹⁶ See also R.Friedenthal, 1963, *Letters of the Great Artists*, London: Thames and Hudson, p.68.

⁴¹⁷ The first treatise on painting to be written in Venice. See M.Barasch, 1985, *Theories of Art from Plato to Winckelmann*, New York: N.Y.University Press, p.241.

- 1557 The *Dialogo della Pittura intitolato L'Areino* of Lodovico Dolce.⁴¹⁸
- 1567 Vincenzio Danti's treatise on proportions, the *Trattato delle perfette proporzioni*.
- 1568 Benvenuto Cellini, (who owned one of Leonardo's manuscript copies), published his *Trattati del l'oreficeria e della scultura*.
- 1568 Daniele Barbaro wrote a treatise on perspective, amongst several other titles, including his famous commentaries on Vitruvius.⁴¹⁹
- 1570 Andrea Palladio's *Quattro libri dell'architettura*.
- 1580 Cristoforo Sorte wrote his *Osservazioni della pittura*.
- 1584 Paolo Lomazzo's first treatise, that borrowed a great deal from Leonardo's manuscripts. This was the *Trattato dell' Arte de la Pittura*,⁴²⁰ which spread Leonardo's ideas almost seventy years before the first printed edition of the *Trattato della pittura*.
- 1584 The *Il Riposo* of Raffaello Borghini - the third and fourth books contain 'Lives'.
- 1586 Giovan Battista Armenini's *De veri precetti della pittura*.⁴²¹

⁴¹⁸ 1508/10-1568.

⁴¹⁹ R.Wittkower, 1973, *Architectural Principles in the Age of Humanism*, London: Academy Editions, p.66.

⁴²⁰ Lomazzo's *Trattato dell'Arte della Pittura* was a large work of 700 pages. It was translated by Richard Haydocke and published in Oxford in 1598. Haydocke approached Richard Hilliard to write on illuminating, or limning, and the resultant treatise appears to be a summary of Lomazzo's *Trattato*. See M.Barasch, 1985, *Theories of Art from Plato to Winckelmann*, New York: N.Y.University Press, p.272.

⁴²¹ On page 132 he refers to Leonardo's small drawings as superior to anything else in science and wisdom. Also see M. Barasch, 1985, *Theories of Art from Plato to Winckelmann*, New York: N.Y.University Press, p.240.

1590 Paolo Lomazzo then wrote the *Idea del tempio della pittura*.⁴²²

In this list there are those who preceded Leonardo and influenced him, there are his contemporaries and friends, his students, those that borrowed from him, and those who were later influenced by his work. The greatest omission is Leonardo himself.

It was in 1568 that Francesco Melzi compiled the complete version of Leonardo's *Treatise of Painting* which was then lost until 1640, and published in 1817. It was only in 1651 that Leonardo's abridged *Treatise of Painting* first appeared in Italian and French in the Du Frêne editions, more than 130 years after his death.

⁴²² The *Idea dell'Tempio della Pittura* is really a short version of his ideas in the *Trattato dell'Arte de la Pittura*.

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